

यू.जी.सी.-डी.ए.ई. वैज्ञानिक अनुसंधान संकुल

(यू.जी.सी. का स्वायत्त संस्थान)

UGC-DAE CONSORTIUM FOR SCIENTIFIC RESEARCH

(An Autonomous Institution of UGC)

वार्षिक विवरण

Annual Report

2025-2026



विश्वविद्यालय परिसर, खंडवा रोड, इंदौर-452001

University Campus, Khandwa Road, Indore 452001

www.csr.res.in

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UGC-DAE Consortium for Scientific Research

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पो. आ. : सैनिक स्कूल, सचिवालय मार्ग, गजपति नगर,
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Scientist in-Charge: **Prof. T. Som**

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विषय सूची

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GOVERNING COUNCIL COMMITTEE (As on 31/03/2026)

S.No.	NAME	DESIGNATION
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Chairperson

1.	Dr. Vineet Joshi President	Chairperson, UGC, New Delhi
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Ex-Officio Members

2.	Dr. Anil Kakodkar Chairman, Governing Board, UGC-DAE CSR	Chairman, Rajiv Gandhi Science & Technology Commission and Former Chairman, Atomic Energy Commission
3.		Vice-Chairman, UGC, New Delhi
4.	Dr. Ajit Kumar Mohanty	Chairman AEC & Secretary DAE or nominee
5.	Prof. Manish R. Joshi	Secretary, UGC, New Delhi
6.	Prof. Abhay Karandikar	Secretary, DST or nominee
7.	Dr. (Mrs.) N. Kalaiselvi	Director General, CSIR or nominee
8.	Dr. Rajiv Bahl	Director General, ICMR or nominee
9.	Dr. Mangi Lal Jat	Director General, ICAR or nominee
10.	Dr. Rakesh Singhai	Vice-Chancellor, DAVV, Indore
11.	Shri Vivek Bhasin	Director, BARC, Mumbai
12.	Shri V.P. Bhanage	Director, RRCAT, Indore
13.	Dr. Smt. Vaishali Naik	Director, VECC, Kolkata
14.	Shri Sreekumar G Pillai	Director, IGCAR, Kalpakkam
15.	Prof. S. Ramakrishnan	Chairman, SAC, UGC-DAE CSR & Distinguished Professor Emeritus and Raja Ramanna Fellow, IISER Pune
16.	Prof. Kaustubh R.S. Priolkar Member Secretary	Director, UGC-DAE CSR, Indore

Nominated Members in the Governing Council

17.	Dr. Jaya Prakash Yadav	Vice Chancellor, Indira Gandhi University, Rewari, Haryana
18.	Prof. Amitava Patra	Senior Professor, IACS, Kolkata

As Nominated Members in the Governing Board

19.	Prof. Umesh V. Waghmare	President, JNCASR, Bengaluru.
20.	Prof. Sachidananda Mohanty	Commission Member, UGC and former Vice-Chancellor, Central University of Odisha.
21.	Prof. Rajeev Ahuja	Director, IIT Ropar
22.	Prof. Nagesh K. Thakur	(Former Commission Member, UGC) Department of Physics, Himachal Pradesh University, Shimla
23.	Prof. (Dr.) Mohanan Kunnum-mal	Vice Chancellor, Kerala University of Health Sciences, Medical College, PO Thrissur, Kerala
24.	Prof. Ramesh Chandra Deka	Vice Chancellor, Cotton University, Guwahati
25.	Dr. Jajati Kesari Nayak	SO(G), VECC, Kolkata
26.	Prof. R. K. Tiwari	Sr. Scientist, College of Agriculture, Rewa, Madhya Pradesh
27.	Dr. Suvarna Fadnavis	Scientist-F, Indian Institute of Tropical Meteorology, Pune
28.	Dr. Jitendra Kumar Tripathi	Joint Secretary, International Cooperation Bureau Head (IUC), UGC, New Delhi

GOVERNING BOARD COMMITTEE (As on 31/03/2026)

S.No.	NAME	DESIGNATION
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Chairperson

1.	Dr. Anil Kakodkar	Chairman, Rajiv Gandhi Science & Technology Commission, Former Chairman, Atomic Energy Commission
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Ex-Officio Members

2.	Dr. Ajit Kumar Mohanty	Chairman AEC & Secretary DAE, Mumbai
3.	Dr. Rakesh Singhai	Vice-Chancellor, DAVV, Indore
4.	Prof. Manish R. Joshi	Secretary, UGC, New Delhi
5.	Shri. Vivek Bhasin	Director, BARC, Mumbai
6.	Shri V.P. Bhanage	Director, RRCAT, Indore
7.	Dr. Smt. Vaishali Naik	Director, VECC, Kolkata
8.	Shri Sreekumar G Pillai	Director, IGCAR, Kalpakkam
9.	Prof. S. Ramakrishnan Chairman, SAC, UGC-DAE CSR	Distinguished Professor Emeritus and Raja Ramanna Fellow, IISER Pune
10.	Prof. Kaustubh R.S. Priolkar Member Secretary	Director, UGC-DAE CSR, Indore

Nominated Members

11.	Prof. Umesh V. Waghmare	President, JNCASR, Bengaluru
12.	Prof. Sachidananda Mohanty	Commission Member, UGC and former Vice-Chancellor, Central University of Odisha.
13.	Prof. Rajeev Ahuja	Director, IIT, Ropar
14.	Prof. Nagesh K. Thakur	(Former Commission Member, UGC) Department of Physics, Himachal Pradesh University, Shimla, Himachal Pradesh
15.	Prof. (Dr.) Mohanan Kunnum-mal	Vice Chancellor, Kerala University of Health Sciences, Medical College, PO Thrissur, Kerala
16.	Prof. Ramesh Chandra Deka	Vice Chancellor, Cotton University, Guwahati
17.	Dr. Jajati Kesari Nayak	SO(G), VECC, Kolkata
18.	Prof. R. K. Tiwari	Sr. Scientist, College of Agriculture, Rewa, Madhya Pradesh
19.	Dr. Suvarna Fadnavis	Scientist-F, Indian Institute of Tropical Meteorology, Pune
20.	Dr. Jitendra Kumar Tripathi	Joint Secretary, International Cooperation Bureau Head (IUC), UGC, New Delhi

FINANCE COMMITTEE (As on 31/03/2026)

S.No.	Name	Designation
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Chairperson

1.	Dr. Anil Kakodkar Chairperson of Governing Board	Chairman, Rajiv Gandhi Science & Technology Commission Former Chairman, Atomic Energy Commission
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Ex-Officio Members

2.	Prof. Manish R. Joshi	Secretary, UGC, New Delhi
3.	Shri Sudeep Singh Jain	Financial Advisor, UGC, New Delhi
4.	Dr. Jitendra Kumar Tripathi	Joint Secretary & Bureau Head (IUC) UGC, New Delhi
5.	Dr. Rajeev Rawat	Centre Director (officiate), Indore Centre of UGC-DAE CSR
6.	Dr. P. D. Babu	Centre Director, Mumbai Centre of UGC-DAE CSR
7.	Dr. S. S. Ghugre	Centre Director, Kolkata Centre of UGC-DAE CSR
8.	Dr. R. Awadesh Mani Tiwari	Centre-Director/Scientist-in-Charge, Kalpakkam Centre of UGC-DAE CSR
9.	Prof. Kaustubh R.S. Priolkar Member Secretary	Director, UGC-DAE CSR, Indore
10.		Bureau Head, PLAN Budget, UGC.

Nominated Members

11.	Prof. Arvind Kumar	Former Dean, Atal Bihari Vajpayee School of Management & Entrepreneurship, Jawaharlal Nehru University, New Delhi
12.	Shri V.P. Bhanage	Director, RRCAT, Indore

13.	Shri. Rajeev Bhagwat Non-member Secretary	A.O.-II (Officiating), UGC-DAE CSR
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SCIENTIFIC ADVISORY COMMITTEE (As on 31/03/2026)

S.No.	Name	Designation
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Chairperson

1.	Prof. S. Ramakrishnan	Distinguished Professor Emeritus and Raja Ramanna Fellow, IISER Pune
----	-----------------------	--

Nominated Members

2.	Prof. Karuna Kar Nanda	Director, Institute of Physics, Bhubaneswar
3.	Dr. R. Divakar	Group Director, Metallurgy and Materials Group (MMG), IGCAR, Kalpakkam
4.	Prof. Satyajit Saha	DAE Raja Ramanna Fellow, SINP, Kolkata
5.	Prof. S.V. Chiplunkar	Former Director, ACTREC, Tata Memorial Centre, Kharghar, Navi Mumbai
6.	Prof. D. Narayana Rao	DAE Raja Ramanna Fellow and UGC BSR Faculty Fellow, School of Physical Sciences, Central University of Hyderabad, Hyderabad
7.	Prof. K. G. Suresh	Department of Physics, IIT Bombay, Mumbai

Ex-Officio Members

8.	Shri Vivek Bhasin	Director BARC, Mumbai
9.	Shri V.P. Bhanage	Director, RRCAT, Indore
10.	Dr. Smt. Vaishali Naik	Director, VECC, Kolkata
11.	Shri Sreekumar G Pillai	Director, IGCAR, Kalpakkam
12.	Dr. Rajeev Rawat	C-D (Officiate), Indore Centre of UGC-DAE CSR
13.	Dr. P. D. Babu	C-D, Mumbai Centre of UGC-DAE CSR
14.	Dr. S. S. Ghugre	C-D, Kolkata Centre of UGC-DAE CSR
15.	Dr. Awadesh Mani Tiwari	Centre-Director/Scientist-in-Charge, Kalpakkam Centre of UGC-DAE CSR

Invited Member

16.	Dr. T. Som	Scientist-in-Charge, Bhubaneswar Node
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Ex-Officio Member Secretary

17.	Prof. Kaustubh R.S. Priolkar	Director, UGC-DAE CSR, Indore
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USER'S COMMITTEE (As on 31/03/2026)

Indore Centre

S.No.	Name	Designation & Affiliation
-------	------	---------------------------

Chairperson

1.	Prof. Kaustubh R.S. Priolkar	Director, UGC-DAE CSR
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Convener

2.	Dr. Rajeev Rawat	Centre-Director (officiate), UGC-DAE CSR Indore Centre
----	------------------	--

Members

3.	Dr. M.H. Modi	SOH, RRCAT, Indore
4.	Dr. L.S. Sharatha Chandra	SOF, FELUS, RRCAT, Indore
5.	Prof. M.V. Rama Rao	Department of Physics, ITER, Addl. Director (IR&UoP) Siksha 'O' Anushandhan, Bhubaneshwar.
6.	Prof. S.N. Kane	School of Physics, D.A.V.V., Indore
7.	Prof. Mohd. Ikram	Department of Physical, NIT, Srinagar
8.	Prof. Dhanvir Singh Rana	Department of Physics, IISER, Bhopal

Kolkata Centre

S.No.	Name	Designation & Affiliation
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Chairperson

1.	Prof. Kaustubh R. S. Priolkar	Director, UGC-DAE CSR
----	-------------------------------	-----------------------

Convener

2.	Dr. Sandeep S. Ghugre	Centre-Director, UGC-DAE CSR Kolkata Centre
----	-----------------------	---

Members

3.	Dr. Tilak Kumar Ghosh	Scientific Officer-G, VECC, Kolkata
4.	Dr. Gayathri N. Banerjee	Scientific Officer-H, VECC, Kolkata
5.	Prof. Sanghamitra Sengupta	Professor, Dept. of Biochemistry, University of Calcutta
6.	Prof. Partha Roy	Professor, Dept. of Chemistry, Jadavpur University
7.	Prof. Rajdeep Chatterjee	Senior Professor, Dept. of Physics, IIT-Roorkee
8.	Prof. Debnarayan Jana	Professor, Dept. of Physics, University of Calcutta

Mumbai Centre

S.No.	Name	Designation & Affiliation
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Chairperson

1.	Prof. Kaustubh R. S. Priolkar	Director, UGC-DAE CSR
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Convener

2.	Dr. P. D. Babu	Centre-Director, UGC-DAE CSR, Mumbai Centre
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Members

3.	Dr. Mala N. Rao	SO-H, Solid State Physics Division, BARC
4.	Dr. Debasis Sen	SO-H, Solid State Physics Division, BARC
5.	Prof. Vikas Laxman Mathe	Professor, Physics Department, SP Pune University
6.	Prof. Pritam Deb	Professor, Physics Department, Tezpur University
7.	Prof. Basavaraj R. Angadi	Professor, Department of Physics, Bangalore University
8.	Prof. Sugata Ray	Senior Professor, School of Materials Sciences, IACS, Kolkata

Kalpakkam Centre

S.No.	Name	Designation & Affiliation
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Chairperson

1.	Prof. Kaustubh R.S. Priolkar	Director, UGC-DAE CSR
----	------------------------------	-----------------------

Convener

2.	Dr. Awadesh Mani Tiwari	Scientist-in-Charge, UGC-DAE CSR Kalpakkam Centre
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Members

3.	Prof. Somnath Chanda Roy	Department of Physics, IIT Madras
4.	Prof. Anuradha M. Ashok	Department of Physics, PSG Institute of Advanced Studies
5.	Prof. P. Ravindran	Department of Physics, Central University of Tamil Nadu
6.	Prof. Devaraj Nataraj	Department of Physics, Bharathiar University, Coimbatore
7.	Dr. Sharat Chandra	Head, Materials Modeling Section, Defects and Damage Studies Division, Materials Science Group, IGCAR



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»»» Director's Message

The year 20252026 has been a period of significant progress and renewed momentum for the UGC-DAE Consortium for Scientific Research, marked by strategic expansion, enhanced user engagement, and a continued commitment to strengthening the interface between DAE facilities and the university research community.

A major milestone during the year has been the signing of the Memorandum of Understanding (MoU) to operationalize the Kalpakkam Centre at Indira Gandhi Centre for Atomic Research (IGCAR). I thank Shri C. G. Karhadkar, the then Director, IGCAR and Dr. Awadesh Mani Tripathi, Scientist-in-charge, Kalpakkam Centre for their cooperation. With the signing of MoU, we hope to facilitate improved access for university researchers to advanced materials research infrastructure at Kalpakkam Centre. In a similar spirit of expanding access, we are pleased to note that the ion accelerator facility at the Institute of Physics (IOP), Bhubaneswar, will soon be made available to university users through our Bhubaneswar node, thereby opening new avenues for accelerator-based research.

In commemoration of the birth centenary of our Founder Director, Prof. V. G. Bhide, the Consortium instituted the Prof. V. G. Bhide Memorial Lecture Series. This initiative is aimed at bringing distinguished scientists from India and abroad into direct interaction with students and faculty, fostering intellectual exchange and enhancing the academic visibility of the Consortium. The inaugural lecture in this series was delivered by Prof. D. D. Sarma, National Science Chair Professor, setting a high benchmark for future engagements.

Infrastructure development has also received a strong impetus. University Grants Commission has

approved funding for the construction of a new building for the Mumbai Centre at New Panvel, Navi Mumbai. This upcoming facility will house state-of-the-art laboratories, including the proposed atomic resolution transmission electron microscopy facility supported by BARC, significantly strengthening advanced characterization capabilities available to users.

Capacity building and academic outreach have remained central to our mandate. During the year, we successfully organized the 21st School on Neutron Scattering as a Probe of Condensed Matter in collaboration with the Solid State Physics Division (SSPD), BARC. Plans are underway for the Annual Synchrotron School in cooperation with RRCAT, Indore. In addition, thematic workshops and focused discussion meetings were conducted with the support of VECC, Kolkata to promote effective utilization of national facilities, including sessions on the new Superconducting Cyclotron and accelerator-based research opportunities.

I am particularly pleased to highlight the strong publication output associated with the Consortium. Notably, the number of publications acknowledging the use of Consortium facilities has continued to surpass those authored directly by Consortium scientists. This is a testament to the sustained efforts of our scientific and technical staff in capacity building, user support, and outreach to universities and research institutions across the country.

To further enhance our experimental capabilities, several advanced instruments including Nuclear Magnetic Resonance (NMR) spectrometer, Transmission Electron Microscope (TEM), Single Crystal and Laue Diffractometers, and Variable Angle Surface Ellipsometry setups have been ordered and

will be operational in the coming year. We are also in a process of setting up pump-probe spectroscopy beamline at the recently commissioned infrared free electron laser (IR-FEL) at RRCAT, Indore. These additions will ensure that our users have access to state-of-the-art facilities necessary for cutting-edge research.

Our scientists have brought immense pride to the institution through their awards and honours, with the most notable highlight being the conferment of the prestigious Fellowship of the National Academy of Sciences, India (NASI), Allahabad, upon Dr. Sandeep S. Ghugre and Dr. V. R. Reddy.

I wish to record with deep sorrow the passing of

Dr. B. A. Dasannacharya, former Director of the UGC-DAE Consortium for Scientific Research. His distinguished leadership and invaluable contributions greatly strengthened the Consortium, and his legacy will continue to inspire future generations.

As we look ahead, the Consortium remains committed to its core mission of enabling high-quality research through access to DAE and in-house facilities, fostering collaborations, and nurturing the next generation of scientists. The achievements of this year reaffirm our role as a vital bridge between large-scale scientific infrastructure and the academic community in India.

Kaustubh R. S. Priolkar

Snippets from Annual Day 2025

Prof. U.V. Waghmare, Chief Guest, delivering the Annual Day Lecture at Bhide Hall.



Prof. K.R.S. Priolkar, Director, UGC-DAE CSR presenting mementoes to the Chief Guest Prof. U.V. Waghmare, President, JNCASR, Bengaluru and the Guest of Honour, Prof. Rakesh Singhai, Vice-Chancellor, DAVV, Indore.



Research Scholars presenting their research work during the poster session.

Signing of MoU on the formation of the Kalpakkam Centre



The memorandum of understanding (MoU) of the formation of the Kalpakkam Centre was signed between the IGCAR and the UGC-DAE CSR on 12th September 2025 by their respective directors Prof. Kaustubh R. S. Priolkar and Shri C. G. Karhadkar. This event marked a significant milestone as the Kalpakkam Node, established more than 15 years ago, is elevated to a Centre of the UGC-DAE CSR. The function was graced by the presence of Dr. V. Jayaraman, OS and Group Director MCMFCG, IGCAR; Dr. Vasant Sathe, CD Indore Centre; and Dr. Awadhesh Mani, Scientist In-Charge, Kalpakkam Centre.

A Meeting on Advances in Condensed Matter Physics - 2025

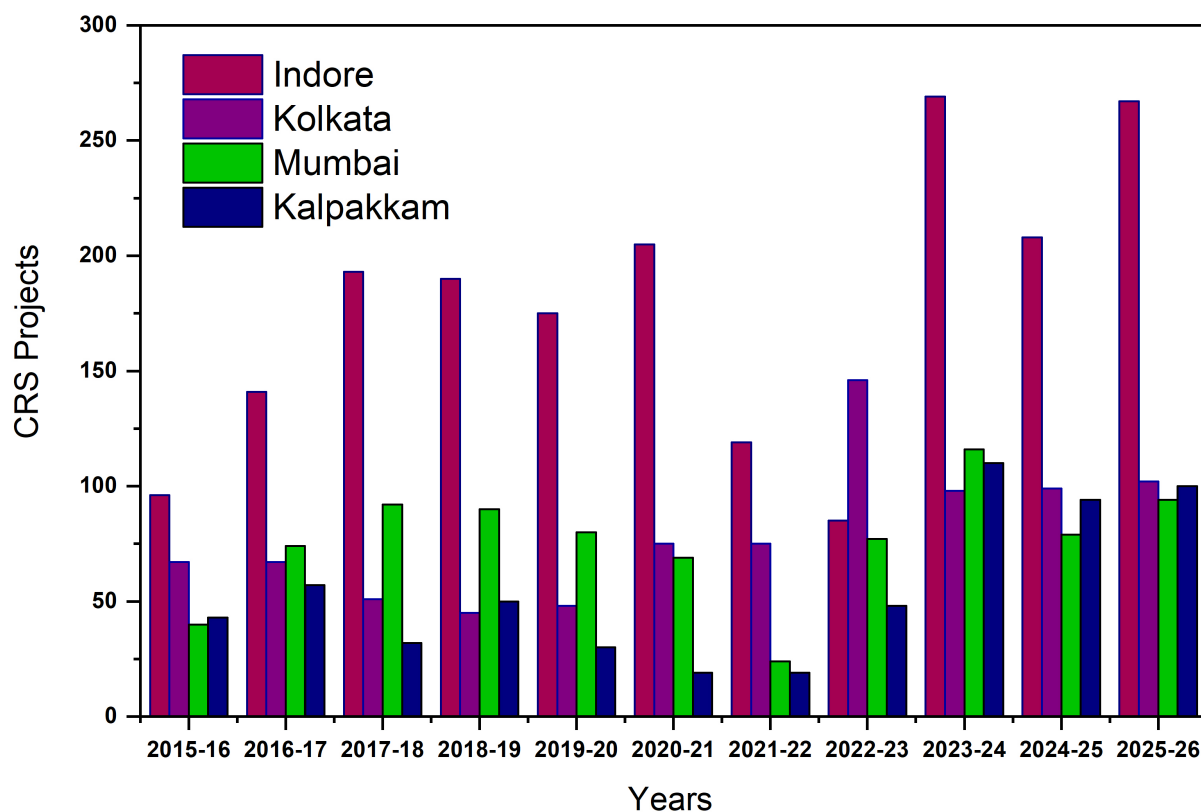


Group photo of participants during the Advances in Condensed Matter Physics - 2025 conference held during December 26-28, 2025 at Indore Centre.

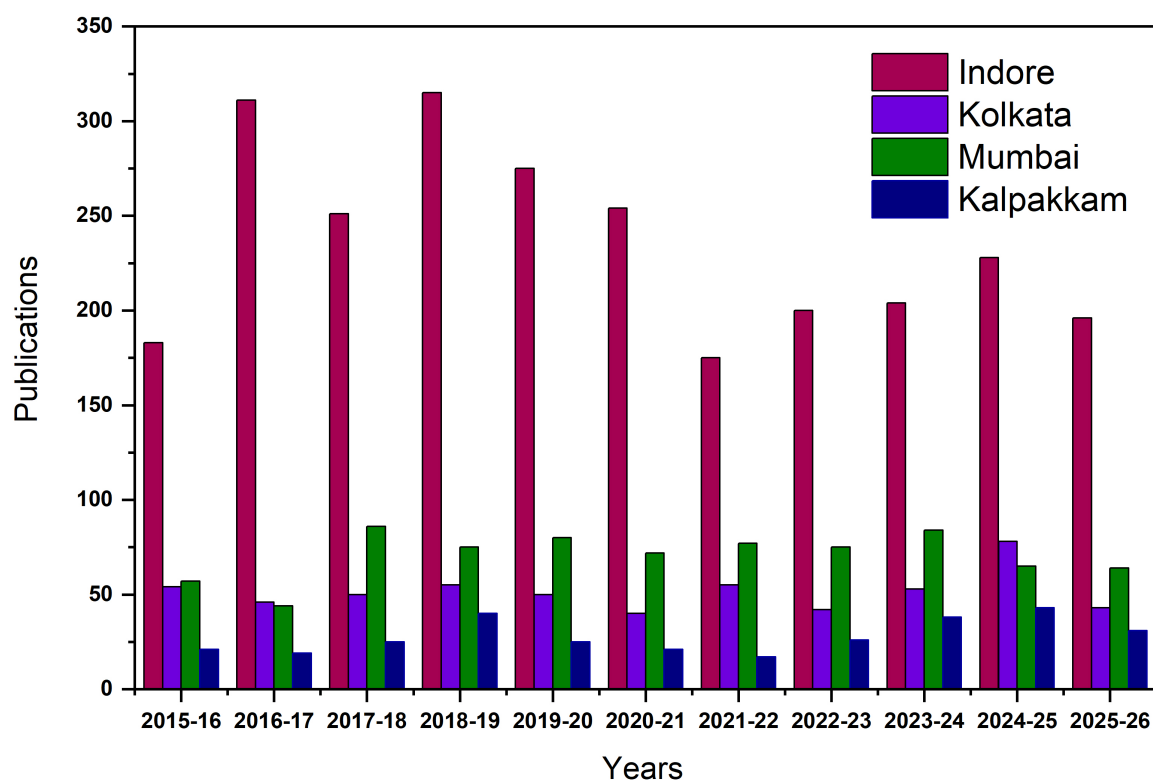
NASI Awardees - 2025



(Top) Dr. Sandeep S. Ghugre , Centre-Director, UGC-DAE CSR, Kolkata and (bottom) Dr. V.R. Reddy, Scientist-H, Centre-Director, UGC-DAE CSR, Indore, receiving the National Academy of Sciences of India, Allahabad on 09/12/2025.



Collaborative Research Schemes sponsored by UGC-DAE CSR.



In-House and Collaborative Research publications of UGC-DAE CSR.

Indore Centre



**DR. RAJEEV RAWAT**

Centre Director (Officiate)

Indore Centre

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Indore-452001, M.P. India.

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Centre Director's Message

Namaskar. Indore Centre of UGC-DAE Consortium provides access to experimental facilities at INDUS-I and INDUS-II synchrotron sources at RRCAT, Indore and in-house facilities. Apart from BL-2 at INDUS-I and BL-1 at INDUS-II, this year we were also responsible for managing user program at BL-13 beamline of SINP, Kolkata at INDUS-2. About 135 experimental proposals were accomplished on these beamlines. In-house facilities of the Consortium offer extensive materials characterization and thin film preparation techniques. The experiments offering low temperature and high magnetic field depends on cryogen facility, which has produced 60 thousand litre liquid Helium and 70 thousand litre liquid nitrogen. The completion of about 1000 experimental proposals on in-house facilities shows our commitment to the Consortiums mandate.

In addition to user program, Indore Centres faculty also have their own research program in the area of topological materials, 2D-materials, multiferroic and functional materials. During the period of this report about 200 in-house publications and PhD were produced from Indore Centre. Many of our faculty and students received awards and recognition at national and international events. One of the proud moments for the Indore Centre was Dr. V R Reddy, Scientist-H being elected as the fellow of National Academy of Sciences India, Allahabad.

Among new directions, RRCAT has agreed to provide a dedicated port and space to establish experimental station at Free Electron Laser (FEL) facility. Indore Centre has started the process of establishing the experimental facilities at this port. During this year, commissioning of couple of custom-made sputtering systems is expected to provide boost to research activity in thin-film heterostructures. The efforts to strengthen the single crystal processing

and nano-lithography are also expected to show output from next year. We are also looking forward for the commissioning of a new TEM.

At present, Indore Centre supports 221 long-term projects under the Collaborative Research Scheme (CRS). To further spread awareness about research facilities of the Consortium, Indore Centre conducted an online awareness workshop with Department of Physics and Astrophysics, DU, Delhi and Central University of Punjab, Bathinda. More than 100 participants primarily from northern and central India attended the workshop. With the initiative of our Director, Prof. V.G. Bhide Memorial Lecture has been initiated to commemorate the birth centenary of our founding director Prof. V.G. Bhide. A meeting on advances in condensed matter physics (ACMP-2025), which was conducted during 26-28 Dec 2025 at Indore, saw an impressive gathering of alumni of Indore Centre. Their work and progress provided inspiration, encouragement to the participants in the audience.

Indore Centre bid heartfelt farewell to Prof. Amlan J Pal, Director and Dr. Vasant Sathe, Centre Director, Indore Centre in this year. Under their leadership, Indore Centre recovered from Covid disruption, saw a steady growth in the number of Collaborative Research Schemes. Prof. Pal was instrumental in signing of the MoU with SINP, Kolkata for user program management at BL-13 at RRCAT, Indore. During their tenure, Indore centre hosted a few prestigious events, e.g. two international conferences (ICOPVS-2022 and IUMRS-ICA 2024) and Engineer's conclave 2023. Apart from academic growth, they will also be remembered for the inauguration of a new guest house building and initiation of regular sports events for Indore Centres staff and students.



DR. RAJIB BATABYAL

Scientist-D

Email: rajibbata@csr.res.in

Research Interests: Topological phases of matter, Magnetic topological insulator - superconductor heterostructures, Charge density wave, Surface, and Nanoscale Physics.

Group members: (1) Mrinal Manna, (2) Soumen Giri, (3) Mohammad Balal

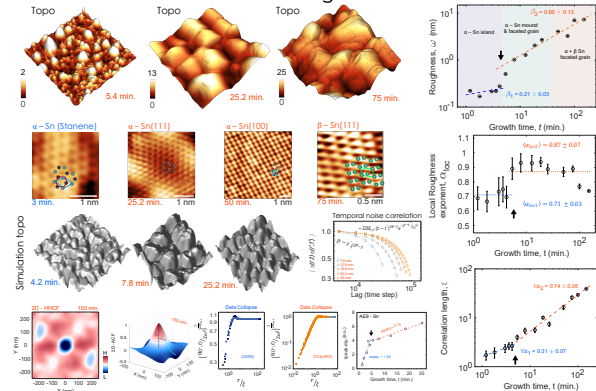
Facilities: (1) Scanning tunnelling microscope (STM), (2) X-ray photo emission spectroscopy (XPS)

►►► In-house Research Highlights

► Escape-Induced Temporally Correlated Noise Driven Universality Crossover

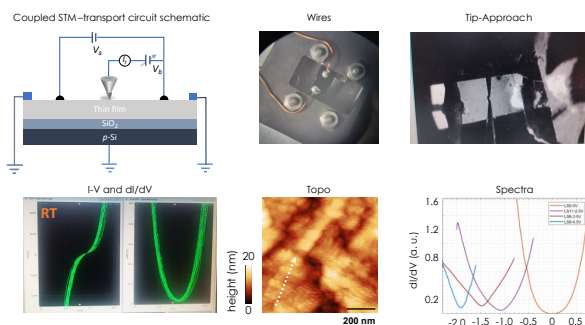
We report atomically resolved Sn thin-film growth on Sb-doped MnBi_2Te_4 , revealing a sharp dynamical crossover between two fundamentally different regimes. Early-stage growth follows Villain-Lai-Das Sarma (VLDS) scaling, forming two-dimensional islands and stanene layers. Beyond a critical deposition time, temporally correlated noise becomes the dominant factor, driving the nucleation of α -Sn clusters, their development into faceted grains, and the coexistence of faceted β -Sn. Molecular dynamics simulations and Auger electron spectroscopy reveal that adatom escape serves as the microscopic origin of this temporally correlated noise, offering a mechanism for the observed universality crossover. These

findings establish, for the first time, that temporal noise correlations can fundamentally alter the universality class of a growing interface, linking atomistic kinetics to emergent universal behavior.



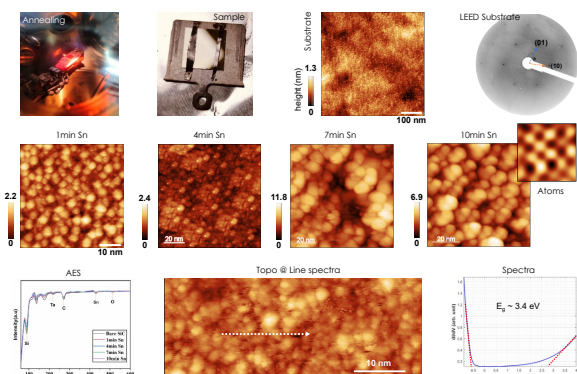
►►► Collaborative Research Activities

► Non-Equilibrium STM and STS Under Applied External Field



We have developed a method that enables simultaneous STM and STS measurements under an externally applied electric field or with active current flow. This provides direct access to the evolution of the local electronic structure under external fields. Selected results demonstrate its capabilities.

► Sequential Growth and Characterization of Sn Nanostructures on SiC

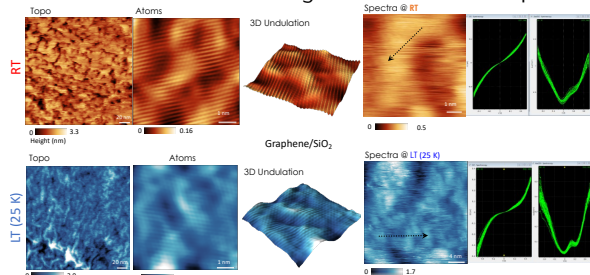


Sn nanostructures were grown sequentially on SiC. Their morphology and local electronic properties were probed by STM/STS, while LEED and AES were used to monitor surface order and composition. This combined approach enables a concise correla-

tion between growth evolution, structure, and electronic properties.

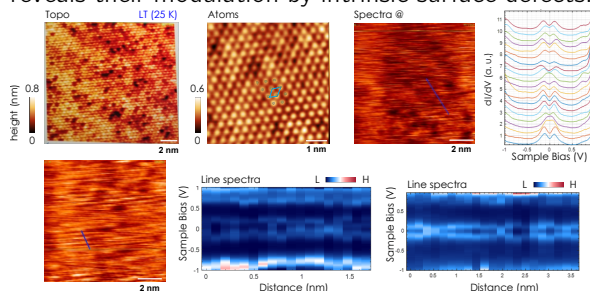
► Study of Graphene on SiO₂ at RT and LT

We investigated graphene grown on SiO₂ at RT and LT, focusing on its local atomic structure and spectroscopic characteristics. The study enables a direct comparison of temperature-dependent growth effects on structural ordering and electronic response.



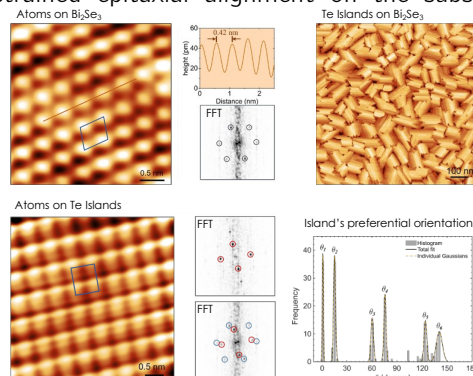
► Atomic-Scale Electronic Structure of Ferromagnetic Layered Materials

We probe surfaces of ferromagnetic layered materials at RT and LT, resolving atomic structure and local density of states. Pronounced features near the Fermi level indicate emergent low-energy electronic states. Spatially resolved STS reveals their modulation by intrinsic surface defects.



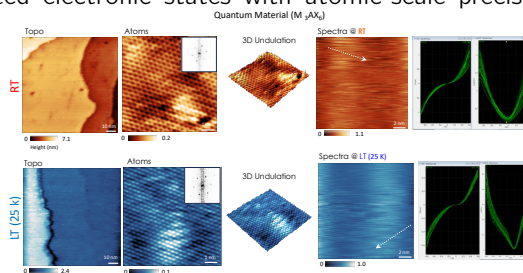
► Te Nanoislands on Bi₂Se₃

We employ STM to resolve Te nanoislands on Bi₂Se₃ at atomic length scales. The islands exhibit pronounced rectangular elongation and statistical analysis reveals two distinct orientational families, reflecting symmetry-constrained epitaxial alignment on the substrate.



► Atomic-Scale Structure and Electronic Properties of M₃AX₆

We investigated the surface of M₃AX₆ at room and low temperatures, resolving the atomic lattice and local electronic structure. The measurements establish the surface structures and associated electronic states with atomic-scale precision.



►►► Other Information

► Publications

- Strain-driven structural ordering in tellurium films grown on Bi₂Se₃, J. Sharma et. al., Appl. Surf. Sci. 739, 166974 (2026).
- Ultraflat multilayer stanene on Ni (111), P. Bhakuni et. al., Surfaces and Interfaces 91, 109180 (2026).
- Kramers nodal line in the charge density wave state of YTe₃ and the influence of twin domains, S. Sarkar et. al., Phys. Rev. B 113, 035129 (2026).
- Escape-Induced Temporally Correlated Noise Driven Universality Crossover, M. Manna and S. Mukherjee et. al., arXiv:2510.12593, Under Review, (2025).



DR. R. J. CHOUDHARY

Scientist-H

Email: ram@csr.res.in

Research Interests: Electronic and magnetic properties of transition metal oxides thin films and heterostructures.

Group members: (1) Mr. Suresh Bhardwaj, J.Eng-F (2) Mr. Avinash Wadikar, J. Eng.-F (3) Mr. Manoj Kumar, Jr. Eng.-F (4) Mr. Sharad Karwal, Jr. Eng. E

Research Scholars: Mr. Shivam Choudhary, Mr. Subho Saha, Mr. Rajan Mishra, Ms. Bharati Ojha, Mr. Yogesh Yadav, Ms. Bharathi Palthya, Mr. Samraj Viswanathan

Total Ph.Ds awarded: 18

Facilities: (1) RHEED assisted PLD (2) SQUID-VSM (3) AIPES beam line BL2 @ Indus-1 SRS, RRCAT, Indore (4) 9T Magneto-dielectric (5) DSC (6) Table-top Bruker XRD

►►► In-house Research Highlights

► Orbital driven switching of electronic phases in V_2O_3 thin films

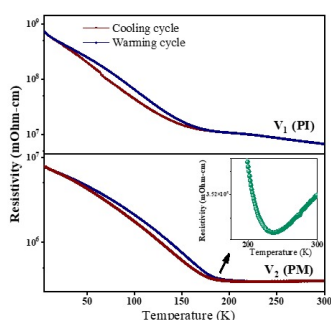


Figure 1: Temperature dependence of resistivity under cooling and warming cycles in PI and PM phases of V_2O_3 thin films.

The exploration of electronic correlations and orbital occupancy across the metal-insulator transition in a prototype V_2O_3 system provides valuable insights into the fundamental physics. It also enables the control and enhancement of material functionality, which holds immense importance for diverse technological applications. We have explored the essential role of trigonal distortion together with the orbital distributions in iso-structural paramagnetic metal (PM) and paramagnetic insulating (PI) phases of V_2O_3 films.

Our investigation revealed an intriguing enhance-

ment in electronic correlations and orbital switching across the PM to PI phases in V_2O_3 . Importantly the PM state demonstrates electron occupation preference in orbitals perpendicular to the film plane, while the PI state reveals a switch in electron occupation preference within the plane of V_2O_3 thin film, indicating an intriguing orbital switching from PM to PI state. These findings deepen the understanding for tailoring the materials properties and promises for advancing material design. [Ref.: Sophia et al. J. Phys. Cond. Matt. **38** 105601 (2026)].

► Temperature dependent charge disproportionation in $BaBiO_3$

We probe the temperature dependent electronic structure and charge disproportionation in $BaBiO_3$ by recording the temperature dependent core level spectra and valence band spectra. Room temperature resonant photoemission spectroscopy and VBS analysis reveal the appearance of oxygen 2p states near the Fermi level, divulging the covalent insulating character of BBO at room temperature. However, at lower temperature $\sim 150K$, we observe changes in the electronic structure, which point out towards its shift in the electronic state from room temperature covalent insulator to enhanced ionic character at lower temperature. These studies yield valued insights into the development of charge fluctuations among the Bi ions.

►►► Collaborative Research Activities

► Annealing induced enhanced magnetic properties of $Co_{35}Cr_5Fe_{10}Ni_{30}Al_{20}$ high entropy alloy

The effect of annealing on the structural, electronic and magnetic properties of $Co_{35}Cr_5Fe_{10}Ni_{30}Al_{20}$ high entropy alloy has been-

probed with the help of photoemission spectroscopy and X-ray magnetic circular dichroism measurements. It is observed that while the as prepared sample reveals the major fcc phase formation, minor bcc phase along with σ phase are also observed. After annealing the sample at 700°C for 2h, the bcc phase dominates over the fcc phase. This also leads to improvement in the M_s value from 51 to 110 emu/g. The VBS showed an increased spectral intensity near the Fermi level for the annealed HEA, suggesting enhanced DOS near the Fermi level. XMCD analysis revealed that Fe, Co, and Ni exhibit significant magnetic moments, showing increased magnetic moments after annealing. The total magnetic moment for Fe, Co, and Ni increases drastically, indicating stronger magnetic interactions due to the changes in local atomic arrangements. Ref: Priyanka Kumari et al. J. Appl. Phys. **139**, 015103 (2026) (Central University of South Bihar, Gaya, India).

► Magneto-Transport and Flux Pinning in $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}/\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$ Thin Films

The electrical properties of PLD grown c-axis-oriented $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ (YBCO) and

YBCO/ $\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$ (LSMO) films on LaAlO_3 (LAO) are investigated to probe flux pinning dynamics in superconducting/ferromagnetic oxide heterostructures. XRD reveals tensile strain for YBCO and compressive strain for LSMO layer. Magnetization measurements reveal that the superconducting transition temperature is reduced by ~ 4 K in the YBCO/LSMO/LAO compared to the YBCO/LAO film. $M(T)$ behavior reflects the signatures of YBCO superconductivity and LSMO ferromagnetism. The heterostructure also exhibits substantially enhanced magnetoresistance, highlighting strong interfacial coupling between the superconducting and ferromagnetic layers. The critical current density, evaluated using the extended Bean model, shows a characteristic triple-crossover with magnetic field, arising from modified vortex dynamics driven by interfacial magnetic inhomogeneity. Dew-Hughes analysis indicates dominant δT_{sc} -type point pinning at low temperature, a δ_I -type surface pinning regime at intermediate temperature, and mixed pinning near T_{sc} . In contrast, the single-layer YBCO/LAO film follows the conventional point-surface-volume pinning sequence. Ref.: Bharat Kumar et al. Mater. Today Commun. **52** 114965 (2026) (Deen Dayal Upadhyay Gorakhpur University, Gorakhpur, U.P.)

►►► Other Information

► Invited Talks

- "Strain modulated electronic and magnetic properties of transition metal oxides thin films" at International Conference on Advanced Materials for Sustainable Development and Technology (AMSDT2025), held on November 78, 2025, at Dr. B. R. A NIT Jalandhar.
- "Engineering strain in transition metal oxides thin films for novel applications at National Conference on Recent Research Trends in Advanced Materials and Nuclear Sciences" at National Conference on Recent Research Trends in Advanced Materials and Nuclear Sciences during 2022 November 2025 at Savitribai Phule Pune University, Pune.
- "Engineering strain in transition metal oxides thin films for novel applications" at the International Conference "Smart and Novel Materials for Next Generation" (SNMNG-2025), during 4-6, December 2025 organized by Siksha 'O Anusandhan, Bhubaneswar.
- "Engineering strain in transition metal oxides thin films for novel applications" at International Conference on Advanced Materials, Energy & Environmental Sustainability (ICAMEES 2.0) during 18-19 December, 2025 at UPES, Dehradun.
- "Engineering strain in transition metal oxides thin films for novel applications", at 5th International Conference on "Recent Advances in Material Science and Computational Techniques" (RAMSACT 2025)" during 1820 December, 2025 held at Manipal University, Jaipur.
- "Thin Film Platform for Electronic Applications" at International Conference on Emerging Advancements & Innovations in Sciences (ICEAIS-2026) during 17-18 Feb, 2026 at Holkar Science College, Indore.
- "पतली परत निक्षेपण: अवसर और चुनौतियाँ" at a national seminar on संघारणीय रसायनशास्त्र में अभिनव उन्नति और भारतीय भाषाओं में तकनीकी शब्दावली की भूमिका during 28-29 November 2025 held at S.S. Jain Subodh P.G. College, Jaipur.
- "Room Temperature Giant Inverse Magnetoelectric Effect in Topotactic Phase Transition Material $\text{SrCoO}_{2.5}$ " at IEEE-South Asia Ferroelectric Symposium 2025 during 6-8 August 2025 held at IISc Bengaluru

► Foreign Visits by Faculty and Students

- Dr. R. J. Choudhary and Mr. Rajan Mishra visited Elettra, Trieste, Italy to carry out synchrotron experiments in May 2025.



DR. UDAY DESHPANDE

Scientist-F

Email: uday@csr.res.in

Research Interests: Electronic, Optical properties of metal oxides nanomaterials.

Group members: (1) Ankita Agrawal, (2) Varun Pandey, (3) Mohmad Younis Reshi (4) Sachin Kumar J.Eng-F

Facilities: (1) X-Ray Photoelectron Spectroscopy (XPS), (2) UV-Vis.-NIR, (3) FTIR

►►► In-house Research Highlights

► PEC studies on metal-oxides nanomaterials

Our group is engaged in synthesis of nanomaterials, and study of surface electronic and optical properties in view of their application to photoanodes for hydrogen production. Surface chemical properties are studied using photoelectron spectroscopy, and optical properties using UV-Vis, PL, and FTIR spectroscopy. Manipulating the activity of transition-metal oxide (TMO) catalysts by combining two or more TMOs for their improved performance in photoelectrochemical water splitting is an effective yet challenging strategy. An n-p type heterojunction (α -Fe₂O₃/NiO) photoelectrode is rationally designed and fabricated by successive deposition of NiO and α -Fe₂O₃ on a fluorine-doped tin oxide (FTO) substrate. The as-prepared α -Fe₂O₃/NiO/FTO catalyst exhibits substantially higher activity along with reduced overpotential for the PEC water splitting reaction as compared to pristine NiO or α -Fe₂O₃. Moreover, a 5-fold enhanced current density (75 μ A/cm²) is obtained for the α -Fe₂O₃/NiO/FTO heterojunction thin film as compared to NiO/ α -Fe₂O₃/FTO (16 μ A/cm²) under solar simulated AM 1.5 G light illumination at an applied bias of 1.4 VRHE (Fig. 1 a, b). this makes the order of TMO layers (α -Fe₂O₃/NiO/FTO or NiO/ α -Fe₂O₃/FTO) crucial in their PEC performance because of the variation in their electron hole transport characteristics.

Parveen garg et al., J. Phys. Chem. B 129 (2025) 9134.

Metal oxide photoanodes with oxygen vacancies can have greater electrical conductivity for electrons and

holes which improves its PEC performance. In our work, WO₃ nanosheets were grown using hydrothermal method, and varying concentration of oxygen vacancies were produced by heating in reducing (hydrogen) environment. Their PEC performance was studied for oxygen evolution reaction (OER). Absorption spectrum in NIR region is found to be much sensitive to creation of the vacancies (Fig. 1 c, d).

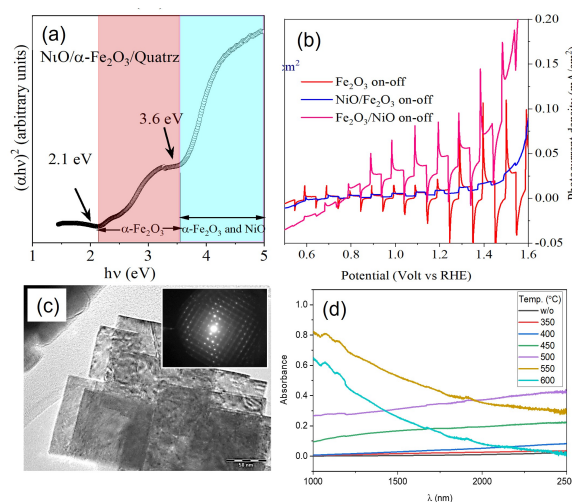


Figure 1: (a) Tauc plot obtained from UV-Vis measurement showing absorption regions resulting from the two components of the heterojunction thin film (b) Photocurrent response of the heterojunction thin film photoanodes during PEC measurements (c) TEM image of WO₃ nanosheets. Inset shows SAED pattern (d) UV-Vis-NIR absorption spectrum of the nanosheets in NIR region..

Collaborative Research Activities

Enhancing the photocatalytic water electrolysis performance of Zn_2SnO_4 nanostructures via post-synthesis nitrogen doping

Nitrogen-doped Zn_2SnO_4 nanostructures were developed via hydrothermal treatment. XPS analysis revealed that higher nitrogen doping concentrations led to the substitutional incorporation of nitrogen. The nanostructure with approximately 1.9 at% nitrogen showed the highest photocurrent density of $124 \mu\text{A cm}^{-2}$ at 1.23 V vs. RHE, representing approximately 2.6-fold improvement in photocurrent compared to that of undoped Zn_2SnO_4 nanostructures. Optimized nitrogen doping resulted in approximately 89% charge injection efficiency along with the lowest charge transfer resistance.

Lokanath Mohapatra et al., nanoscale 17 (2025) 18852

Enhanced oxygen ion conductivity in $\text{Ba}_3\text{W}_{1+x}\text{V}_{1-x}\text{O}_{8.5+x/2}$ ($-0.2 \leq x \leq 0.2$) hexagonal perovskite derivative compounds

In the above hexagonal perovskites with varying oxygen content, the conductivity was found to be significantly higher in W-rich compounds ($x \geq 0$), and the ion mobility was also correspondingly higher. It could be inferred that the compositional dependence of unit cell parameters, particularly a- or b-axis, and the oxygen stoichiometry, play crucial roles in governing the ionic conductivity of these hexagonal perovskite derivatives.

Nitin Kumar et al., Ionics 31 (2025) 2593

Investigating the impact of increasing the $\text{N}_2/(\text{Ar}+\text{N}_2)$ gas flow ratio in the presence of residual oxygen on magnetic properties of reactively sputter-deposited thin films of amorphous AION alloy

At 300 K, the films display superparamagnetic

(SPM) behavior, however, an increase in the $\text{N}_2/(\text{Ar} + \text{N}_2)$ gas flow ratio systematically enhances both the bulk saturation magnetization and the magnetic volume fraction in the films. These findings suggest that oxygen vacancies within the $\text{Al}(\text{NO}_y)_x$ phase play a key role in inducing magnetism in AION films.

Deena Nath et al., J. Phys. Chem. of Solids 207 (2025) 112964

Local structural distortions and thermochromic properties of $\text{Cs}_2\text{NaFeCl}_6$ halide double perovskite

In the present study, we explored temperature-dependent band-gap engineering using UV-Vis spectroscopy and other techniques, leading to reversible thermochromism in the lead-free halide double perovskite of $\text{Cs}_2\text{NaFeCl}_6$. We approached both qualitative and quantitative descriptions of the root cause of the electron-phonon interaction and its effect on the electronic structure of this novel material and its exotic thermochromic behavior by employing comprehensive X-ray diffraction, Raman and X-ray absorption fine structure studies.

Bikash Ranjan Sahoo et al., J. Mater. Chem. A 12 (2025) 33699

Emerging Potential of $\text{Eu}_2\text{O}_2\text{SO}_4$ in Reversible Oxygen Storage: A Comparative Study with $\text{Pr}_2\text{O}_2\text{SO}_4$

A detailed investigation was conducted on a well-studied praseodymium oxysulfate system and the relatively unexplored europium analogue. Detailed XPS analysis of $\text{Eu}_2\text{O}_2\text{S}$ suggests an enhanced surface defect concentration, correlating with faster reoxidation behavior. This comprehensive study elucidates the redox mechanisms in rare-earth oxysulfates and positions $\text{Eu}_2\text{O}_2\text{SO}_4$ as a promising yet under-explored oxygen storage material.

Prathamesh U. Joshi et al., J. Phys. Chem. C 130 (2026) 3400

Other Information

Invited Talks

- "Electronic and optical studies of photoanode: an illustration of facilities at CSR Indore, Refresher course (online), Dept. of Chem., SP Uni., Anand, 25 July 25".
- "Optical and photoelectron spectroscopy, Three days workshop and hands-on training on sophisticated instruments, Dept. of Phys., SP Uni., Anand, 9 Jan. 26".
- "Fundamentals of X-ray Photoelectron Spectroscopy, USIC, SP Uni., Anand, 9 Jan. 26".
- "Iron oxide: A promising low-cost material for water splitting, Int. Conf. on Innovations in Mat. Sci. Res. For Sustainable Future, DOP, B.A.M. Uni., Ch. Sambhajinagar, 5 Feb. 26".
- "Iron oxide: A promising low-cost material for water splitting, National Science Day, DOP, Ch. Sambhajinagar, 28 Feb. 26".



DR. DEVENDRA KUMAR

Scientist-F

Email: deven@csr.res.in

Research Interests: Topological Quantum materials, Superconducting proximity effect, Single crystal growth, Thin films, Low temperature physics

Current Group Members: (1) Nitin Chaudhary (Ph.D Student) (2) Kartik Kumar (Ph.D Student) (3) Abhishek Kumar (Ph.D Student)

Ph.D completed: (1) Dr. Shivam Rathod (2) Dr. Megha Malasi

Facilities: 16T PPMS for resistivity, magnetoresistance, magnetization and thermal expansion

►►► In-house Research Activity

Our group is involved in study of topological quantum materials using Shubnikov-de Haas oscillations and other quantum transport measurements. We grow high quality single crystals and thin films of these materials in our laboratory and utilize the low temperature high magnetic field measurements to probe the Fermi surface topology, topological phase transitions, and quantum transport of topological surface states.

► Large magnetoresistance in electron and hole doped Dirac nodal line semimetal $\text{Ni}_3\text{In}_2\text{S}_2$

Topological semimetal $\text{Ni}_3\text{In}_2\text{S}_2$ hosts endless Dirac nodal lines. The presence of linear band dispersion near the Fermi level results in observation of large magnetoresistance which is highest in the Shandite $\text{Co}_3\text{Sn}_2\text{S}_2$ family of compounds. Theoretical calculations show the existence of band crossing just above and below the Fermi level which presents the opportunity to further optimize the magnetoresistance by electron and hole doping. We hole dope the $\text{Ni}_3\text{In}_2\text{S}_2$ by substituting Co at the Ni site and electron dope it by substituting Sn at the In site. Single crystals of $\text{Ni}_3\text{In}_2\text{S}_2$ exhibits large magnetoresistance of 12000% at 2K and 16 T magnetic field while the magnetoresistance in $\text{Ni}_{2.95}\text{Co}_{0.05}\text{In}_2\text{S}_2$ and $\text{Ni}_3\text{In}_{1.95}\text{Sn}_{0.05}\text{S}_2$ decreases to 940% and 60% at 2 K and 9 Tesla. Our analysis suggests that large magnetoresistance in $\text{Ni}_3\text{In}_2\text{S}_2$ stems from electron hole compensation and large carrier mobilities. The cobalt doping causes a deviation in charge compensation and reduction in carrier mobility due to enhanced electron defect scattering, which reduces the magnetoresistance. In, $\text{Ni}_3\text{In}_{1.95}\text{Sn}_{0.05}\text{S}_2$, electron doping shifts the chemical potential towards the band crossing enhancing the electron mobility but a concurrent change in electron and hole carrier density causes a significant deviation from charge compensation resulting in suppression of magnetoresis-

tance.

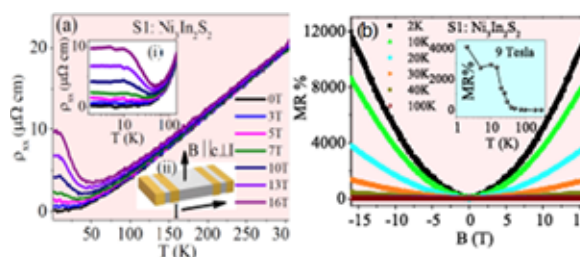


Figure 1: (a) The temperature-dependent resistivity and (b) magnetoresistance versus field for $\text{Ni}_3\text{In}_2\text{S}_2$

[Reference: Shivam Rathod, Nitin Choudhary, Archana Lakhani, and Devendra Kumar, Under Review]

► Homemade CVD setup for growth of tellurium single crystals with tunable carrier concentration:

Tellurium (Te) is predicted to host topological phases of matter and the growth of Te single crystals with controlled carrier concentration is important for harnessing this elemental semiconductor for device applications. Here we present an open-ended chemical vapor transport method for the growth of Te single crystals.

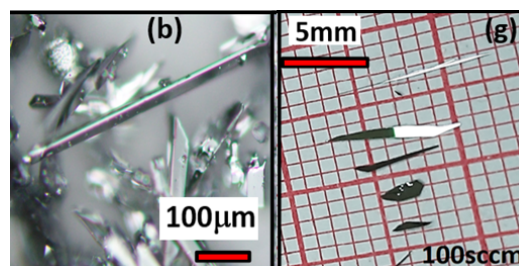


Figure 2: Optical images of Te single crystals

With this fast growth method, crystals of a few mi-

centimeters to millimeters in size with different carrier concentrations and defect densities can be grown. The crystal thickness and hole carrier concentration (n) increase on increasing the growth temperature, the crystal size increases with increasing dwell time, and the typical crystal width decreases on increasing

the flow rate. Te crystals with $n \leq 4.2 \times 10^{17} \text{ cm}^{-3}$ exhibit a resistivity upturn at low temperatures indicating the charge freeze-out effect.

[Reference: Nitin Choudhary, Archana Lakhani, and Devendra Kumar, Materials Today Chemistry 46, 102714 (2025)]

Collaborative Research Activities

► Magneto-Transport and Flux Pinning in $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}/\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$ Heterostructure Thin Films Grown on LaAlO_3 via Pulsed Laser Deposition:

Charge conduction mechanisms of chemically grown LFO/LCMO/STO are studied. Intrinsic and extrinsic contributions of MR have been identified for both the measurement geometries across LCMO thin film and LFO/LCMO interface.

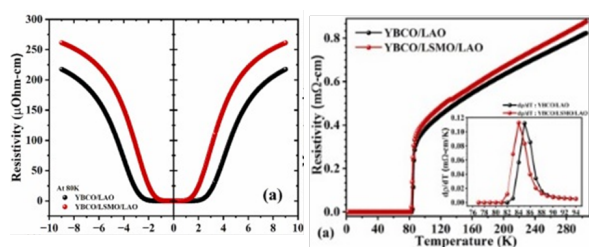


Figure 3: Temperature dependence of resistivity and magnetoresistance for YBCO/LAO and YBCO/LSMO/LAO.

Isothermal magnetoresistance (MR) behaviors have been explained on the basis of universal model for MR isotherms which strongly support the role of electronic phase fluctuations and disordered LFO/LCMO interface.

[Reference: Bharat K. Gupta, Ram Janay Choud-

hary, Rajan Mishra, Nitin Chaudhary, Devendra Kumar, Fouran Singh, Manish K. Kashyap, Nikhil Kumar, Materials Today Communication 52, 114965 (2026)].

► CoRuTiGe: A possible spin gapless semiconductor:

The temperature dependence of electrical resistivity shows a nearly linear decrease in the high-temperature range, indicating the spin gapless semiconductor (SGS) like behaviour which is further supported by temperature dependence of carrier concentration and mobility.

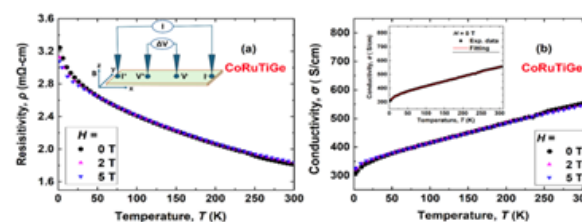


Figure 4: Temperature dependence of electrical resistivity and conductivity for CoRuTiGe.

[Reference: Ravinder Kumar, Tufan Roy, Baisali Ghadai, Rakesh Kumar, Sucheta Mondal, Anil Kumar, Archana Lakhani, Devendra Kumar, Masafumi Shirai, and Sachin Gupta, Physical Review Materials 10, 034413 (2026)]

Other Information

► Sponsored Projects

- 'Early career research award scheme/DST Sanctioned amount 51 Lakh,

SERB: Quantum Transport studies of topological semimetals. Completed: September 2021

DR. DILEEP KUMAR

Scientist-G

Email: dkumar@csr.res.in



Research Interests: Growth & in-situ investigation of ultra-thin films, Epitaxial Magnetic Thin Film, Patterned Magnetic Nanostructures, Organic and metal interfaces, Exchange bias, and magnetic anisotropy in thin films and multilayers

Group members: (1) Sharanjeet Singh, CSR-SRF (2) Manisha Priyadarshani, inspire-SRF (3) Rahul Vishvkarma, CSR-JRF (4) Amruta A, inspire-SRF (5) Ambrish Dwivedi, JRF-DST project (6) Saurabh Sharma, CSR-JRF

Total Ph.Ds awarded: 06+03

Facilities: (1) Organic thermal evaporator (2) In-situ UHV system (under maintenance), (3) Electron beam deposition (4) X-ray scattering beamline BL-13

►►► In-house Research Highlights

The in-situ thin film group at CSR, Indore Centre, is actively involved in in-house and collaborative research work through CRS projects. Some highlights from 2025 to 2026 are as follows.

► Interface-Engineered Magnetic Anisotropy in Zigzag Nanostructured Thin Films

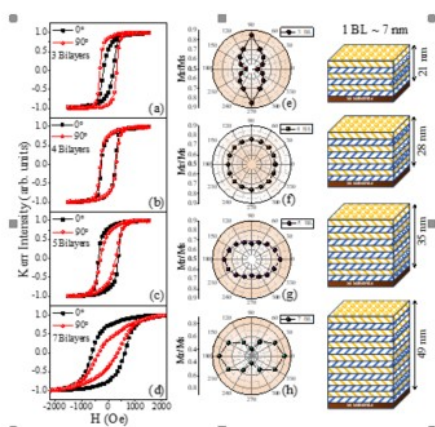


Figure 1: (a-d) MOKE loops along and normal to the OAD. (e-h) polar plots of M_r/M_s . The 3D schematic of the sample structure is shown alongside.

The present study utilizes sequential oblique-angle deposition (S-OAD), which overcomes these limitations by fabricating zigzag nanostructures that prevent column merging and introduce periodically repeated high-density interfaces. In this study, the precise influence of these engineered interfaces on macroscopic magnetic behaviour has been systematically studied by increasing the number of zigzag bilayers. An unusual anisotropy crossover in zigzag cobalt (Co) films is observed with increasing bilayer number, leading us to identify a novel magnetic anisotropy component: an interface-induced shape

anisotropy originating from the high-density junctions (interfaces) between oppositely tilted columns, which competes with the texture-driven magnetocrystalline anisotropy (MCA) of Co. By adjusting the bilayer number and zigzag arm length, the relative contributions of interface-induced shape anisotropy, columnar morphology, and MCA can be engineered to precisely control the strength and direction of MA. These findings establish S-OAD as a platform that introduces interfaces as a new structural degree of freedom, providing a versatile route for precise tuning of MA in nanostructured multilayers for spintronic applications.

► Unveiling structural and magnetic asymmetry at the interfaces of Ag/⁵⁷Fe/Ag trilayer using X-ray standing wave-based techniques

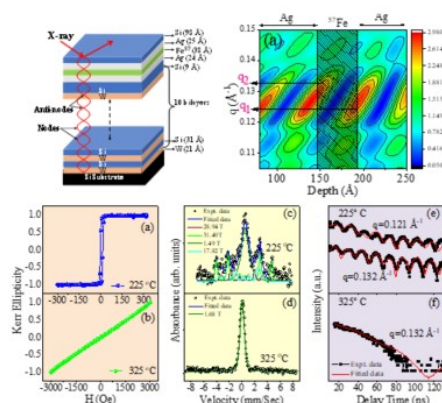


Figure 2: (a-d) MOKE loops along and normal to the OAD. (e-h) polar plots of M_r/M_s . The 3D schematic of the sample structure is shown alongside.

This work investigates the bottom and top inter-

faces of a few-nanometer-thick ^{57}Fe layer in the $\text{Ag}/^{57}\text{Fe}/\text{Ag}$ trilayers. The sub-nanometer depth resolution was obtained using X-ray standing waves (XSWs) generated by an underlying $[\text{W}/\text{Si}]_{10}$ multilayer. Each interface was probed selectively by scanning the standing-wave antinodes across the trilayer while varying the X-ray incidence angle around the Bragg condition. Detailed depth-resolved structural and magnetic information was obtained by combining the X-ray fluorescence (XRF) with isotope-selective (^{57}Fe) grazing-incidence nuclear resonance scattering (GINRS) under XSW conditions. The results reveal a pronounced asymmetry in the interfacial roughness; the ^{57}Fe -on-Ag interface ex-

hibits a larger r.m.s. roughness of 9.7 ± 1.0 , whereas the Ag-on- ^{57}Fe interface is comparatively smoother, with a roughness of 6.1 ± 1.0 . Correspondingly, GINRS measurements probed distinct hyperfine fields at the two interfaces, consistent with the observed structural asymmetry. Temperature-dependent measurements reveal enhanced interfacial intermixing. Fe K-edge extended X-ray absorption spectroscopy combined with temperature-dependent magnetic measurements shows that annealing at 325°C induces strong nanoscale intermixing, resulting in the formation of Fe nanoparticles embedded in Ag.

Other Information

Lectures Delivered

- Interface-resolved hyperfine interaction and spin alignment in magnetic thin film nanostructures" in SMS-3 at IIT Hyderabad, India, 22-24 January 2026.
- Talk on "Functional Magnetic thin films and GISAXS and GIWAXS measurements at P03" in the Users meeting at PETRA-III, DESY, Germany, 7-8 October 2025.
- Talk on "Magnetic thin film and GISAXS measurements." GISAXS-2025 workshop to be held at PETRA-III, DESY, 27 to Oct 30 2025.

Foreign visits by faculty and students

- P03 beamline, PETRA-III, DESY, Germany, 23 rd - 30 th Oct 2025, with Ph.D. students Mr. Sharanjeet Singh and Ms. Amruta A.
- KEK, Photon Factory, Tsukuba, Japan, to conduct the experiments from 24 th Nov to 1 st Dec, 2025, with Ph.D. student Mr. Rahul Vishvkarma.
- P01 beamline, PETRA-III, DESY, Germany, 8th - 13th March 2025 with student Ms. Manisha Priyadarsha



DR. MUKUL GUPTA

Scientist-H

Email: mgupta@csr.res.in

Specialization: Study of structural, magnetic, electronic, mechanical, optical and electrochemical properties of various metal nitride thin films and multilayers. Self & inter-diffusion studies in thin film and multilayers.

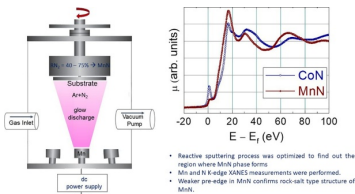
Current Group Members: Staff: Layanta Behera, and Rakesh Sah. Ph.D. Students: Ashish, Akshaya, Nikita, Rohit, Satabdi, Shivani, Amit and Komal

Total Ph.Ds completed: 8 as supervisor and 5 as co-supervisor

Facilities: Soft x-ray absorption spectroscopy beamline at Indus-2, Thin film deposition using sputtering, Secondary ion mass spectroscopy, x-ray diffraction, vacuum annealing systems, electrochemical workstation, spectrophotometer – colorimeter, spectroscopic ellipsometer

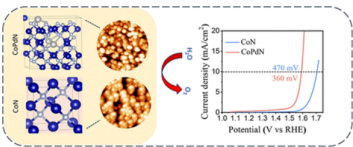
►►► In-house Research Activities

During 2025-26, the in-house research work was focused on thin films of several compounds e.g. FeNi, ReN, Ni-N, ScN, Pd doped CoN, VN, Fe₄N, and MnN. In addition, a book chapter on comparative study of metal nitride thin films grown using dcMS and HiPIMS was also published. A few examples are highlighted below:



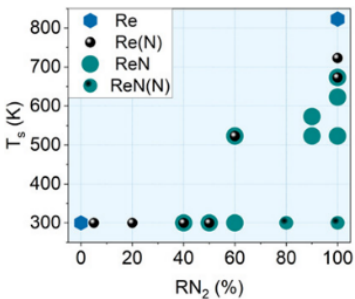
Ref.: Yogesh et al., J. Alloys Compds. (2025).

► Development of Pd doped CoN catalysts for OER



Ref.: Akshaya et al., ACS Appl. Nano Mat (2025).

► Identifying the phase diagram for synthesis of stoichiometric ReN thin films



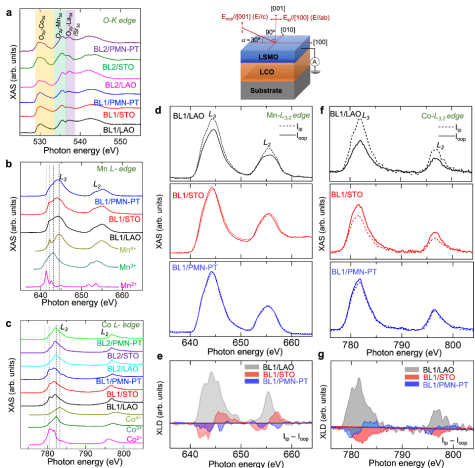
Ref.: Satabdi et al., PSS RRL (2025).

► Establishing the crystal structure of MnN by XAS

►►► Collaborative Research Activities

► Octahedral tilt coupling and spin-orbit reconstruction at oxide interfaces

Nature Communications 17, 332 (2026). Fig. 4 compares O K-edge XANES (measured at Soft XAS beamline BL-01, Indus-2) of different oxide samples studies in this work. PI: S. Das, IISc Bangalore.



26 Figure 4: O K-edge XAS of different samples.

» Study of AgInTe₂ thin films

» Site-symmetry-driven Fe *d*-orbital splitting and its influence on optical transitions in SrFe₁₂O₁₉ *M*-type hexaferrite

PRB, 112, 155156 (2025). Fig. 5: XMCD data taken on Fe L_{3,2}-edges at Soft XAS beamline BL-01, Indus-2. PI: Dr. Pamu Dobbidi, IIT Guwahati.

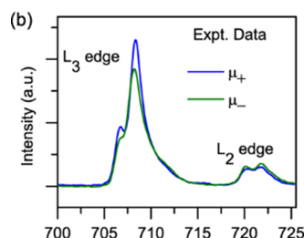


Figure 5: XMCD data of SrFe₁₂O₁₉. *Phys. Rev. B* 112, 155156 (2025).

J Phys Cond. Mat. 37, 435701 (2025). Fig. 8 shows SIMS depth profiles of AgInTe₂ thin samples. PI: G. H. Chandra, VNIT, Nagpur.

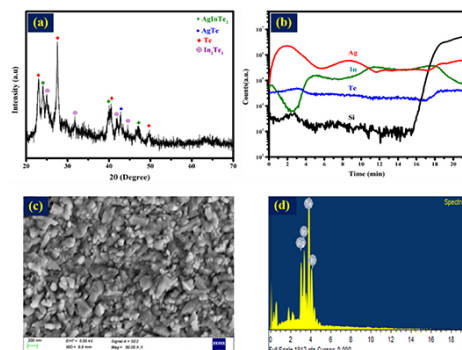


Figure 8: SIMS depth profile (In/Te/Ag) $\times$ 3 stacked precursor film.

»»» Other Information

» Sponsored Projects as PI

- “Development of noble metal free transition metal based electrocatalysts for water splitting”, ANRF-CRG, Amount: 32 lakhs.

» Invited Talks

- Synthesis of thin films using sputtering and protocols for deposition of TM nitride thin films (I) and (II), FDP on Experimental Techniques for Magnetic and Ferroelectric Materials, April 30 -May 2, 2025, GITAM University, Visakhapatnam.
- Development of TM nitride thin films as emerging functional materials, Online FDP on Advanced Energy Materials for Sustainable Energies, May 26-31, 2025. IIITDM, Jabalpur.
- Synthesis & study of Magnetic Antiperovskite Thin Films, Physics of Strongly Correlated Electron Systems (PSCES) 2025, September 12-14, 2025, IIT BHU Varanasi, UP.
- Soft XAS beamline at BL-01, Indus-2: An Introduction & Review of Recent Results,

UGC-DAE CSR Online Awareness workshop, Sep.18-23, 2025.

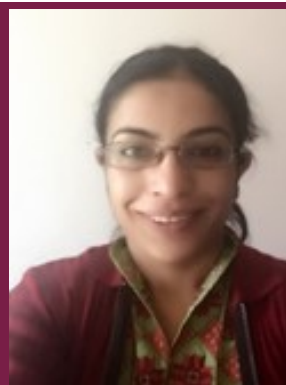
- Development of superhard and superconducting TMN coatings for emerging quantum technologies, ACMP-2026 GGU, Bilaspur, February 20-21, 2026.
- A brief introduction to experimental facilities at UGC-DAE CSR with an emphasis on development and characterization of superhard coatings, Expert Lecture at IET DAVV, Indore, April 9, 2026.

» Awards, Honours and Recognitions

- Dr. Mukul Gupta is serving as Advisory Editorial Board Member for Applied Surface Science Advances/ Hybrid Advances (Elsevier).

» Foreign Visits by Faculty and Students

- Ms. Nikita and Mr. Amit. visited Photon Factory Japan to carry out experiments at Indian beamline.



DR. ARCHANA LAKHANI

Scientist-G

Email: archana@csr.res.in

Research Interests: Magneto transport and Magnetic studies of Topological Quantum Materials, XMR materials, Semimetals, 2D layered Quantum Materials and Kagome materials.

Past Ph.D Students: Mr Rudra Prasad Jena, Ms. Sonali Baral, Ms. Indu Rajput, Mr. Mukesh Kumar Dasoundhi.

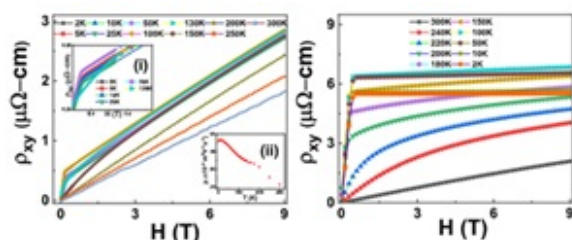
Present Ph.D Students: Ms Rachana Antil, Mr. Arkaparva Dey, Mr. Dhanrup Lovevanshi and Mr. Ankit Jaiswal, Mr. Digbijay Mishra

Facilities: 9T PPMS system for Resistivity and Hall measurements

►►► In-house Research Highlights

Our current research is focused on magneto transport properties of Quantum materials including topological Insulators, topologically non trivial semimetals, 2D layered quantum materials and Kagome materials.

► Comparative Structural and Magneto-transport Study of Fe_3GeTe_2 Crystals



The development of Fe_3GeTe_2 and other recently introduced cleavable ferromagnets provides a foundation for constructing magnetically active 2D van der Waals heterostructures. While these architectures are primarily designed to explore their potential applications and functionalities, fundamental physical properties are important for understanding their charge and spin transport behaviour. We have grown good quality single crystals of Fe_3GeTe_2 by two dis-

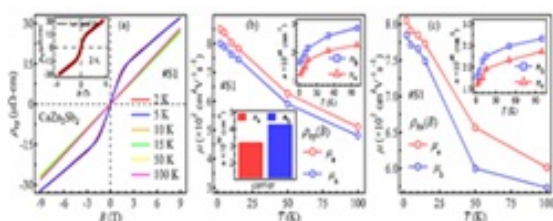
tinct methods, self-flux and chemical vapor transport, and their structural and transport properties are compared. Owing to slight variation in stoichiometry they exhibit distinct defect density, carrier mobility, Curie temperature (T_C), and magnetoresistance behavior. Both the crystals show anomalous Hall resistivity caused by skew scattering. [Ref.: Arkaprava Dey, Nitin Chaudhary, Indu Rajput, Mukesh Kumar Dasoundhi, Devendra Kumar, and Archana Lakhani, Phys. Status Solidi RRL **2026**, 20, e202500211 (2025)]

► Quantum Interference Effects in the Single Crystal of Topological Insulator BiSbSe_3

Structural, optical, and magneto-transport studies are carried out to understand the underlying mechanisms governing conduction mechanism in BiSbSe_3 single crystals. The observed Weak Anti localization (WAL) effect is attributed to a 2D multichannel quantum coherent transport mechanism, where the electron-electron interactions govern the phase coherence. These findings position BiSbSe_3 as a promising candidate for next-generation spintronics and low-dimensional quantum device applications. [Ref.: Rachna Antil, Devendra Kumar, Archana Lakhani. Phys. Status Solidi B, e20250036 (2025)]

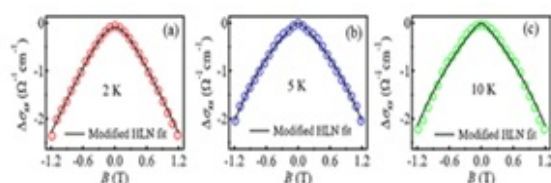
Collaborative Research Activities

Dirac nodal line behavior in a Zintl-phase CaZnSb_2 single crystal



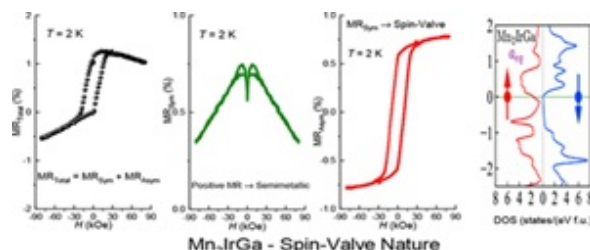
[Ref.: S.K. Pradhan, Sharadnarayan Pradhan, Priyanath Mal, P. Rambabu, Archana Lakhani, Bipul Das, B. L. Chittari, Rajib Mondal, V. K. Malik, G. R. Turpu, and Pradip Das, PPhys. Rev. B **111**, 195115 (2025)]

Non-trivial Berry phase and Shubnikov-de Haas oscillations in single-crystal $\text{Ni}_3\text{Bi}_2\text{Se}_2$



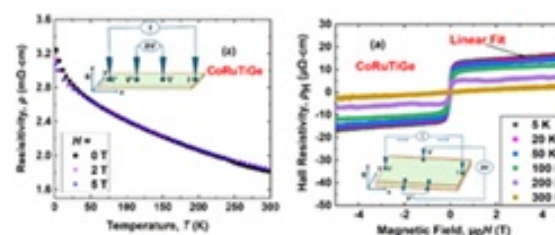
[Ref.: S.K. Pradhan, Sharadnarayan Pradhan, Priyanath Mal, P. Rambabu, Archana Lakhani, Bipul Das, B. L. Chittari, Rajib Mondal, V. K. Malik, G. R. Turpu, and Pradip Das Phys. Rev. Materials **10**, 014206 (2026)]

Giant Coercivity and Spin-Valve Behavior of Mn_2IrGa : A Ferrimagnetic Spin Semimetal



[Ref.: Akhilesh Kumar Patel, Venkateswara Yenugonda, Anjan Bera, Satya Shanmukharao Samatham, Archana Lakhani, Jayita Nayak K.G. Suresh, Aftab Alam, Chemistry of Materials **37**, 8514 (2025)]

CoRuTiGe: A possible spin gapless semiconductor



[Ref.: Ravinder Kumar, Tufan Roy, Baisali Ghadai, Rakesh Kumar, Sucheta Mondal, Anil Kumar, Archana Lakhani, Devendra Kumar, Masafumi Shirai, and Sachin Gupta Phys. Rev. Materials **10**, 034413 (2026)]

Other Information

Sponsored Projects

- "Topological Quantum Materials with special emphasis on XMR materials: Single Crystal Growth and Transport Mechanism Study", CSIR ASPIRE (2024 - ongoing)

Invited Talks

- Vigyan Yatra 2.0 organized by Saurashtra University, Rajkot, Gujarat during 7-19 Jul 19, 2025.
- International Conference on Smart Materials in Emerging Technologies (ICSMET 2025) during July 24-26, 2025 organised by Alliance University, Bangalore.

- 5th National Conference on Physics of Strongly Correlated Electron Systems (PSCES) 2025 at School of Materials Science and Technology, Indian Institute of Technology (BHU), Varanasi, India during 12-14 Sept 2025.

- Invited talk on "Innovations, Advances in Material Science for Sustainable Goals - 2025" 29-31 October 2025 at JECRC University Jaipur, Rajasthan.
- Science Day 2026, Guest of Honour Mediacaps University Theme: Women in Science: Catalysing Viksit Bharat



DR. SANJOY KR MAHATA

Scientist-D

Email: skmahatha@csr.res.in

Research Interests: Electronic structure of novel quantum materials, Charge density wave, Surfaces and interfaces

Group members: (1) Mr. Sambit Choudhury, (2) Ms. Jyoti Sharma, (3) Mr. Amritpal, (4) Ms. Neha

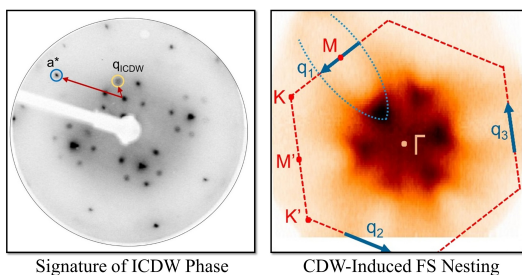
Facilities: (1) Angle-resolved photoemission spectroscopy, (2) X-ray photoelectron spectroscopy, (3) Muffle furnace, (4) AIPES beamline at Indus-1 of RRCAT.

►►► In-house Research Highlights

Our research group is dedicated to exploring the electronic structure of emerging quantum materials using angle-resolved photoemission spectroscopy (ARPES). These studies are further supported by initial evaluations of their physical properties through in-house characterization techniques. Key highlights of our research activities during 2025-26 are summarized below.

► Persistent CDW in chalcogen-disordered 1T-TaSeTe

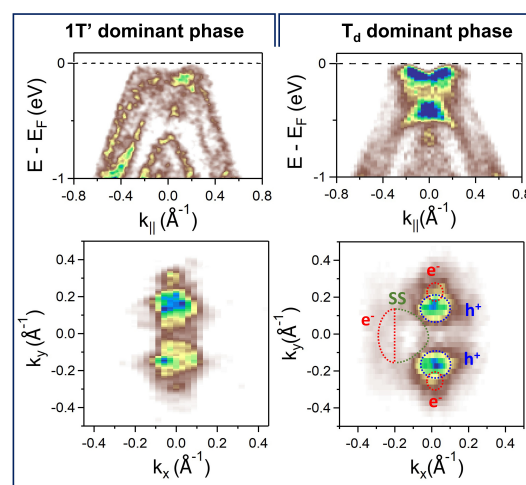
We investigated the dual-chalcogen compound TaSeTe, whose structural and electronic properties have remained largely unexplored. Our results confirm a 1T polytype with an incommensurate charge density wave (ICDW). Using a combination of bulk- and surface-sensitive techniques-XRD, Raman, transport, LEED, XPS, and ARPES, we show that Se/Te disorder significantly modifies the ICDW compared to 1T-TaSe, highlighting the impact of local structural disorder on the global electronic behavior of mixed-stoichiometry TMDCs. [J. Sharma *et al.*, Appl. Phys. Lett. **127**, 243101 (2025)].



► Evolution of Electronic Structure in Weyl Semimetal $\text{Mo}_x\text{W}_{1-x}\text{Te}_2$

We investigate the surface and electronic structure of $\text{Mo}_x\text{W}_{1-x}\text{Te}_2$ ($x = 0.1, 0.3, 0.5$) using LEED,

XPS, and ARPES. Fermi arc surface states are observed only for $x = 0.3$, indicating a type-II Weyl semimetal phase, while increased disorder and 1T phase dominance at $x = 0.5$ suppress topological features. These results highlight the key role of compositional tuning in controlling topological phases in TMDCs. [S. Choudhury *et al.*, Phys. Status Solidi RRL **20**, e202500210 (2026)]



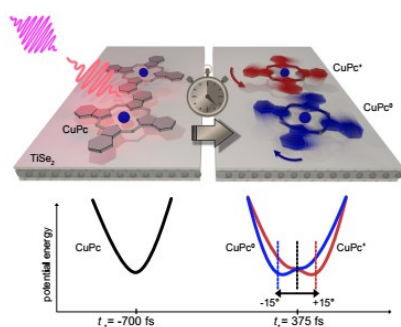
► Sn on Bi_2Se_3 : Interfacial Chemistry over Stanene Growth

Sn thin films deposited on BiSe under ultrahigh vacuum are studied using XPS and UPS to probe their electronic structure and interface chemistry. The results reveal SnSe bond formation and Bi reduction, leading to multiple interfacial phases (SnSe, SnSe₂). These findings demonstrate that interfacial reactions dominate over epitaxial stanene growth at room temperature, underscoring key challenges in interface engineering of layered topological systems. [J. Sharma *et al.*, Phys. Status Solidi RRL, **20**, e202500404 (2026)].

Collaborative Research Activities

Femtosecond concerted rotation of molecules on a 2D material interface

We observe ultrafast, concerted rotation of achiral molecules on a 2D substrate driven by charge transfer. Nonequilibrium conditions reshape the energy landscape, enabling femtosecond unidirectional motion and stabilizing an ordered, homochiral state. Molecular adsorption also modifies charge carrier dynamics in TiSe₂, highlighting new pathways to control energy transfer and transport in molecular electronics and spintronics. [K. Baumgartner *et al.*, Nat. Commun. **17**, 2110 (2026)]



Topological surface states in PbBi₆Te₁₀

Magneto-transport measurements on PbBi₆Te₁₀ show high surface mobility and a low effective mass ($0.23 m$), while angular-dependent magnetoresistance indicates a 2D warped Fermi surface. Combined with the observation of hexagonally warped Dirac cones in ARPES, these findings strongly support the assignment of the oscillations to topological surface states. [M. Mudgal *et al.*, Appl. Phys. Lett. **127**, 153101 (2025)]

Percolative instabilities and sparse-limit fractality in 1T-TaS₂

In 1T-TaS, pulse-driven transport destabilizes the commensurate CDW, inducing a Mott-to-metal transition with abrupt switching and negative differential resistance. Scaling (~ 1.3) and temperature-dependent fractal dimensions (0.30.9) reveal 2D percolative transport, linking nonequilibrium dynamics to controlled phase transitions in correlated materials. [P. Maji *et al.*, Phys. Rev. B **113**, 115110 (2026).]

Other Information

Sponsored Projects

- "Engineering Quantum Correlations and Emergent Phases in SelfStacked Layered Materials", ANRF-ECRG, Total funding: 60 Lacs, Duration: 3 years (2025-28).
- As a co-PI "Development of High-Critical Current Density Superconductors for Extreme Conditions: A High-Entropy Strategy for Robust Performance", ANRF-ARG, Total funding: 81.5 Lacs, Duration: 3 years (2026-29).

Invited Talks

- Invited talk titled "Charge Order and Correlation Effects in Transition Metal Mixed Chalcogenides" PSCES conference, 12-14 September 2025, IIT BHU, Varanasi.
- Invited talks titled "Introduction to X-ray Photoelectron Spectroscopy: Principles and Instrumentation" and "Advanced XPS Techniques for Material and Surface Characterization" in two-day workshop On Electron Microscopy & Photoelectron Spectroscopy, 10-11 December, 2025, Goa University, Goa.

- Invited talk titled "Charge Order and Correlation Effects in Transition Metal Mixed Chalcogenides" in SAMET 2026 conference, 30 March 2026, IACS, Kolkata.

Awards, Honours and Recognitions

- Honorable member of the Discussion Panel of NCES 2025, 20-22 November 2025, IISER-Bhopal, Bhopal.
- Mr. Sambit Choudhury won the best poster presentation award at MRSI-ICEM 2025.

Foreign Visits by Faculty and Students

- 28 April - 09 May, 2025: PETRAIII, DESY, Germany with PhD students Ms. Jyoti Sharma and Mr. Amritpal.
- 03 - 13 February, 2026: PETRAIII, DESY, Germany with PhD students Mr. Sambit Choudhury and Mr. Amritpal.



DR. SUDIP PAL

Scientist-D

Email: sudip@csr.res.in

Research Interests: Magnetic materials, Strongly correlated systems

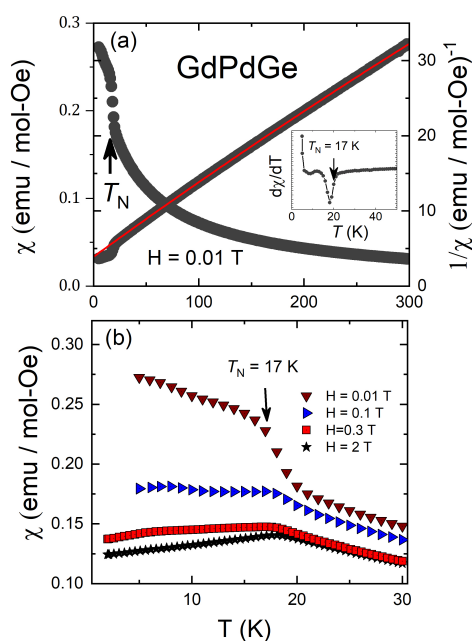
Group members: (1) Kranti Kumar Sharma, (2) Soumya Shephalika Behera

Facilities: (1) SQUID Magnetometer (MPMS3),
(2) 16 Tesla Vibrating Sample Magnetometer (VSM)

►►► In-house Research Highlights

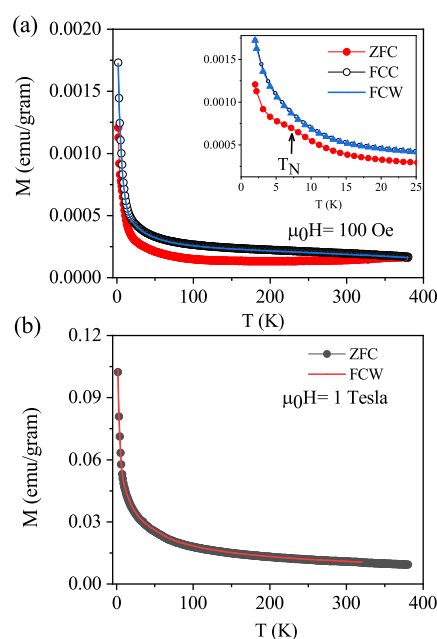
► Magnetic property of Ternary compound GdPdGe

GdPdGe belongs to the RTX family of compounds, where R is a rare earth element, T is a 4d or 5d transition metal, and X is a p-block element. The presence of 4d and 5d transition metals introduces extended d-orbital interactions, enhancing magnetic exchange and electronic hybridization.



► Antiferromagnetic order and magnetic polarons in lightly doped Li_xCoO_2 ($x \sim 0.9$)

Li_xCoO_2 is the primary cathode material in rechargeable Li-ion batteries and hence an essential component of power sources in recent times. In lightly doped compound, a small fraction of the doped holes undergoes a magnetic transition to an antiferromagnetic state at low temperatures and shows signature of magnetic polarons.



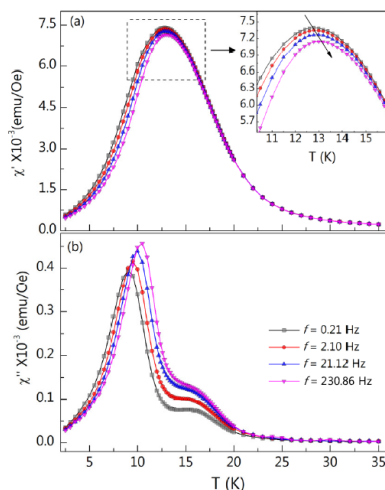
►►► Collaborative Research Activities

► Disorder driven crossover from superparamagnetism to an interacting-cluster state in $\text{Fe}_2\text{Ti}_{0.75}\text{Mn}_{0.25}\text{Sn}$ Heusler alloy

We study magnetic properties of Mn substituted

Fe_2TiSn Heusler alloy using temperature dependent ac susceptibility at different frequencies. Magnetization measurements reveal the onset of short-range ferromagnetic correlations around 325 K associated with the formation of nanoscale magnetic

clusters. At lower temperatures, enhanced inter-cluster interactions drive a crossover to a correlated ferromagnetic-like state, identified as super-ferromagnetism



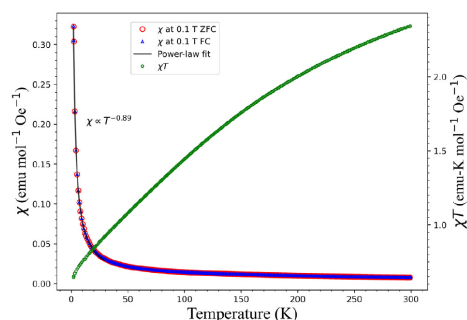
► **magnetic properties of $\text{Ba}_2\text{YbBiO}_6$: $J_{\text{eff}} = \frac{1}{2}$ triangular antiferromagnetic system**

Quantum fluctuations can be amplified by having a low spin quantum number and low dimensionality of spin. For instance, in systems with spin $S = \frac{1}{2}$ and effective total angular momentum $J_{\text{eff}} = \frac{1}{2}$, the Heisenberg Uncertainty principle leads to zero-point motion and helps quantum fluctuations to persist down to $T = 0$ K. $\text{Ba}_2\text{YbBiO}_6$ can be a perfect candidate to further study for quantum spin liquid state with $J_{\text{eff}} = \frac{1}{2}$ on 2D triangular motif and strong antiferromagnetic interaction but with no long-range order until 2 K.

►►► Other Information

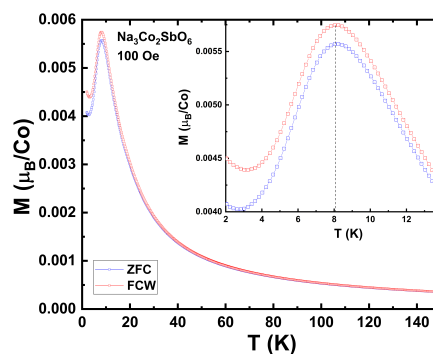
► **Seminar**

1. "Magnetic ground state of quasi 2-dimensional organic Mott insulators" was de-



► **magnetic properties of $\text{Na}_3\text{Co}_2\text{SbO}_6$: $J_{\text{eff}} = \frac{1}{2}$ honeycomb lattice**

Honeycomb layered oxides display rich structural diversity, with alkali-ion diffusion paths and transition-metal redox centers giving rise to a wide range of functional properties. $\text{Na}_3\text{Co}_2\text{SbO}_6$ has emerged as a benchmark crystal for exploring Kitaev Quantum Spin Liquid in 3d transition metal oxides. High-spin Co^{2+} ($3d^7$, $S = \frac{3}{2}$) ions occupy octahedral sites where crystal field energy and spin-orbit coupling cooperate to produce an effective $J_{\text{eff}} = \frac{1}{2}$ ground-state doublet.



livered at the UGC DAE Consortium for Scientific research, Indore center.



DR. RAJAMANI RAGHUNATHAN

Scientist-E

Email: rajamani@csr.res.in

Research Interests: Condensed Matter Physics (Theory); Computational Materials Science; Functional materials; charge and spin ordering; low-dimensional systems

Group members: Mr. Shivam Choudhary, Mr. Subho Saha, Mr. Sishir Jana, Mr. Rajan Mishra, Ms. Bharati Ojha, Mr. Gaurav Chouhan and Mr. Samraj V.

Total Ph.Ds awarded: 1 Supervisor and 1 Co-supervisor

Facilities: HPC Cluster (4 nodes)

►►► In-house Research Highlights

► Altermagnetism in Low-dimensional Materials

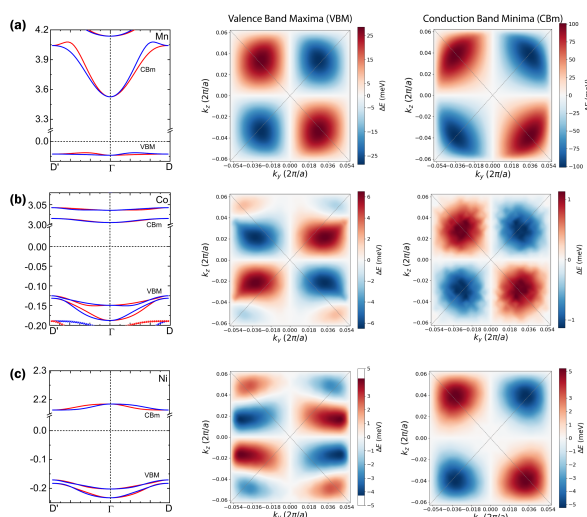


Figure 1: Electronic band structure and spin splitting between the up- and the down-bands in the Brillouin zone for (2-Bromoethylammonium)₂MBr₄ 2D (M=Mn, Co and Ni) hybrid halide system.

Altermagnets (AMs) which break time reversal symmetry (TRS) and exhibit momentum dependent spin splitting have attracted significant attention in recent days due to its technological importance. The observation of AM requires specific symmetry around the magnetic ion. In a recent work we showed that AM can be induced in a general bipartite lattice by leveraging the coupling between the charge and spin degrees of freedom [Phys. Rev. B **111**(21) 214439 (2025)]. Another aspect of stabilising AM phase is by adopting electron filling and bandwidth control of the metal *d*-bands. In this context our group is involved in studying the electronic structure and magnetic properties of (2-Bromoethylammonium)₂MBr₄ 2D (M=Cr, Mn, Fe, Co, Ni, Cu) hybrid halide system. We

have shown that such systems can show unusual ferromagnetism in M=Cr, Fe and Cu controlled by the holes in *t*_{2g} orbitals as well as AM in M=Mn, Co and Ni.

► Tuning the electronic and magnetic ground states of layered honeycomb material Na₂IrO₃ via strain engineering

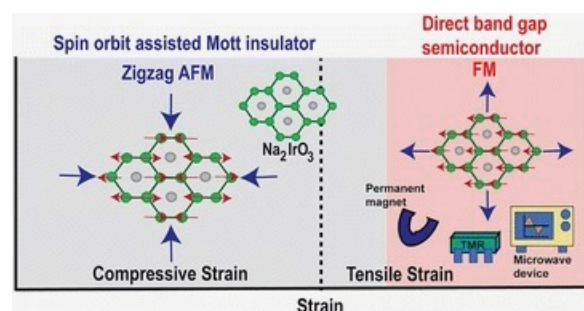


Figure 2: Schematic of various phases obtained in Na₂IrO₃ via strain engineering.

Our group has employed first-principles calculations

to investigate the strain-induced tuning of the electronic and magnetic ground states in Na₂IrO₃. The *j* = 1/2 pseudo-spin state and the Mott insulating phase remain robust under strain. At 3% tensile strain, a transition from an indirect to a direct band gap occurs, governed primarily by strong electronic correlations rather than spin-orbit coupling. A concurrent magnetic transition from zigzag antiferromagnetic (AFM) to ferromagnetic (FM) order is also observed. The resulting ferromagnetic semiconducting phase under strain indicates promise for spintronic and energy applications, including in microwave devices, permanent magnets, spin filters, and tunneling magnetoresistance (TMR) devices. The singlet-triplet gap, indicative of the isotropic exchange *J*, is minimized at 3% strain, offering favorable conditions for realizing a Kitaev spin liquid state.

Collaborative Research Activities

The conundrum of the magnetic ground state of 2H-Fe_{0.33}NbS₂

Transition metal dichalcogenides (TMDC) are very interesting due to their wide range of fascinating physical properties including superconductivity, charge density waves, valley polarisation and spintronic devices. Among various TMDCs, NbS₂ belongs to the hexagonal crystal system, in which the niobium atom is positioned between two hexagonally packed layers of sulphur atoms. Intercalating Fe in between these hexagonal layers results in 2H-Fe_{0.33}NbS₂ with $\sqrt{3}\times\sqrt{3}\times 1$ supercell structure. While previous reports have predicted an altermagnetic ground state for this compound, our detailed first principles calculations reveal a $\{0.5\ 0.0\ 0.0\}$ magnetic ordering vector consistent with neutron diffraction results carried out at the neutron diffraction beamline of UGC-DAE CSR, Mumbai at the Dhruva reactor. Our results indicate that the ground state of this compound is antiferromagnetic contrary

to a previous report. These reports are further supported by symmetry analysis of the unitcell structure.

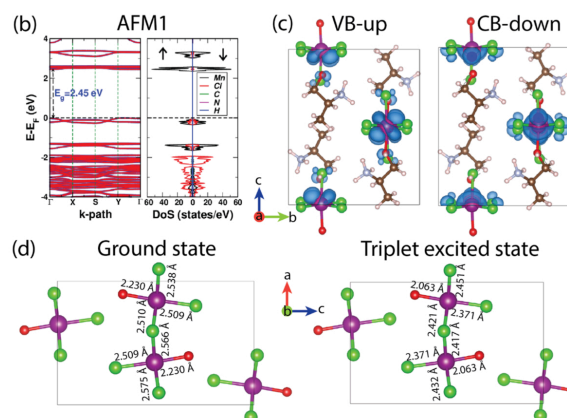


Figure 3: Electronic band structure of R/S-APMCI. The hole and electronic wave functions at the VB and CB edge as well as the metal-ligand bond lengths in the ground and excited state geometries are also shown.

Other Information

Invited Talks

- “Spin split antiferromagnets: symmetry and numerical studies”, Spins in molecular systems (SiMS) 2025, IIT Kharagpur, November 29 - December 01, 2025.
- “Symmetry Breaking and the Spin-Splitting Paradox in Antiferromagnets”, UGC-DAE CSR, Kolkata, 02 December 2025.

Awards, Honours and Recognitions

- Our article on altermagnetism [Phys. Rev. B **111**(21) 214439 (2025)] has been selected as “Editor’s Suggestion” in Physical Review B.

Foreign Visits by Faculty and Students

- Dr. Rajamani Raghunathan, visited ESCA microscopy Beamline at ELETTRA, Trieste, Italy during May 2025.
- Mr. Shivam Choudhary visited BEAR Beamline at ELETTRA, Trieste, Italy during May 2025.



DR. RAJEEV RAWAT

Scientist-H; Officiating Centre Director, Indore Centre

Email: rrawat@csr.res.in

Specialization: Magnetocaloric and magnetotransport properties of magnetic materials, magnetic transitions, Phase co-existence.

Group members: Dr. Sudip Pal (Scientist-D), Mr. Kranti Kumar (J. Engg.)

Research scholars: (1) Mr. Rajeev Joshi (2) Ms. Priyanshi Tiwari (3) Mr. Vikas Singh (4) Ms. Somya Shephalika

Total Ph.Ds awarded: 7

Facilities: (1) Calorimetry (2) Magnetization measurements (3) LTHM-SPM

►►► In-house Research Highlights

► Non-Fermi liquid behavior in $\text{CePd}_{1-x}\text{Ge}_x$

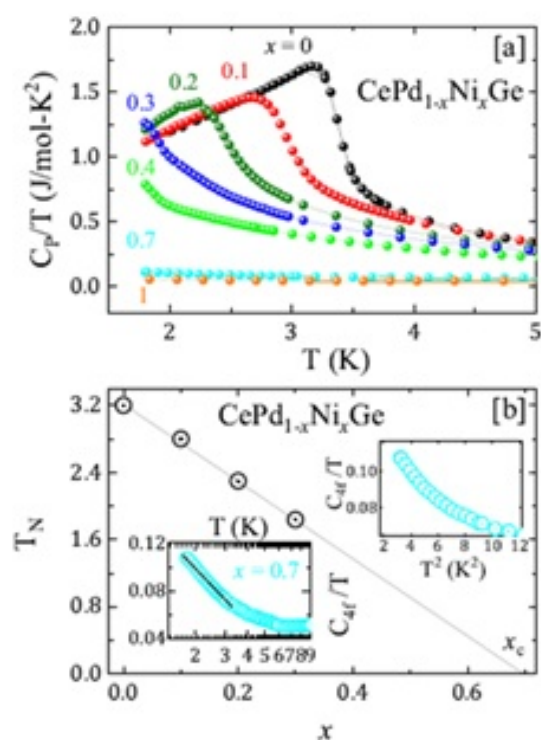


Figure 1: [a] Temperature dependence of specific heat (CP), in the form C_P/T vs T , highlights the shift of magnetic ordering peak to low temperature. [b] The variation of T_N vs x gives critical composition $x_c = 0.7$. Insets highlight non-Fermi liquid behaviour of $x = 0.7$.

CePdGe is reported to order in sinusoidally modulated structure below T_N (3.4 K). Our study of Ni substitution for Pd shows that T_N decreases linearly with Ni content due to chemical pressure effect. The magnetic entropy change across the transition also

appears to decrease with increase in Ni. It along with reduced effective paramagnetic moment suggest a tendency to intermediate valence transition in Ce. As per linear extrapolation of T_N vs Ni content, the critical composition turns out to be $x_c = 0.7$. The specific heat of this composition exhibits logarithmic rise at low temperatures. The analysis of specific heat data down to a few hundred mK bring out the disorder driven non-Fermi liquid (NFL) and a tendency to short range correlations.

► Field-Induced Transition and the Effect of Disorder $\text{CePdSn}_{1-x}\text{Sb}_x$

Study of Sb substitution (up to 15 %) for Sn in CePdSn showed an increase in unit cell volume and suppression of T_N as well as the temperature of Kondo minima. These observations indicate that CePdSn lies in the positive slope region of Doniachs diagram. Magnetoresistance (MR) in the PM region is shown to follow Schottmann scaling with a Kondo temperature of 11 K in CePdSn . Below T_N hysteretic field induced metamagnetic transition, probably from one AF to another AF state was observed in the isothermal MR data of CePdSn . With Sb substitution, increase disorder leads to suppression of residual resistivity ratio and MR magnitude.

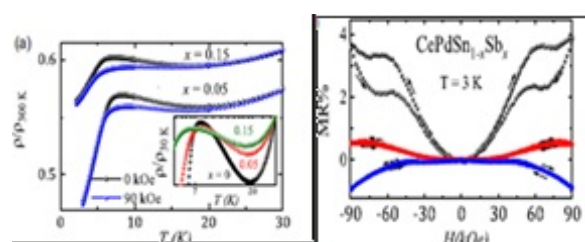


Figure 2: Temperature dependence of resistivity in the presence of 0 and 90 kOe magnetic field and isothermal magnetoresistance at 3 K of $\text{CePdSn}_{1-x}\text{Sb}_x$ ($x = 0, 0.1$ and 0.15).

Collaborative Research Activities

► Effect of anti-site-disorder on electrical transport across the thermo-elastic martensitic transformation in CoFeTiSi Heusler alloy thin films

Dr. S Srinath, University of Hyderabad

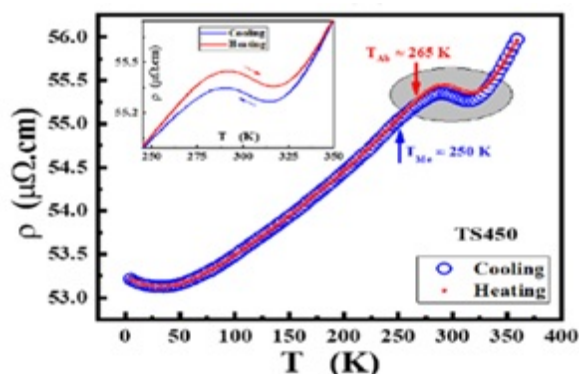


Figure 3: Temperature dependence of the resistivity of CFTS film annealed at 450 °C. Inset highlights the hysteresis across martensite transition.

The study on the effect of anti-site disorder (ASD) on electrical resistivity $\rho(T)$ and transverse magnetoresistance MR in off-stoichiometric CoFeTiSi (CFTS) thin films across the thermoelastic martensitic phase transformation (MPT) showed negative temperature coefficient of resistivity (TCR). It was explained in terms of the competition between the quantum corrections (weak localization, electron-diffusion scattering) and the ballistic scattering mechanisms (electron-magnon, em, and electron-phonon, ep). The study showed that, stronger the atomic ASD, more prominent the quantum corrections and the weaker the scattering of em and ep scattering. Regardless of the strength of ASD, in the martensite phase the anti-symmetric (ASMR) component of $MR \perp (H)$ dominates over the symmetric (SMR)

counterpart. [Ref.: M Rahaman et al, J. Phys.: Condens. Matter. **38**, 145804 (2026).]

► Magnetoelastic coupling and field-induced metamagnetism in the cubic Heusler alloy $Mn_{1.7}Fe_{1.3}Si$

Dr. Preeti Bhohe, IIT, Indore

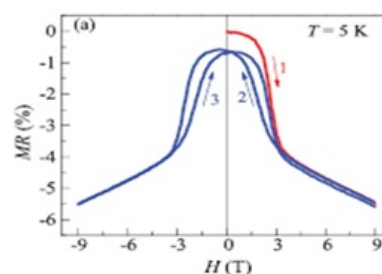


Figure 4: Isothermal magnetoresistance at 5 K after zero field cooling.

Magnetization measurements of $Mn_{1.7}Fe_{1.3}Si$ reveal a paramagnetic-ferromagnetic/ferrimagnetic transition at $T_C = 85$ K, followed by a spin-reorientation transition between 65 K and 55 K. Neutron diffraction shows that long-range antiferromagnetic (AFM) order develops only below 55 K, stabilizing a canted AFM ground state. Anomalies in the temperature dependence of the unit-cell volume across magnetic transitions provide clear evidence of magnetoelastic coupling. At low temperatures, magnetization and magnetotransport data reveal a field-induced metamagnetic transition accompanied by irreversibility, metastability, and magnetic phase coexistence, leading to a low-field coexistence region in the HT phase diagram below 2.5 T. [Ref.: K Mishra et al. J. Phys.: Condens. Mater. **38**, 145804 (2026).]

Other Information

► Sponsored Projects as a PI

- "Czochralski-based Single Crystal Growth facility for Intermetallic systems (upgradation to existing polycrystalline sample preparation by arc melting)", Sponsoring agency: SERB, Total Cost: ≈ 30 Lakh, Duration: 3 years (2023-2026).

► Awards, Honours and Recognitions

- **Priyanshi Tiwari** received best poster presentation award at 69th DAE-SSPS 2025 held at IIT Roorkee

► Foreign Visits by Faculty and Students

- **R Rawat and Rajeev Joshi** visited Photon Factory, Tsukuba, Japan for experiments at Indian Beamline 16-20, November 2025. The financial support for the visit was provided by the DST, India.



DR. VARIMALLA RAGHAVENDRA REDDY

Scientist-H

Email: vrreddy@csr.res.in

Research Interests: Multiferroic materials, magnetic thin films and multilayers.

Group members: (1) Mr. Anil Gome, Jr. Eng. (2) Ms. Meenal Dhanetwal, SRF (DST-Inspire) (3) Ms. Smritiparna Ghosh, SRF (Institute) (4) Mr. Saurabh Gupta, SRF (DST-Inspire) (5) Mr. Priyanshu Chandrakar, JRF (CRG) (6) Ms. Vishnoi Nigam, JRF (Institute)

Total Ph.Ds awarded: 10

Facilities: (1) Mössbauer spectroscopy (2) Kerr microscopy (3) Thin film x-ray diffractometer (4) Ferroelectric loop tracer

»»» In-house Research Highlights

The research activity of the group is primarily in the area of experimental condensed matter physics focussing on ferroic materials viz., ferromagnetic, ferroelectric and multiferroic materials in bulk and thin films form such as lead-free ferroelectrics, Aurivillius compounds, garnets, exchange bias, exchange spring magnets, domain wall velocity etc.

» Fe layer thickness driven evolution of magnetic states in Gd/Fe multilayers

Structural and magnetic properties of as-deposited $[\text{Gd}(4 \text{ nm})/\text{Fe}(t \text{ nm})]_{\times 10}$ multilayers, with $t = 2.0, 2.5$, and 3.0 nm are studied. Structural characterization was carried out using both laboratory-based and synchrotron-based x-ray techniques. X-ray reflectivity (XRR) measurements indicate the formation of a GdFe alloy at the interfaces for elevated Fe thickness, suggesting significant interfacial intermixing during deposition. Magnetic properties were investigated using the magneto-optical Kerr effect (MOKE), bulk magnetization measurements, and simulations based on a modified Stoner-Wohlfarth model for a 1D spin chain. Magnetic measurements reveal a distinct evolution from a Gd dominated phase to Fe dominated phase with increasing Fe layer thickness, with the intermediate sample showing both Gd and Fe aligned phase across temperature. Simulations, incorporating inputs from structural measurements, successfully reproduce the evolution of hysteresis loops with temperature and Fe thickness. The simulations provide

layer-resolved insights into spin configurations, elucidating the formation of twisted/fan-like magnetic states due to the competition between antiferromagnetic exchange coupling and the external field across varying temperatures. [Ref:- Smritiparna Ghosh et al., Phys. Rev. B., **112**, 134406 (2025)].

» MODVORTEX: computer vision-driven automation for magnetic domain wall velocity analysis

MODVORTEX, Magneto Optic Domain Velocity Observation and Real-Time Extraction, a comprehensive software solution for automating domain wall (DW) velocity measurements in magnetic materials using magneto-optic Kerr effect (MOKE) microscopy is developed. The software provides different methods for DW detection and velocity calculation, catering to various domain structures of arbitrary shape. This approach significantly reduces the time and effort required for data extraction, transforming a process that previously took days of manual work into a task completable within minutes. This tool is applicable to a wide range of scenarios, including bubble domain dynamics, DMI in PMA systems, current-driven DW motion in patterned strips etc. The automation promises to accelerate research in spintronics and magnetic materials, enabling more comprehensive and accurate studies of DW dynamics. [Ref:- Rakhul Raj and V. R. Reddy., Meas. Sci. Technol. **36**, 017005 (2025)].

Collaborative Research Activities

Disproportionate influence of site disorder on the evolution of magnetic phases in the anti-Heusler alloy Al_2MnFe

Anti-Heusler alloys, being a new addition to the Heusler alloys family, exhibit atomic disorders, and almost all of them are reported as a re-entrant spin-glass system. As an illustrative case, an in-depth experimental as well as theoretical investigation of structural, magnetic, and transport properties of a polycrystalline anti-Heusler alloy, Al_2MnFe is carried out in the present work. Detailed temperature dependent ^{57}Fe Mossbauer spectra elucidated consequences of site-disorder and it observed that about 12 % inter-symmetry site swapping as arising from Mn-Al disorder in the studied composition implying the role of swap disorder on magnetic properties in the anti-Heusler family of materials [Ref:- Soumya B et al., Phys. Rev. B., **113**, 014429 (2026)].

Electro-caloric response in substituted lead-free ceramics

Subtle A-site chemical substitution in BST-BNT ceramics with Ca reshapes the lattice, polar order, and electrothermal response of a lead-free perovskite system. Enhanced TiO_6 octahedral deformation arising from A-site size mismatch and associated strain fields are observed in the studied compositions. Microstructure and dielectric behaviour consistently reflect this growing local disorder, giving rise to broad, diffuse phase transitions and relaxor-like polarization dynamics. Altogether, these results provide a clear design principle that controlled A-site lattice perturbation can tune polar entropy and unlock enhanced and broadened electrocaloric functionality in lead-free perovskites, paving the way for efficient solid-state cooling near ambient temperature [Ref: Amiya et al., J. European Ceramic Society **46**, 118340 (2026)].

Other Information

Sponsored Projects

- “Tunable functional properties and exploration of the double-well energy landscape in lead-free ferroelectric thin films and heterostructures”, (DST-ANRF-CRG), Sanctioned amount: Rs. 34.1 lakhs.

Lectures Delivered:

- Hyperfine interaction studies in lead-free BaTiO_3 based relaxors: signatures of structural modifications across its dielectric maxima, IEEE-South Asia Ferroelectric Symposium 2025 (SAFS25), IISc, Bengaluru (August 5-8, 2025).
- Hyperfine Interactions: tool to study magnetic and ferroelectric materials, International Conference on Recent Trends in Functional Materials, MANIT, Bhopal (1-3, December, 2025).
- Experimental Methods for structural and magnetic characterization of thin films, GITAM University, Vizag, Faculty Development Program (2 May 2025).
- Hyperfine interactions: tool to study magnetic and ferroelectric materials, Telangana Science Congress (TSC-2025), Kakatiya University, Warangal (1921 August 2025).

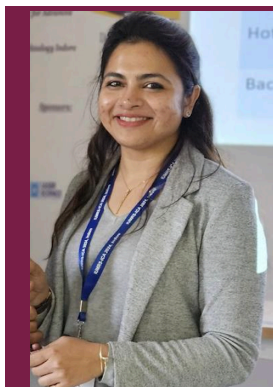
- Mossbauer and MOKE study of magnetic compensation in rare-earth transition metal systems, National Conf., on Advances in Condensed Matter Physics, Bilaspur Central University (20-21 Feb 2026).

Awards, Honours and Recognitions

- Elected as Fellow of the National Academy of Sciences, India (FNASc).
- Elected as Fellow of Institute of Physics, IOP, UK (FInstP).
- Awarded Materials Research Society of India, (MRSI) medal.
- Elected as Fellow of Telangana Academy of Sciences, Hyderabad, India (FTASc).
- Elected as Member, International Board on the Applications of Mossbauer Effect.

Awards, Honours and Recognitions

- Visited DESY, Germany during 11-14th April 2026.



DR. DEBALAYA SARKER

Scientist-D

Email: debalaya@csr.res.in

Research Interests: Machine learning and ab-initio atomistic thermodynamics guided experimental realization of thermoelectric and catalytic materials for sustainable energy.

Group members: (1) Ankita Agrawal, (2) Nayan Guchchait, (3) Varun Pandey, (4) Mohmad Younis Reshi, (5) Shubham Ojha

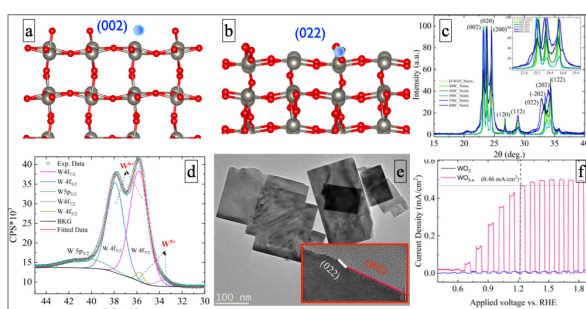
Collaborators: Dr. Uday Deshpande, Dr. Arvind K Yogi, Dr. Mukul Gupta

Facilities: Transmission Electron Microscope (TEM)

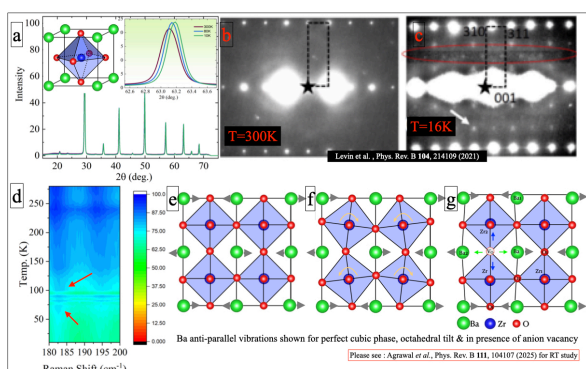
►►► In-house Research Highlights

► Facet-dependent high water splitting activity in $\text{WO}_{3-\delta}$ nano-photoanodes

Controlled hydrogenation of hydrothermally grown WO_3 nanosheets results in emergence of electrochemically more active facets, as shown in the figure. The deficiency of lattice oxygen further results in new inter-gap states, promoting photo electrocatalytic water splitting.



► Interplay of octahedral tilt and anion vacancy in low-temperature phase transition of BaZrO_3

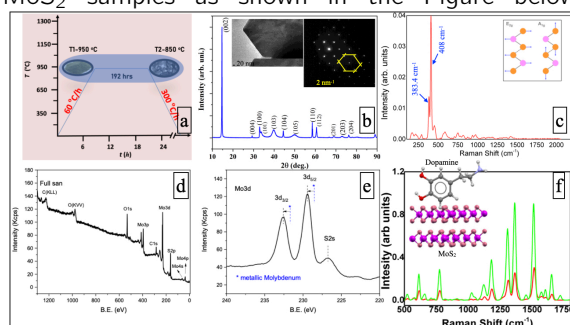


While charged anion vacancies play dominant role in originating strong second order Raman modes in otherwise centrosymmetric BaZrO_3 , an emergence

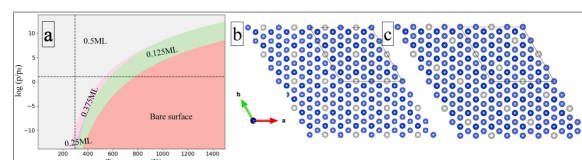
of octahedral tilting below ≈ 80 K manifests as a competing factor in the overall vibrational properties.

► Dopant dependent SERS activity of 2H MoS_2

We have successfully grown 2H MoS_2 via facile CVD route. After confirming the phase purity and electronic structure from XRD and XPS respectively, the 2H viz. layered nature of the MoS_2 was confirmed from Raman spectra recorded at room temperature. Enhanced SERS of dopamine is obtained from our as grown, as well as doped MoS_2 samples as shown in the Figure below.



► ab initio atomistic thermodynamics of hydrogenation over CuPt surfaces



By combining a cluster-expansion model trained with density-functional theory data, and Wang-Landau sampling, we identify phase transitions and single-atom alloy formation conditions in $\text{Cu}_{1-c}\text{Pt}_c$ ($c \leq 0.2$) bi-metallic alloy surfaces as a function of hydrogen coverage.

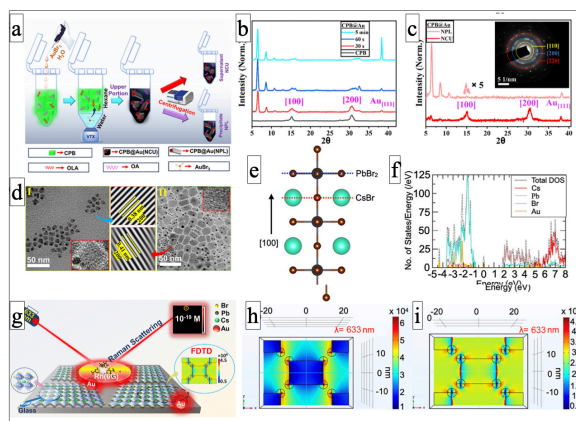
Collaborative Research Activities

Molecular Detection Sensitivity at the Sub-Atto-Molar Limit Using Plasmonic Perovskite Nanoplates

PI: Dr. Tushar Debnath, Shiv Nadar Institution of Eminence.

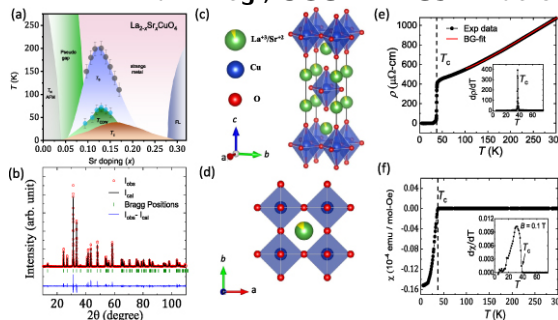
We developed a 2D plasmonic perovskite-based hybrid *via* an in-situ interfacial strategy, which can detect molecules precisely at sub-atto-molar ($<10^{18}$ M) concentrations using the surface-enhanced Raman scattering (SERS) technique. The feedback from optical spectroscopic experiments indicated the presence of an extremely strong exciton-plasmon coupling in the CsPbBr₃@Au nanoplatelets, resulting in simultaneous electromagnetic enhancement and plasmon-induced charge transfer-mediated chemical enhancement, providing ultralow SERS detection sensitivity.

Samanta et al., ACS Applied Nano Materials 8, 22389 (2025).



Enhanced electron-phonon coupling in La_{0.85}Sr_{0.15}CuO₄ due to octahedral tilting

PI: Dr. Arvind K Yogi, UGC-DAE CSR Indore



The dominant role of CuO₆ octahedra distortion and tilting in La_{0.85}Sr_{0.15}CuO₄ suggest the presence of strong electron-phonon coupling in this widely-studied Ruddlesden Popper oxide. We conclude that the local distortion of CuO₆ and the phonon modes at around 430, 360, 225, and 100 cm⁻¹ may be associated with CDW. Our theoretical calculations across the superconducting transition suggests the presence of strong hybridization of Cu 3d with O 2p orbitals, indicating the role of alternating CuO₆ octahedra tilt in the electronic structure of La_{2-x}Sr_xCuO₄. Thus, the octahedral tilt plays a crucial role in the origin of the CDW phase in this cuprate.

Isha et. al., J. Phys.: Condens. Matter 38, 145402 (2026).

Other Information

Sponsored Projects

- “Active Machine Learning Guided Discovery and Optimization of Effective MOF-based Catalysts for Electrolysis of Water”, BRICS-STI, DST, Total:79Lacs, Duration:3y

Invited Talks

- “Exploring Smart and Sustainable Materials: A Characterization Perspective”, FDP at SAGE Uni., Indore July 22, 25.
- “Defect-driven anomalous Raman modes in oxide perovskites: case study of BaZrO₃” Inter Nat. Conf. on Recent Trends in Func. Mater., MANIT Bhopal, Dec 2, 25.
- “How the Legend is Omnipresent in Today’s Material Science: Origin of Anomalous Ra-

man modes in BaZrO₃”. on Science Day 2026, SAGE Uni., Indore.

- “*ab initio* atomistic thermodynamics guided synthesis and optimization of photo-electrocatalysts for sustainable energy” at 15th Vidyasagar-SN Bose Nat. Workshop on Phys. Front. at Vidyasagar Uni., 10-12 March 26.
- “Empowering Women in Science Award Lecture” at Jadavpur Uni, Kolkata, 12-14th April 2026.

Awards/Honors

- “Empowering Women in Science Award from Indian Institute of Chemical Engineers”



DR. VASANT SATHE

Centre Director & Scientist-H, Superannuated on 31.01.2026

Email: vasant@csr.res.in

Research Interests: Structural, vibrational, electrical and magnetic properties of oxide single crystals, bulk and epitaxial thin films

Group members: (1) Dr. Praveen Velpula, (2) Shri Ajay Rathore (Scientific Assistant), (3) Ms. Divya (SRF), (4) Ms. Pragati Sharma (SRF)

Total Ph.Ds completed: 12

Facilities: Raman Spectroscopy

»»» In-house Research Highlights

» Spin-Phonon coupling driven ferroelectricity and magneto-dielectric changes in multiferroic YMn_2O_5

The correlations between the magnetic, dielectric, and lattice degrees of freedom have been investigated utilizing Raman spectroscopy, magnetization, specific heat, and dielectric measurements under magnetic field in order to understand magnetoelectric and magneto-dielectric behaviour in YMn_2O_5 . It is reported before that the RMn_2O_5 family of compounds show colossal magneto-dielectric behaviour which is attributed to the unique commensurate-incommensurate magnetic transition shown by the system. In the present study the magnetisation and specific heat studies revealed three magnetic transitions at $T_N = 44$ K, 41 K and 20 K along with a field-induced transition at 35 K under 12 T. Dielectric studies under magnetic field showed 1 % magneto-dielectric effects (MD) in the incommen-

surate spin order state below 20 K, and the MD becomes smaller in the commensurate magnetic state displayed in 20-41 K region. To elucidate the coupling between lattice dynamics and spin ordering, we performed temperature-dependent Raman spectroscopy, revealing clear signatures of spin-phonon coupling and lattice modulation at the three magnetic transitions. Density functional theory calculations are employed to estimate phonon frequencies and associated eigen displacements, demonstrating that only phonon modes with atomic displacements in the ab plane are significantly influenced by magnetic ordering and so, ferroelectricity. This finding highlights that Mn displacement associated with ferroelectric polarization is intrinsically linked to magnetic ordering through spin-phonon coupling, thereby driving magnetoelectric behaviour in YMn_2O_5 . [Ref. Pragati Sharma et al solid state communications 404, 116054 (2025)]

»»» Collaborative Research Activities

» Silver-tuned graphene oxide nanocomposites for multifunctional food safety applications: A versatile platform for detection and removal of food colorants

[I Anushma Jeffrin et al Chemical Engineering Journal 525, 170577 (2025)]

The use of food colorants has increased significantly in recent years, both in commercial and consumer platforms. Rhodamine B (RB), Crystal Violet (CV), and Malachite Green (MG) are synthetic dyes that are mainly used in food industry as colorants and preservatives. The colorants discharged from food industries in large quantities affect human health as well as aquatic species. This work aims to detect and remove food colorants by syn-

thesizing GO-Ag nanocomposites with various Ag concentrations. This work is framed in a dual sensing and quantification strategy along with a separation technology by SERS, Electrochemical sensing and a Membrane filtration approach using Graphene Oxide-Silver (GO-Ag) nanocomposites. The Limit of Detection (LOD) of the SERS substrates was calculated for each commercial dye, and the sensitivity of the SERS substrates was analyzed using three different commercially available dyes. Real-life application of the SERS substrates was examined by three different colored Cotton Candy samples without spiking any external source of colorants. Selective Electrochemical Sensing was carried out on a solitary commercial dye and Cotton Candy sample. GO-Ag nanocomposites at lesser concentrations were employed for the effective separation of

selective dye with a good retention rate of 99% and permeate flux. These multiple applications ensure the practical reliability of GO-Ag nanocomposites in food safety contexts.

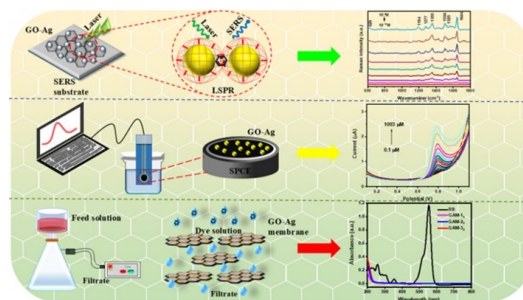


Figure 1: Synthesis of silver-tuned graphene oxide nanocomposites for multifunctional food safety applications.

Other Information

Invited Talks

- "Raman spectroscopy and its application" one-day Workshop on "Characterization Tools for Materials", October 27, 2025 at Punjab University, Chandigarh.
- "Femtometer scale atomic displacement tracked by polarized Raman spectroscopy," 2nd International Conference on Advances in Condensed and Nano Materials (ICACNM-2025) from October 28-30, 2025 organized by Dept. of Physics, Panjab University, Chandigarh.
- "Discovery of new protocol to trace femtometer atomic displacement in CuO" Key note address given at International Conference on Innovations in Materials Science for Sustainable Future, held during February 3-5, 2026 at Department of Physics, Dr. Babasaheb Ambedkar Marathwada University, Chhatrapati Sambhajnagar.
- "Discovery of Raman Effect", on science day 28 Feb. 2026 at Department of Physics, Dr. Babasaheb Ambedkar Marathwada University, Chhatrapati Sambhajnagar.
- **Chief Guest address** in concluding session of National conference on computational plasma research, organized by IPS in January 2026.
- **Chief Guest address in Samntran:** Advances in science for sustainable development by Shri Vaishnav Vidyapith deemed to be university, Indore on March 6, 2026.



DR. DINESH K. SHUKLA

Scientist-F

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Research Interests: X-ray scattering & spectroscopy, in-situ/in-operando X-ray diffraction studies, Multiferroicity, Piezoelectricity, Thermoelectricity, Strongly correlated electron systems

Group members: (1) Samanway Mohanta (SRF) (2) Hemant Singh (SRF) (3) Dhananjai Moharana (JRF) (4) Naseer Ahmad (JRF) (5) Shrey Vahia (JRF)

Total Ph.Ds awarded: 7

Facilities: (1) Piezoelectric coefficient (d_{33}) and dielectric measurements, (2) 14 T VSM (3) Low-Temperature High-magnetic field XRD (AY-DKS), (4) Grazing incidence X-ray scattering beamline, BL-13, Indus-2 (DK-DKS)

►►► In-house Research Highlights

► Research Overview and Key Achievements (2025–26)

Our group is engaged in growth, electrical, thermal & magnetic measurements, X-ray scattering & spectroscopic studies of complex oxide materials, and in-situ/in-operando X-ray diffraction studies of piezoelectric/battery materials. Our main aim is to acquire deeper understanding of the structure-property relationships in these materials.

► Enhanced kinetics in Cu-doped LiFePO_4 cathodes due to local structural disorder

Enhanced kinetics in Cu-doped LiFePO_4 cathodes due to local structural disorder. [Ref: D Kumar et al., Communications Materials. Accepted January (2026)]

► Textural and crystallographic phase dependencies in BSTBCT ferroelectric ceramics

Textural and crystallographic phase dependencies of functional properties in BSTBCT lead-free ferroelectric ceramics featuring polymorphic phase boundary. [Ref: A Anand et al., J. Phys. D: Appl. Phys. 59 115305 (2026)]

► Installation of Pilatus 200k at BL-13 for high-resolution diffraction studies

An in-house-developed stage has been designed for mounting a 2D detector (Pilatus 200k, pixel size $172 \mu\text{m}$) on the 2θ arm of the Huber goniometer at the GIXS beamline BL-13 of Indus-2. This detector has an offset of $2\theta \sim 25$ degrees from the point detector (B) and can be used in quasi-simultaneous mode. This allows high-quality measurement of powder diffraction data in a short time. For example, the Si powder diffraction pattern measured

in the wide angular range of 10 to 83 degrees was collected within 3 minutes. This configuration also enables high-resolution measurements; for example, a FWHM of 0.03 degree is achieved for LaB_6 . Furthermore, this development has enabled in-operando powder diffraction studies of batteries in transmission mode.

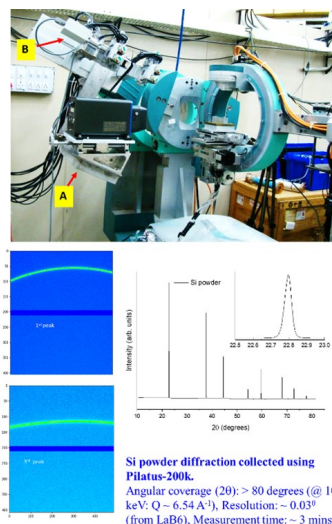


Figure 1: (Upper panel) Newly installed detector stage (A) mounted on the 2 θ arm of a Huber goniometer for the Pilatus 200k. (Lower panel) Si powder rings (shown in the left images) and the 1D powder diffraction pattern of Si obtained after azimuthal integration of the powder rings.

Collaborative Research Activities

Disorder Mediated Fully Compensated Ferrimagnetic Spin Gapless Semiconducting Behavior in CrAl Heusler Alloy:

Spin-gapless semiconductors (SGSs) that host fully compensated ferrimagnetism (FCF) are highly sought for energy-efficient and stray-field-free spintronics, yet their realization in chemically disordered systems has remained elusive. In this work, it has been demonstrated that the binary Heusler alloy despite adopting a fully A2-disordered structure, exhibits a rare coexistence of SGS transport and an FCF ground state. Electrical and thermal transport measurements uncovered SGS characteristics, including weak temperature-dependent conductivity, low Seebeck coefficients, and electron-hole compensated transport. [R. E. Philip et al., *Advanced Functional Materials* 36 (2026) e75194, IIT Pallakad].

Competing role of disorder and charge density wave in superconducting NbSe:

Disorder can be utilized as an effective parameter to probe the interplay between two long-range orders such as superconductivity and charge density wave. In this work, the experimental evidence for filamentary superconductivity in polycrystalline TiSe_{1.2}S_{0.8} with superconducting transition $c7K$ has been reported. This is validated from magnetization and magnetotransport measurements. Strain-induced dislocations, substitution defects, and randomly distributed Ti ions (with local moments) are considered as possible sources of disorder. A detailed analysis of the temperature-dependent resistivity evaluates the degree of disorder and the consequent localization effects. These findings are in contrast to the fact that superconductivity has not been established at ambient pressure in TiSe₂S system. It is suggested that disorder serves as a stabilizing factor for the superconducting phase due to incommensuration of the charge density wave.

[M. Singh et al., *Physical Review Materials* 9, (2025) 094802. JNU, New Delhi].

Other Information

Invited Talks

- Invited talk as resource person in workshop Lab to Fab: Materials for Advanced Technology on the topic Materials for energy applications, at MIT, Mysore, on 26 March, 2026.
- Invited talk in the Faculty Development Program (FDP) on Quantum Materials (QT-08) in online mode on the topic Crystal structure and X-ray diffraction methods, at the E&ICT Academy, MNIT Jaipur, on 9 March, 2026.
- Expert talk in the National Conference on Materials for Sustainable Development (MSD-2026) on the topic Vanadium Dioxide: A Strongly Correlated Material for Energy Applications at Rustamji Institute of Technology, Gwalior during 13-14 February 2026.
- Invited lecture in an International Workshop on Materials Modelling and Simulations (IWMMS)-2025 on the topic Unlocking the potentials of Vanadium Oxide for Energy Applications, at the Pt. Ravishankar Shukla University, Raipur, CG during 12-16 October, 2025.

- Invited talk in 5th National Conference on the Physics of Strongly Correlated Electron Systems (PSES-2025) on the topic Vanadium oxide a strongly correlated electron material for energy saving and energy generation at IIT (BHU), Varanasi during 12-14 September, 2025.
- Plenary talk in International Conference on Sustainable Technologies for Viksit Bharat (ICSTVB 2025 on the topic Structure-property relationships in energy materials, studied using synchrotron diffraction methods at Amity Gwalior, MP on 8 April, 2025.

Foreign Visits by Faculty and Students

- Mr. Samanway Mohanta (Ph.D. student) and Dr. Dinesh K. Shukla visited Photon Factory, KEK, Japan, under KEK-Japan project, during November 30 to December 4, 2025, to conduct high temperature X-ray diffraction experiments at BL-18 beamline. Mr. Hemant Singh (Ph.D. student) visited Spring8, Japan during April 21 to 24, 2026 to conduct EXAFS experiments at BL01B1.



DR. PRAVEEN KUMAR VELPULA

Scientist-E

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Research Interests: Nonlinear Optics, Ultrafast Spectroscopy, 2D materials, Raman Spectroscopy.

Group members: (1) Dr. Vasant Sathe, (2) Shri Ajay Rathore (Scientific Assistant), (3) Ms. Divya (SRF), (4) Ms. Pragati Sharma (SRF), (5) Ms. Shivani Malvi (SRF), (6) Mr. Dheeraj Kumar Gupta (JRF), (7) Mr. Manish Negi (JRF), (8) Mr. Kapil Soni (JRF)

Facilities: (1) Nonlinear Imaging (Multi-photon/Upconversion), (2) Second Harmonic Generation (SHG) Setup, (3) Raman Spectroscopy, (4) Confocal Microscope, (5) 2D Material Transfer System

►►► In-house Research Highlights

Our group focuses on the optical aspects of various condensed matter physics problems. Our expertise spans linear and nonlinear optical studies (nonlinear imaging), ultrafast and Raman spectroscopy studies of various 2D materials and metal-halide perovskites, and applications to multifunctional, quantum optoelectronic, and photovoltaic devices.

► Exploring Metal-Halide Perovskites for Photovoltaic Applications

We synthesize and characterize various types of mixed halide perovskites. Here we report on some key results of $\text{Cs}_3\text{Bi}_2\text{Br}_3\text{I}_6$ (CBBI). We observed the broad luminescence (PL) at low temperature compared to room temperature, linked to the structural transformation from trigonal to monoclinic phase which is confirmed by X-RD data. At low temperatures, we also observed that the photopyroelectricity, which can be linked to the inversion symmetry breaking.

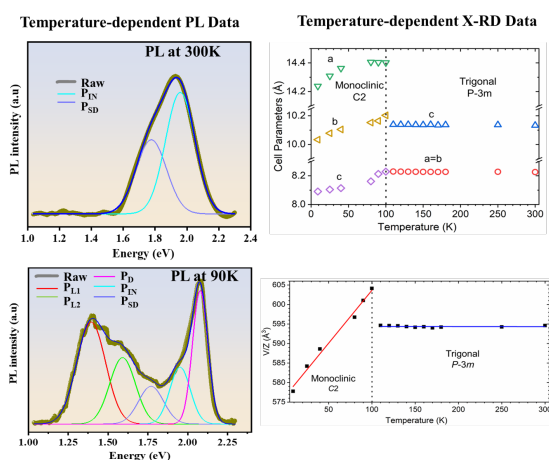


Figure 1: Temperature-dependent photoluminescence and XRD data.

The phase transition below 100 K and to link photopyroelectricity to inversion symmetry breaking con-

firmed by Second Harmonic Generation (SHG) microscopy on micro-single crystals of CBBI at room temperature and across the phase transition down to 80 K. The significantly brighter SHG signal across microcrystals at low temperature compared to the room temperature confirms the broken inversion symmetry at low temperature, thus indicating the emergence of a non-centrosymmetric, pyroelectric phase in CBBI microcrystals.

(a) Optical Image

(b) SHG Imaging

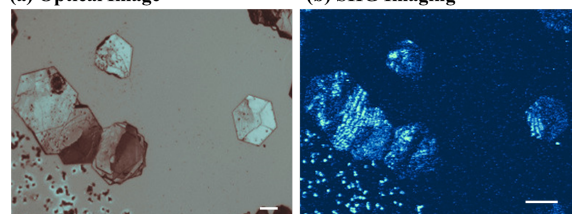


Figure 2: Perovskite microcrystals and their corresponding SHG imaging at 80 K.

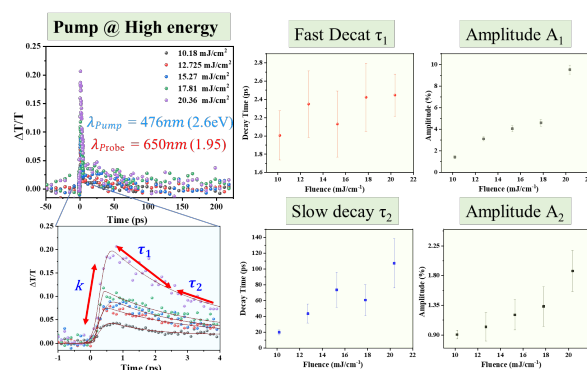


Figure 3: Hot carrier dynamics is investigated using ultrafast spectroscopy, where the sample is excited with a 476 nm pump and probed with a 650 nm.

The dynamics of hot carriers in metal halide perovskites has become a significant area of research, as it can substantially enhance photovoltaic efficiency beyond conventional limits. Studying the hot carrier dynamics in these materials and exploring po-

tential new materials is crucial for finding new ways to exceed the ShockleyQueisser efficiency limit. We observed that hot carriers thermalize by emitting of LO phonons within 2.4 ps. Additionally, the carriers remain hot from 10ps to 100ps due to acoustic phonon upconversion to optical phonons.

► Synthesis of 2D Materials and Their Heterostructures

We have fabricated heterostructures of the 2D materials In_2Se_3 and CrPS_4 using a 2D material transfer system. The resulting heterostructure exhibits Raman signatures of both In_2Se_3 and CrPS_4 . The device-related properties and applications of

these materials are under investigation in my group.

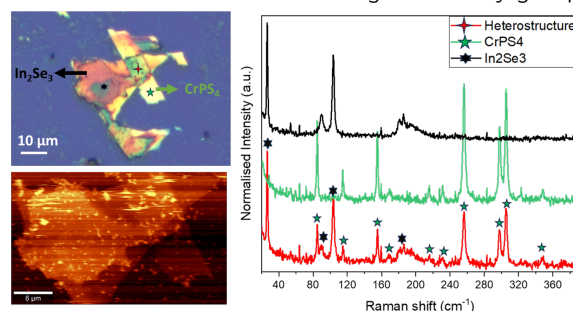


Figure 4: Optical microscopy and AFM images and Raman spectroscopy data of fabricated heterostructures of In_2Se_3 and CrPS_4 .

►►► Collaborative Research Activities

► SHG imaging of WS_2 2D materials and Strained monolayers

Second Harmonic Generation (SHG) imaging is a powerful, non-invasive optical technique widely used to probe symmetry and strain in 2D materials. We observed SHG from monolayer WS_2 which lacks inversion symmetry, making it intrinsically SHG-active, whereas its bulk counterpart is centrosymmetric and exhibits a negligible SHG response.

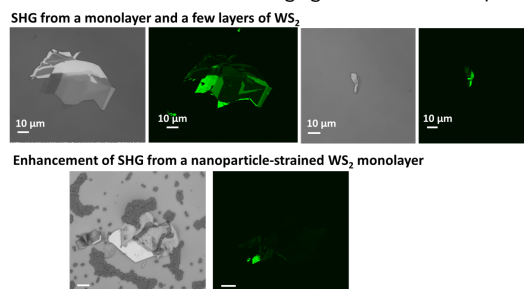


Figure 5: SHG imaging of WS_2 monolayers and SiO_2 nanoparticle-strained WS_2 monolayers.

In SiO_2 nanoparticle-dispersed WS_2 monolayers, where nanoparticles act as local stressors, SHG becomes an especially sensitive probe of lattice distortion and symmetry breaking. The enhancement in the SHG signal provides detailed insight into strain gradients and anisotropic deformation.

► SHG imaging of 2D perovskite samples

We observed appreciable SHG in 2D few-layered metal halide perovskites, which may link to structural distortions, organocinorganic layering, and symmetry breaking at reduced thickness.

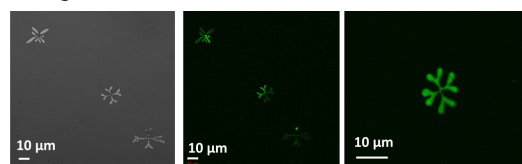


Figure 6: SHG imaging of layered $\text{Cs}_2\text{PbI}_2\text{Cl}_2$

►►► Other Information

► Invited Talks

- "UGCDAE CSR User Station: Future Prospects Enabled by the IR Free- Electron Laser at RRCAT," User Interaction Meeting on Science with IR/THz Free Electron Lasers, RRCAT Indore, January 29- 30, 2026.
- "Probing Ultrafast Phenomena: From Conventional Femtosecond Lasers to Infrared Free-Electron Lasers," International Work-

shop on Light Sources and Science with THz radiation and Electron beam, IUAC New Delhi, December 9-11, 2025.

- "Post-Compression using Multi-Pass Cells: A Route to High-Peak and High- Average Power Compact Laser Sources," 12th DAE-BRNS Theme Meeting on Ultrafast Sciences (UFS 2025), IIT Hyderabad, November 13-15, 2025.



DR. R. VENKATESH
Scientist-F

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Research Interests: Morphological,Topographical, Low temperature magneto transport,Heat capacity and thermoelectric properties of nano-topological insulators and chalcogenide nanostructures and and heterostructures.

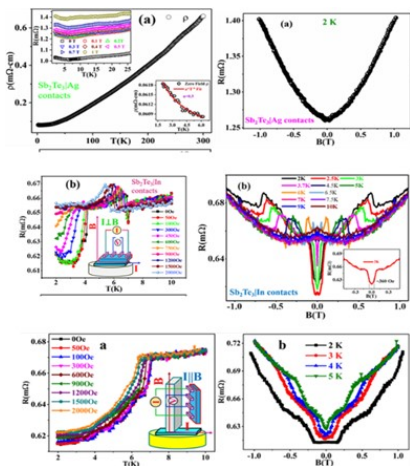
Group members: Mr. Mohan Kumar Gangrade (SA-F),Students:, Mr. Satyendra singh,Mr.Sushil kumar, Proj. Assistant:Mr. shreyansh

Total Ph.Ds awarded: 4

Facilities: 14T PPMS,AFM,CCR based TEP setup ,FESEM

»»» In-house Research Highlights

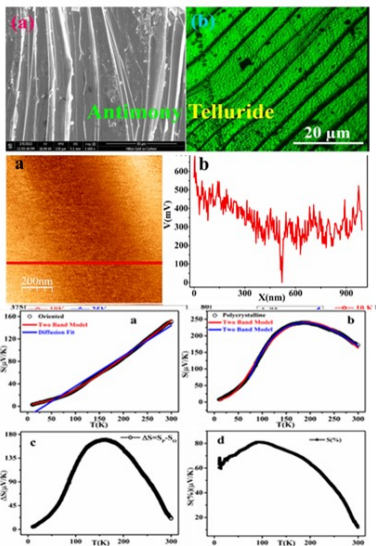
» Proximity Induced Superconductivity in Antimony Telluride Single Crystal by an Interplay of Indium contacts.



To investigate the proximity and inverse proximity superconductivity (SC) in topological materials (TMs) such as topological insulators (TIs) and topological crystalline insulators (TCIs) by the hosting of an interface between TM/SC may be the novel strategy in the understanding of the unexplored Majorana fermions and spin-triplet superconductivity etc. The TMs are known to preserve the non-trivial surface states (SS) which have emerged for exploring the exotic superconducting properties induced by the proximity effect. The observed superconductivity (proximity and inverse proximity) induced due to the mutual competition between the robust SS of TMs and sub energy gap of SCs. This strong competition between the electronelectron interaction (EEI) and cooper pairs correlation lead to proximity (inverse proximity) superconductivity if SC energy gap is dominant over EEI or vice versa (if rapidly mobile Dirac electrons break the phase coherence of cooper pairs at the interface (EEI > SC gap)) as discussed

in this article. The subsequent changes discussed in the superconducting proximity with perpendicular and parallel magnetic field (M.F.) makes this work very interesting due to the field dependence mechanism. The superconducting onset temperature is found to be (T_{onset}) 4.1 K with the upper critical field (H_{c2}) 1541 Oersted which is accordance with Ginzburg Landau Theory (GLT) observed in Sb₂Te₃ contacted with s-wave SC indium. [Ref.: Satyendra Singh and R.Venkatesh, Journal of Superconductivity and Novel Magnetism **38** 232 (2025).]

» Role of bipolar carriers conduction in mid-temperature Seebeck coefficient enhancement, in polycrystalline and oriented PbTe sample



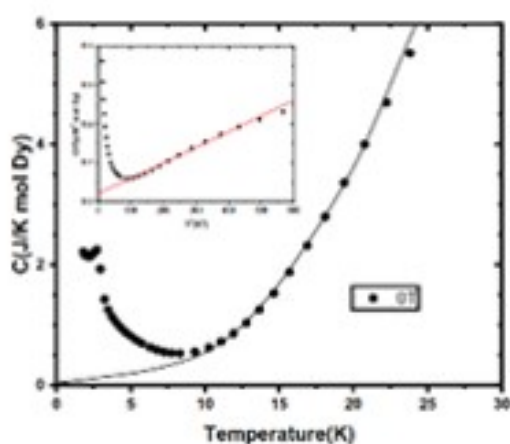
The thermoelectric studies of oriented and polycrystalline PbTe sample have been investigated under the mechanism of bipolar charge carrier's conduction. The two-band model yielded activation energies of 35 meV and 14 meV respectively for the polycrys-

talline and oriented sample. XRD confirmed the oriented sample's 2n 0 0 direction while polycrystalline shows all the preferred orientation. The room temperature Seebeck coefficient of the polycrystalline PbTe sample ($171 \mu\text{V/K}$) is found to be enhanced compared to the oriented ($151 \mu\text{V/K}$) and the drastically attains its maximum value in mid temperature region. This enhancement is more pronounced in the moderate-temperature region for polycrystalline

sample, attributed to dominant bipolar charge carrier conduction. The resistivity measurements indicated extrinsic and intrinsic semiconducting behavior for the polycrystalline sample, while the oriented sample displayed metallic to semiconducting behavior. Kohler's scaling further suggested carrier compensation. [Ref.: Satyendra Singh and R.Venkatesh, Physica B Condensed Matter **716** 417749 (2025).]

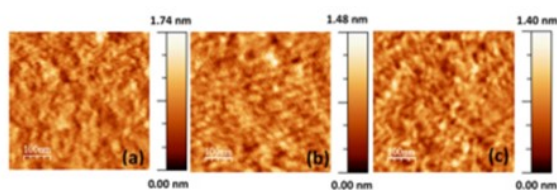
Collaborative Research Activities

Low-Temperature Studies on Spin-Ice Behavior in Frustrated Pyrochlore- $\text{Dy}_2\text{Ti}_2\text{O}_7$



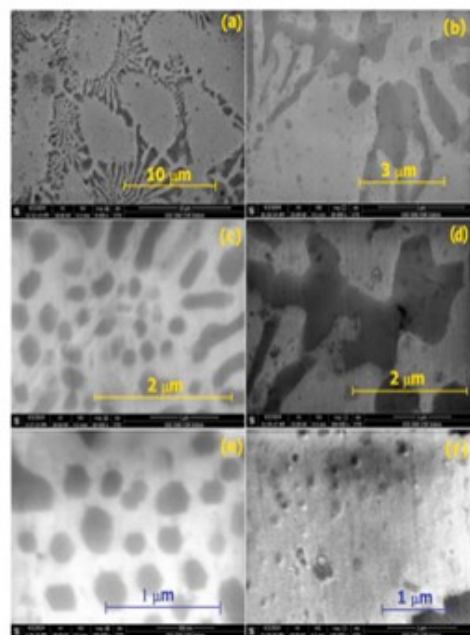
[Ref: Shruthi et al, physica status solidi (b) **263**, e202500314 (2026).]

Effect of deposition pressure on the superconductivity of $\text{Ti}_{40}\text{V}_{60}$ alloy thin films



[Ref: Shekhar et al 2026 Supercond. Sci. Technol. **39**, 025008 (2026).]

Eutectic microstructure and its effect on electrical and magnetic properties of V-Ti-Si alloy superconductors



[Ref: Asi et al, Materials Science and Engineering B **317**, 118158 (2025).]

DR. GUNJAN VERMA

Scientist-D

Email: gunjan.verma@csr.res.in



Research Interests: Laser Cooling and Trapping of Neutral Atoms, BoseEinstein condensation, including computational studies on nonlinear dynamics in BEC and expansion toward micro/nano-fabrication and thin film enabled sensing

Group members: (1) Sharanjeet Singh, SRF, (2) Manisha Priyadarsini, SRF

Facilities: FEI Nova NanoSEM 450 FESEM with EDX and e-beam lithography, 6-inch spin coater, in-house thermopower and electrical transport measurement setup, dynamic light scattering system, centrifuge, probe sonicator, electronic balance, programmable tube furnace, hot air oven, vacuum drying oven, Milli-Q water purification system, magnetic stirrer with hot plate, cold atom experimental facility at RRCAT, Indore (accessible via collaboration)

»»» In-house Research Highlights

Laser cooling and trapping of neutral atoms is my core research area. I have continued collaborative work with Raja Ramanna Centre for Advanced Technology on ultracold atoms, resulting in multiple publications. The long-term goal is to establish a Quantum Optics Laboratory at UGC-DAE CSR, Indore, with the aim of developing compact and scalable cold atom systems for quantum information processing and sensing. In parallel, I am expanding my research interests at UGC-DAE CSR toward micro/nano-fabrication and thin film based plasmonic sensing and have recently been involved with activities related to the development of a femtosecond laser based pump-probe experimental station using the Free Electron Laser (FEL) facility at RRCAT.

» Spatio-Temporal Monte Carlo Modeling of Collisional Dynamics in Optical Dipole Traps

A spatio-temporal Monte Carlo model is developed for loading and decay dynamics of optical dipole traps, incorporating collisional and radiative losses via semi-classical two-body rates. The model reproduces experimental atom-number evolution and provides a predictive framework for cold-atom quantum systems. Published in *Annalen der Physik* 538, e00538 (2026).

» Electron-Beam Lithography Development Activities

The e-beam lithography facility has been revived and made operational. Training by the Raith engineer was conducted covering patterning, resist development, lift-off processing, and dose optimization for process establishment and user readiness.

A semi-cleanroom setup is under development, with procurement of a spin coater and fume hood completed. Efforts are ongoing to establish the facility for routine lithography operations.

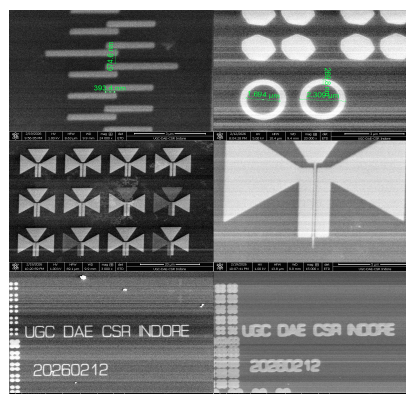


Figure: Lithography results demonstrating gold microstructures fabricated via sputter coating and lift-off, highlighting stitching errors, fine features, and dose-dependent behavior.

» FESEM and EDX Characterization Facility

A total of 70 users (34 in-house and 36 external), with 230 samples analyzed, were supported for FESEM and EDX characterization under current responsibility. Overall, 110 users and 360 samples were supported, including shared facility usage. The FESEM facility underwent source replacement (after 21,000 hours of operation) along with routine maintenance, including replacement of the DSGS board affecting image contrast and repair of the high-vacuum Penning gauge.

Collaborative Research Activities

Magnetic Anisotropy Engineering in Co/Alq₃ Bilayer Thin Films

This work investigates tuning of uniaxial magnetic anisotropy in Co/Alq₃ bilayers via oblique angle deposition of Co with varying thickness. The anisotropy crossover arises from competition between surface and volume shape effects linked to evolving morphology. This work demonstrate oblique angle deposition as an effective route for engineering magnetic anisotropy in organic spintronic systems. Published in Surfaces and Interfaces, 74, 107703 (2025), In collaboration with Dr. Dileep Kumar, UGC-DAE CSR, Indore.

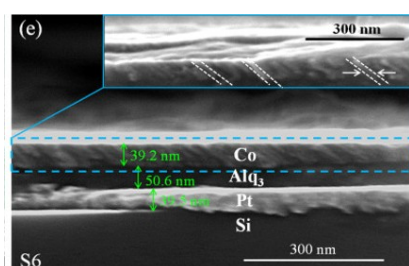


Figure: Cross-sectional FESEM image of obliquely deposited Co/Alq₃ bilayer Thinfilm.

Nanostructured SnO₂ Thin Films for Lithium-Ion Battery Anodes

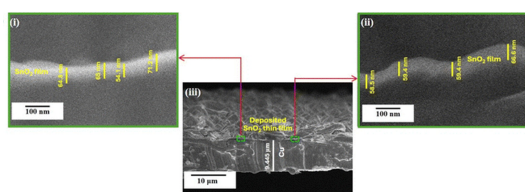


Figure: Cross-sectional FESEM images of RF-sputtered SnO₂ thin film on Cu.

A nanostructured SnO₂ thin film was deposited as a high-performance anode for lithium-ion batteries, targeting improved capacity retention and cycling stability. The film was fabricated via RF sputtering, and its thickness-dependent behavior was systematically studied. FESEM analysis was crucial in determining film thickness and morphology, enabling correlation with electrochemical performance. Published in RSC Appl. Interfaces, 2, 1877 (2025)(In collaboration with Prof. Sudeshna Chattopadhyay, IIT Indore).

Thermoelectric performance of Microwave assisted Bi₂Se₃ through ZnO-induced interfacial engineering

This work explores ZnO-induced interfacial engineering in microwave-assisted Bi₂Se₃ to enhance thermoelectric performance. FESEM and EDX analyses were used to examine morphology and confirm composition, respectively. Controlled ZnO incorporation is found to modify interfaces, promoting improved charge transport and phonon scattering for enhanced thermoelectric behavior (manuscript in preparation, in collaboration with Dr. Jai Singh, Guru Ghasidas University, Bilaspur).

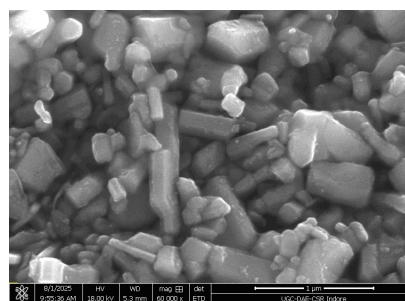


Figure: Nanocomposite formation of Bi₂Se₃ with ZnO nanostructures

Other Information

Sponsored Projects: as a PI

- “Exploring the prospects of ultracold atoms for fundamental science and quantum technologies”, DST Inspire Faculty Grant, Total Cost: 35 Lacs, Duration: 5 years (2023-2028)

Invited Talks/Honours/ Recognitions/Awards:

- “Ultracold atoms: a promising tool to probe non-linear phenomena in quantum systems and build quantum technologies”, Invited talk at School of Physics, DAVV, Indore, Aug 2025.

Publications

- “Columnar nanostructure and morphology driven magnetic anisotropy crossover in obliquely deposited Co/Alq₃ metalorganic bilayers, Priyadarsini et al. (including G. Verma), Surfaces and Interfaces 74 (2025), 107703
- “On trapping geometry for cold ⁸⁷Rb atoms in a radio-frequency dressed potential, Sarkar et al. (including G. Verma), J. Korean Phys. Soc. (2026)
- “Spatio-Temporal Monte Carlo Modelling of Collisional Processes in Loading and Decay of an Optical Dipole Trap. S.Shandilya, G.Verma et al., Annalen der Physik, 2026; 538: e00538



DR. ARVIND KUMAR YOGI

Scientist-E

Email: akyogi@csr.res.in

Research Interests: Quantum materials design and crystal-growth, Altermagnetism, Frustrated magnets, Metal-insulator transition, and Quantum phase transition.

Group members: (1) Ms. Preeti Mahajan Bhardwaj, Jr. Er. F

Research Scholars:

PI - (1) Ms. Isha Lallar (2) Mr. Koushik Chakraborty (3) Ms. Aditi Agrawal (4) Mr. Vikas Nawari (5) Mr. Shubham Ojha

Co-PI - (1) Ms. Priyanshi Tiwari (2) Ms. Shalini Mishra (3) Mr. Nayan Guchchait

Facilities: (1) LTHM-XRD (2) Optical Floating Zone (OFZ) furnace (3) Box and tube furnaces (4) Magneto-Dielectric setup

»»» In-house Research Highlights

Our group interest at "QM-EPG", find new ways to synthesis uncommon phases of condensed matter and use characterization techniques to explore them. The focus is on condensed matter systems, particularly on low-dimensional quantum materials & emergent phenomena originating from the quantum degrees of freedom. We are exploring such interesting physical properties that can arise when these systems interact by spin, lattice, charge, or orbitals. It includes crystal growth, detailed study of crystal structures and phase-transition, characterizing their anisotropy and finally explores their ground states.

» Enhanced e-ph coupling due to anomalous octahedral tilting in $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$

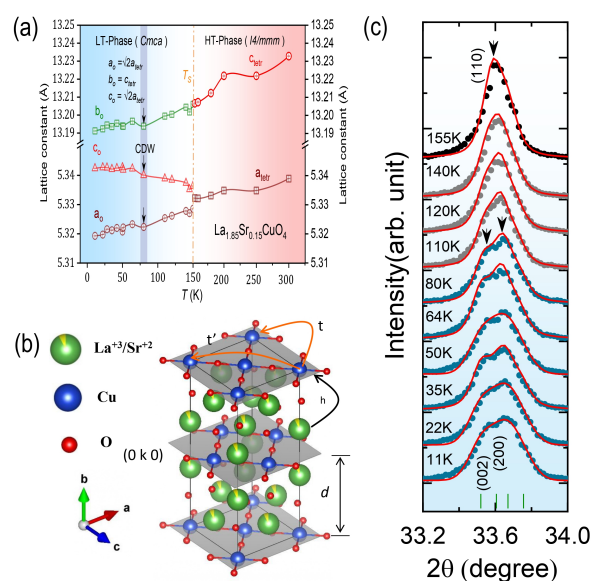


Figure 1: Structural details, phase-diagram, and evidence of CDW transition as pointed by downward arrow in $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$.

The electronphonon (e-ph) coupling is crucial in explaining various ordering phenomena such as superconductivity and charge density waves (CDW) which has been invoked to explain Cooper pair formation leading to superconductivity, however, the origin of charge state mechanism is not yet fully understood. Here we study the role of e-ph coupling in understanding the interplay of the structural phase transition, CDW and superconducting transition in the $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$ ($x = 0.15$) superconductor. We unveil by using comprehensive measurements of temperature dependent x-ray diffraction and Raman scattering along with needful electrical resistivity and magnetization measurements, we have observed signature of electronic phase-transitions such as structural transition ($T_s = 150$ K), CDW-like transition ($T_{CDW} = 80$ K), and superconducting transition ($T_c = 37.5$ K) in single-phase $\text{La}_{1.85}\text{Sr}_{0.15}\text{CuO}_4$ superconductor. The detailed structural investigation using powder x-ray diffraction for both LT- and HT-phase as a function of temperature suggests presence of strong lattice-coupling which gradually develops alternative in-phase (+ve) and anti-phase (-ve) CuO_6 octahedral rotation ($\phi \approx 3^\circ$) along the crystallographic bc -plane below the structural-phase transition leads symmetry-breaking in $\text{La}_{1.85}\text{Sr}_{0.15}\text{CuO}_4$. Below 80 K, We identified that Cu^{2+} charge-induced instability could remarkably shows a pronounced tetragonal distortion where this HT-phase (110) Bragg peak split into LT-phase orthorhombic (002) and (200) peaks. This distortion leads to drastic alternative +ve and ve rotation of CuO_6 octahedral ($\phi \approx 1^\circ$ - 3°) as evident in our temperature dependent x-ray diffraction and Raman scattering experiments, most likely responsible for the emergence of CDW formation in $\text{La}_{1.85}\text{Sr}_{0.15}\text{CuO}_4$. [Ref.: Isha et. al., J. Phys.: Condens. Matter **38**, 145402 (2026).]

Collaborative Research Activities

Lattice-dynamics of quasi-one-dimensional spin-1 corrugated skew-chain antiferromagnet: $\text{Ni}_2\text{V}_2\text{O}_7$

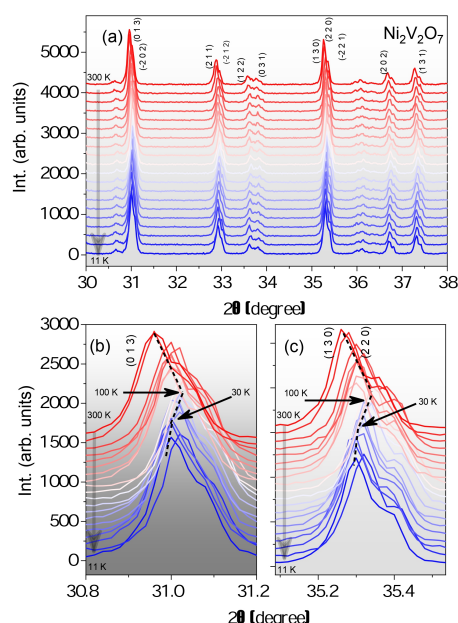


Figure 1: Temperature dependent x-ray diffraction and an evidence of NiO_6 local-distortion in $\text{Ni}_2\text{V}_2\text{O}_7$.

We investigated spin-lattice coupling through detailed structural, magnetic, and lattice-dynamics studies of the $S = 1$ quasi-one-dimension lattice $\text{Ni}_2\text{V}_2\text{O}_7$ compound by using x-ray diffraction, magnetic susceptibility ($\chi(T)$), heat capacity (C_p), x-ray absorption spectroscopy (XAS), x-ray photoelectron spectroscopy (XPS) and Raman spectroscopy. The spin-lattice coupling has been established in $\text{Ni}_2\text{V}_2\text{O}_7$ below ~ 100 K and the spin-lattice coupling

constant (λ_{sp}) for various Raman modes has been deduced which shows multiferroic behaviour below T_{N1} . The isostructural change observed in x-ray diffraction and Raman spectroscopy below 100 K, provide structural origin for the multiferroic behaviour shown by this compound. [Ref: **Hemant Singh Kunwar et. al., Phys. Rev. B 111 144426 (2025).**].

Interplay of octahedral tilt and anion vacancy in low-temperature phase transition of BaZrO_3

Oxygen as a ligand ions vacancies play a crucial role in ABO_3 lattice, for instance in BaZrO_3 . In this study we demonstrated that oxygen vacancies played a dominant role in originating strong second order Raman modes even in a centrosymmetric lattice of BaZrO_3 . We explain this behavior by the octahedral tilting from our detailed structural analysis. [Ref: **Ankita Agrawal et. al., Phys. Rev. B 111 104107 (2025).**].

Competition of Zeeman energy, antiferromagnetic interchain coupling and anisotropy energy in the Ising ferrimagnet $\text{Ca}_3\text{Co}_2\text{O}_6$

Angular-dependent and pressure-based magnetization studies on $\text{Ca}_3\text{Co}_2\text{O}_6$ single crystals reveal that the critical fields for the field-driven 3D-ferrimagnetic (FIM) to 3D-ferromagnetic (FM) transition follow a cosine angular dependence. This behavior arises from the competition between Zeeman energy and antiferromagnetic interchain coupling in the Ising ferrimagnet. [Ref: **Santanu De et. al., Phys. Rev. B 113 184416 (2026).**].

Other Information

Sponsored Projects: as a Co-PI

- "Czochralski based Single Crystal Growth facility for Intermetallic systems (upgradation to existing polycrystalline sample preparation by arc melting)", CRG, ANRF, Total Cost: 39.05 Lacs, Duration: 3 years

Invited Talks

- "Unconventional Field-induced Quantum Criticality in quasi-one-dimensional Frustrated Antiferromagnets", delivered by Dr. A. K. Yogi at 5th PSCS-2025 at School of Materials Science and Technology, Indian Institute of Technology (BHU), Varanasi, India during 12-14 Sept2025.

- Invited talk on "Hands-On Training Program on Sophisticated Instruments" 9-12 January 2026 at S. P. University Anand, Gujarat India.

Foreign Visits by Faculty and Students

- Mr. Koushik Chakraborty visited Max-Planck Institute for solid state research, Stuttgart Germany for two months and Dr. A. K. Yogi visited the Leibniz Institute for Solid State and Materials Research Dresden - IFW Dresden under scientific exchange program through project RC 1143 at TU Dresden during 20-04 Sept2025.



DR. SUDIPTA ROY BARMAN

CSIR Emeritus Scientist

Email: barmansr@gmail.com

Research Interests: Electron spectroscopy, surface science.

Group members: (1) Mr. Sajal Barman (SRF), (2) Mr. Mohammad Balal (SRF), (3) Mr. Mrinal Manna (SRF), (4) Soumen Giri (SRF) (5) Dr. Rajib Batabyal (Scientist D)

Total Ph.Ds awarded: 13

Facilities: (1) Photoelectron spectroscopy, (2) Scanning tunneling microscopy, and (3) Low energy electron diffraction.

»»» In-house Research Highlights

» Kramers nodal line in the charge density wave state of YTe_3

Recent studies have increasingly explored the interplay between charge density wave (CDW) collective electronic ground states and nontrivial topological phases. YTe_3 , a nonmagnetic quasi-two-dimensional chalcogenide, is known to undergo a CDW transition below 334 K. Through angle-resolved photoemission spectroscopy (ARPES) and density functional theory (DFT) calculations, we demonstrate that YTe_3 realizes a CDW-induced Kramers nodal line (KNL) metallic state, a recently proposed class of topological matter. Scanning tunneling microscopy and low-energy electron diffraction measurements reveal the presence of two orthogonal domains, each characterized by a unidirectional CDW with comparable wave vectors ($\mathbf{q}_{\text{CDW}}$). Accounting for the effects of these twin domains, effective band structure (EBS) calculations based on DFT bands derived from a noncentrosymmetric crystal structure obtained via x-ray crystallography show excellent agreement with ARPES measurements. Raman spectroscopy further confirms the noncentrosymmetric nature of YTe_3 . Both the Fermi surface maps and ARPES intensity distributions exhibit weak shadow bands shifted by $\mathbf{q}_{\text{CDW}}$ relative to the primary bands. EBS calculations attribute these features to the CDW modulation. The observation of bilayer-split main and shadow bands indicates the presence of band crossings, consistent with both theoretical predictions and experimental observations. DFT calculations incorporating spin-orbit coupling further reveal the existence of a KNL along the Γ direction, arising from multiple crossings of bands dispersing perpendicular to this direction. Moreover, doubly degenerate bands persist exclusively along the KNL across

all energies, with several bands crossing the Fermi level.

[Ref: S. Sarkar, et al., Phys. Rev. B **113**, 035129 (2026)]

» Quasiperiodic Potassium Adlayer on decagonal Al-Ni-Co quasicrystal

Quasiperiodicity in free-electron-like metallic systems has attracted considerable attention in condensed matter physics. In this study, using scanning tunneling microscopy (STM), low-energy electron diffraction (LEED), and density functional theory (DFT), we demonstrate the formation of a quasiperiodic potassium (K) monolayer on the tenfold surface of the decagonal Al-Ni-Co quasicrystal. At sub-monolayer coverage, STM measurements reveal a dispersed growth regime consisting of isolated K adatoms. With increasing coverage, these adatoms progressively coalesce to form quasiperiodic pentagonal and decagonal motifs. Correspondingly, LEED patterns exhibit well-defined rings of diffraction spots with characteristic decagonal symmetry. Complementary DFT calculations performed on the W-approximant surface, which closely mimics the structure of decagonal Al-Ni-Co, indicate that strong adsorbate-substrate interactions drive K adatoms to occupy quasiperiodically distributed energetically favorable adsorption sites, thereby stabilizing the quasiperiodic monolayer. Importantly, the structural motifs observed experimentally in STM images show excellent agreement with the DFT results, highlighting the critical role of the substrate electronic structure in governing the quasiperiodic ordering and growth of the K adlayer.

[Ref: V. K. Singh et al., J. Phys. Condens. Mater **37**, 365002 (2025).

Collaborative Research Activities

Ultraflat multilayer stanene on Ni(111)

Stanene, a two-dimensional honeycomb lattice composed of tin atoms, has been theoretically predicted to host a range of exotic quantum phenomena. In this work, we report the room-temperature growth of stanene on Ni(111) using scanning tunneling microscopy/spectroscopy (STM/S), low-energy electron diffraction (LEED), and core-level photoemission spectroscopy. Our results provide the first experimental observation of multilayer ultraflat stanene exhibiting honeycomb symmetry, with each layer characterized by a step height of approximately

0.22 nm. Furthermore, the stanene overlayer forms (2×2) surface reconstruction with a lattice parameter of 0.52 ± 0.01 nm, which is close to, but approximately 4% larger than, twice the lattice constant of pristine Ni(111). Scanning tunneling spectroscopy measurements of the local density of states indicate metallic behavior, accompanied by distinct spectral features in the vicinity of the Fermi level, in reasonable agreement with theoretical predictions reported by Guo et al. In addition, core level photoemission spectroscopy reveals clear signatures of hybridization between the monolayer stanene and the underlying Ni substrate.

Other Information

Invited Talks

- “Anderson localization and pseudogap in quasicrystals, at University of Liverpool, Liverpool UK, 29 April, 2026.
- Buckled Bilayer Stanene, at Charotar University of Science & Technology (CHARUSAT), Anand, 13 February, 2026.
- “Bulk electronic structure of quasicrystals and approximants, at Advances in Quantum Material using Synchrotron Techniques (AQMUST2026), Saha Institute of Nuclear Physics, Kolkata 24-27 February, 2026.
- “Photoelectron spectroscopy: a versatile surface science technique, at SPU Research Scholars Meet 2025-26, Sardar Patel University, Anand, 13 February, 2026.
- “Bilayer stanene on a magnetic topological insulator, at National Conference on Electronic Structure, IISER, Bhopal, 20-22nd November, 2025.
- “Kramers nodal line metal, a new topological material, Oral presentation at 38th European Conference on Surface Science, Braga, Portugal, 24-29 August, 2025.



DR. CHANDANA MONDAL

Ramanujan (Faculty) Fellow

Email: Chanmon@csr.res.in

Research Interests: Deep Potential Molecular Dynamics (classical DPMD) study of structural and mechanical properties of solids, Topological data analysis using Persistence Homology, Magnetic and Mechanical Properties of Thin Films, Statistical analysis, Phase Ordering Dynamics of Solids, Effect of Confinement, Active matter, Stress Propagation in Granular Media.

Group members: (1) Sourav Mukherjee

Facilities: Classical Molecular Dynamics Simulations

»»» In-house Research Highlights

» Disorder-Induced Ductility in Sn-Doped BaTiO_3

We investigate the influence of Sn substitution on the mechanical response of $\text{BaTi}_{1-x}\text{Sn}_x\text{O}_3$ perovskites. The ductility exhibits a pronounced non-monotonic dependence on Sn concentration, increasing from 36% at $x = 0.3$ to 53% at $x = 0.8$, followed by a reduction to 43% in BaSnO_3 ($x = 1.0$), as shown in Fig.1. To uncover the microscopic origin of this behavior, lattice dynamics are analyzed through phonon calculations performed in LAMMPS using the `fix phonon` implementation based on fluctuation–dissipation theory. The phonon density of states $g(\omega)$ systematically shifts toward lower frequencies with increasing Sn content, indicating progressive lattice softening. To isolate excess low-frequency vibrational modes beyond Debye elasticity, we examine the reduced spectrum $g(\omega)/\omega^{d-1}$. The reduced PDOS displays a strong non-monotonic evolution: with increasing Sn concentration (30% $\rightarrow$ 50% $\rightarrow$ 80%), a pronounced boson-peak-like feature emerges and shifts toward lower frequencies, signaling enhanced structural heterogeneity and quasi-localized vibrational excitations. These soft modes promote non-affine deformation pathways and suppress strain localization, thereby enhancing ductility. In contrast, fully substituted BaSnO_3 exhibits a weakened and hardened low-frequency peak, reflecting reduced structural disorder and diminished quasi-localized excitations, which leads to stronger strain localization and reduced ductility.

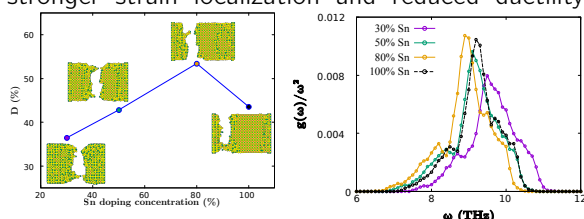


Figure 1: Ductility and reduced phonon density of states in Sn-doped BaTiO_3 .

» Microscopic Origin of Frictional Jamming

Friction fundamentally alters the jamming transition by generating long-range pressure correlations, heterogeneous force-chain networks, and the breakdown of hyperuniformity, yet the microscopic structural origin of these effects remains unclear. Using persistent homology on molecular dynamics and phase-field simulations, we uncover a hierarchy of ideal and defective local motifs whose populations evolve systematically with friction. We show that the proliferation of defective motifs controls the reduction of jamming density, emergence of spatially correlated stress heterogeneity, and anomalous pressure fluctuations in frictional packings. Motif statistics further enable direct prediction of the friction coefficient from static configurations, establishing a quantitative link between local topology and macroscopic mechanics. Monodisperse systems exhibit crystalline domains and hidden stress symmetries, while bidisperse systems reveal scaling relations connecting motif organization to continuum stress correlations. Our results suggest that friction drives jamming into a distinct universality class characterized by self-similar motif distributions and divergent stress correlations, providing a topological framework for understanding rigidity emergence in granular, amorphous, and biological materials.

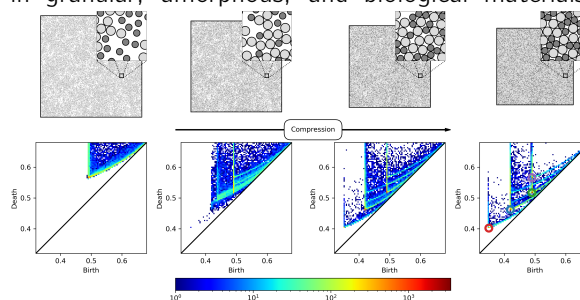


Figure 2: Motif analysis using persistence homology.

Collaborative Research Activities

Escape-Induced Temporally Correlated Noise

Surface growth simulations reveal a crossover from normal to temporally correlated noise caused by atom escape events during deposition. Fig. ??AC display the simulated surface evolution, showing an initial island nucleation that progressively transitions to clustered and mounded morphologies, eventually developing into faceted grains. To highlight the morphological evolution, corresponding area-selected 3D topographies (Fig. ??DF) and representative height profiles along the marked arrows in Fig. ??AC are presented (Fig. ??GI), closely reproducing the experimental observations. On these simulated topographies, we performed similar analyses to determine the critical exponents across the entire growth regime. The simulated rms roughness, $\omega(t)$, as a function of deposition time exhibits two distinct power-law regimes (Fig. ??J), mirroring the experimental data. The growth exponents were found to be $\beta_1 = 0.24 \pm 0.10$ during the early-stage island nucleation and $\beta_2 = 0.72 \pm 0.04$ during the subsequent mound and faceted grain growth, with the onset of the crossover indicated by a black arrow. Likewise, the temporal evolution of the local roughness exponent α_{loc} (Fig. ??K) and dynamic exponent z (Fig. ??LM) reveals two clearly separated regimes, characterized by $\alpha_{loc1} = 0.68 \pm 0.04$ and $1/z_1 = 0.37 \pm 0.07$ for the early-stage growth, and $\alpha_{loc2} = 0.77 \pm 0.04$ and $1/z_2 = 0.63 \pm 0.05$ for the late-stage morphology evolution. All simulated exponents exhibit excellent agreement, within uncertainties, with the experimentally determined values for the cKPZ and TCN-KPZ regimes.

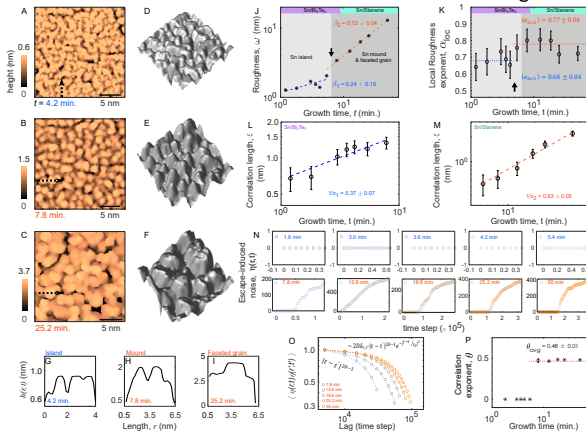


Figure 3: Simulated morphology evolution and escape-induced correlated noise.

Intermixing and Magnetic Compensation in Gd/Fe Multilayers

Simulations of Gd/Fe multilayers are performed using LAMMPS, with OVITO employed for structural and spin-texture visualization. The system consists of 10 alternating Gd/Fe bilayers terminated by an Fe surface layer, where each magnetic sublayer is represented by an effective spin degree of freedom. The magnetic behavior is governed by competing exchange, anisotropy, and Zeeman interactions described by

$$E = - \sum_{i,j} J_{ij} \vec{s}_i \cdot \vec{s}_j - \sum_i K_i (\vec{s}_i \cdot \vec{n}_i)^2 - g \sum_i \mu_i \vec{s}_i \cdot \vec{B}_{\text{ext}}.$$

Here, J_{ij} denotes the interlayer exchange coupling, K_i is the local magnetic anisotropy constant, and $\vec{n}_i$ defines the anisotropy axis. The final term describes the coupling of the atomic magnetic moment μ_i to the external magnetic field $\vec{B}_{\text{ext}}$, applied along the x-direction. The competition between antiferromagnetic Gd–Fe exchange and layer-dependent anisotropy gives rise to complex spin configurations, magnetic compensation, and temperature-driven hysteresis loop inversion in the multilayer system.

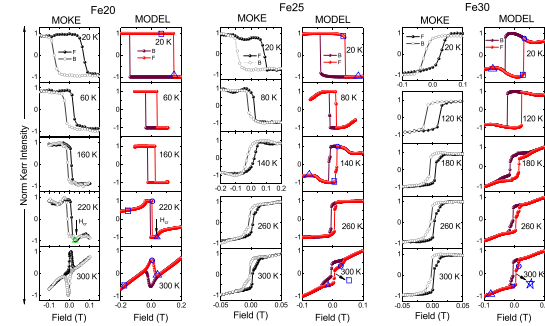


Figure 4: Temperature dependent magnetic hysteresis loops.



DR. M.P. SARAVANAN

Engineer-G

Email: sar@csr.res.in;ervanan@gmail.com;ervanan@yahoo.com

Research Interests: Electronics, Instrumentation, Low Temperature and Cryogenics.

Group members: N.Vijaya Kumar, Sanjay Shrivastava, S. Thilagaraj Kumar, Md Ziaul Haque, Sushil Kumar Sharma

Facilities: Helium and Nitrogen Liquefiers, Resistivity and Heat capacity measurement down to 0.1K @ ± 16 T

»»» In-house Research Highlights

» About Cryogenics

The CRYOGENICS section of the consortium has Liquid Nitrogen and Liquid Helium facilities to fulfill the requirement of in-house researchers. About 15 inhouse magnet systems have utilized 22,000 liters of liquid helium.

» Liquid Nitrogen Facility

The Linde make LINIT 50 Liquid Nitrogen Generator has the production capacity of 50 L/hr and produces about 1.2 Lacs liters of Liquid Nitrogen to fulfill the requirement of inhouse researchers and a few university users and other research institutes.

» Liquid Helium Facility

The Linde make L140 helium liquefier is having a production capacity of 56 L/hr and produces about 90,000 liters per year for the inhouse research.

» Automatic helium gas recovery system

An Arduino microcontroller based automatic helium gas recovery system is developed for managing the helium gas recovery which helps in maintaining a helium gas loss of less than 5%.

» Design of custom design experiments

A few experiments like VI/IV characteristics were designed and the interfacing was made for precise measurements. LabVIEW was used to interface the devices and for a user-friendly front end.

The thermal property measurements down to 2K/16T: The thermo power and thermal conductivity measurement system was made ready and verified for its accuracy and reproducibility.

Development of SCADA system for LN2 plant: To remotely control and monitor the Liquid Nitrogen plant a ABB based PLC was installed and the interfacing is done. The ladder logic programming for the real time control and Factory Talk programming for process visualization is completed.

To monitor the performance of the recovery compressors, a data logging system was designed and implemented to know the status of the compressors.

Python based programming along with Streamlit is developed to incorporate the AI advantages for a better monitoring and control of the systems.

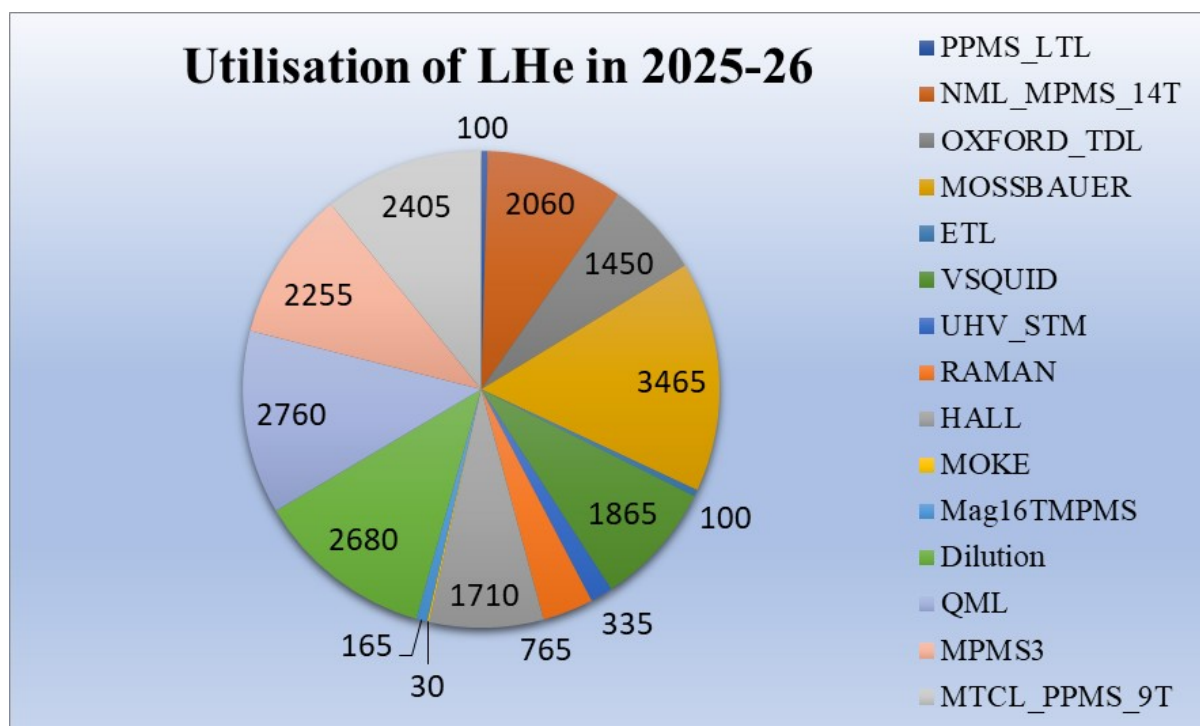
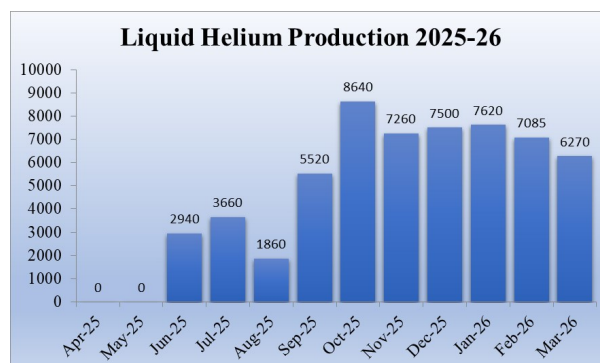
»»» Collaborative Research Activities

Collaborative research is being carried out with a few institutes like NPL, Delhi, IISER, Thiruvananthapuram, IET, DAVV, Indore, JNU, New Delhi to mention a few. Publications have come out with all the collaborators. Many of the experiments were performed with the Dilution refrigerator down to 100

mK/16 T. The system is extensively used for the university researchers.

Summer projects were carried out for students from DAVV, Indore. A light dependent VI characteristics system was Designed and developed for Punjab University students.

CRYOGENICS @UGC-DAE CSR INDORE



►►► Highlights of CRS Projects

► Synchrotron x-ray study of surface-aligned smectic A, B, F and crystal G phases in liquid crystals

[Malay Kumar Das, University of North Bengal, Siliguri India; CRS/2021-22/01/351]

We present a surface-oriented synchrotron x-ray diffraction study of the smectic phases in N-(4-n-octyloxybenzylidene)-4-butaniline (8O.4) (I-SmA-SmB-SmF-CrG). The x-ray diffraction data from a planar-aligned sample were evaluated to extract orientational order parameters (OOP), layer thickness, and lateral molecular spacing across varying temperatures. The longitudinal and transverse correlation lengths were also determined from the diffraction patterns. Additionally the smectic translational order parameters and the tilt angles of the compound have been measured. The temperature-dependent birefringence (Δn) was measured to assess the orientational order parameter, which was subsequently compared with values derived from x-ray diffraction and mean field calculations. The homeotropically aligned sample yields an in-plane x-ray scattering profile, revealing significant hexatic bond-orientational order in the SmB, SmF and CrG phases. The diffraction patterns were examined to evaluate the bond orientational order (BOO). In the SmB phase, the BOO is approximately 0.85, with an in-plane correlation length of 107 , suggesting that this phase is a stacked hexatic structure with long-range bond orientational order but short-range positional order. The orthorhombic unit cell parameters for the SmB phase were also determined. Ad-

ditionally, a new, more ordered smectic phase of this mesogen was identified as the smectic F phase, characterized by a C-centered monoclinic unit cell with axes $a > b$, where the unique axis b corresponds to the direction of molecular tilt. The technique used in this work will be helpful for future research on higher order smectic phases and other novel phases in liquid crystals.

[Ref. : Prabir Sarkar, Malay Kumar Das, Parameswara Rao Alapati, Banani Das, Anuj Upadhyay, Archana Sagdeo and Arvind Kumar Yogi, J. Phys.: Condens. Matter 101, 035908 (2026).]

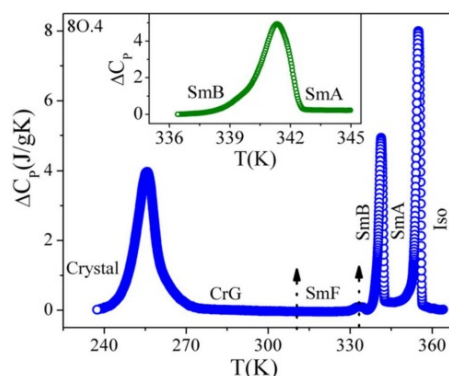


Figure : Change in specific heat capacity (CP) with temperature during the cooling process for compound 8O.4. Inset demonstrates the excess specific heat capacity close to SmA-SmB phase transition.

► Field dependent magnetic and dielectric properties of the Triangular Lattice Antiferromagnet: $\text{Ba}_3\text{CoSb}_2\text{O}_9$

[Satyapal S. Rathore, Manipal University, Jaipur (CRS/2021-22/01/448)]

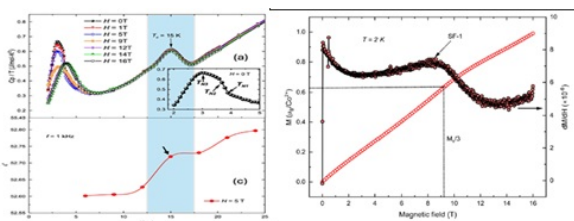


Figure : Temperature dependence of specific heat, dielectric constant and isothermal magnetization at 2K of $\text{Ba}_3\text{CoSb}_2\text{O}_9$.

The triple perovskite crystallizes in a hexagonal $P6_3/mmc$ centrosymmetric phase, and does not exhibit any structural transition down to 10 K. The transition to an antiferromagnetic state below T_N 3.6 K, is accompanied by significant frustration effects, including a large CurieWeiss temperature

(θ_{CW} $38 \times T_N$) and a dc magnetic field-dependent shift in T_N (from 3.6 K to 4.1 K under 0 T to 16 T). Furthermore, quantum fluctuations inherent to spin-1/2 triangular-lattice Heisenberg antiferromagnets were observed, manifested by the $M_{sat}/3$ magnetization plateau and a corresponding spin-flop transition above 9 T. Additionally, a field-independent transition at T 15 K is observed in both magnetic heat capacity (C_{mag}) and dielectric constant (ϵ'), along with a weak magnetodielectric response. These findings exhibit the interplay of geometric frustration, competing exchange interactions, and quantum fluctuations in determining the macroscopic properties of $\text{Ba}_3\text{CoSb}_2\text{O}_9$.

[Ref. : Sanjay Kumar et al. Journal of Alloys and Compounds 1039, 182702 (2025).]

► Probing the impact of the inclusion of NiFe_2O_4 on the structural and magnetic properties of LaSrBiMnO_3 ceramics

[Seema Sharma, University P G Department of Physics, Patliputra University, Patna, Bihar]

The study of polycrystalline samples of $(1-x)\text{La}_{0.4}\text{Sr}_{0.3}\text{Bi}_{0.3}\text{MnO}_3-(x)\text{NiFe}_2\text{O}_4$ (LSBMO-NFO) ($x = 0.01, 0.02, 0.03$ and 0.04) ceramics showed that with increasing NFO content, both the phase fraction and unit cell volume of the orthorhombic phase exhibited a gradual reduction. Further chemical state evaluated from X-ray photoelectron spectroscopy (XPS) confirms that Fe and Mn were present in $3+$ and $4+$ mixed states respectively. Reduction in Mn^{4+} ratio and increase in Fe^{4+} ratio was found to increase with increase in NFO percentage. Field dependent room temperature magnetic study revealed canted antiferromagnetic nature, while the temperature-dependent magneti-

zation studies of LSBMO-NFO compounds revealed a complex magnetic behavior driven by the interplay of long-range ferromagnetic and short-range spin correlations.

[Ref. : Shekhar Kumar et al., JMMM 643, 173911 (2026).]

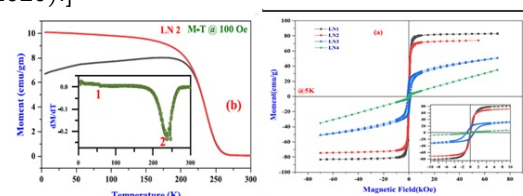


Figure : Temperature dependence of magnetization of $x = 0.02$ and isothermal MH loop of $x = 0.01-0.04$ at 5 K.

► Experimental and DFT analysis of antisite disorder and Griffiths phase in $\text{Dy}_2\text{CoMnO}_6$: structural, electronic, and magnetic insights

[N K Gaur, Barkatullah University, Bhopal]

This study investigates the structural, magnetic, and electronic properties of $\text{Dy}_2\text{CoMnO}_6$ synthesized via solid state reaction. Rietveld refinement of XRD data confirms a monoclinic $P2_1/n$ structure, with Raman spectra revealing BO_6 polyhedral dynamics. XPS analysis indicates mixed valence states of Co and Mn. Magnetic measurements show ferromagnetic ordering below $T_c = 87$ K due to $\text{Co}^{2+}-\text{Mn}^{4+}$ super-exchange, along with a Griffiths phase above T_c ($T_G = 91$ K) and canted antiferromagnetic correlations at low temperature. A coercivity of 6.8 kOe at 10 K further supports FM behavior. Density functional theory (DFT) calculations validate the stability of $\text{Dy}_2\text{CoMnO}_6$ in the ferromagnetic phase, showing that the ferromagnetic state is energetically more favourable than the antiferromagnetic state. [Ref. : Subha Dubey et al., J. Mater. Chem. C, 2025, 13, 10282 (2025).]

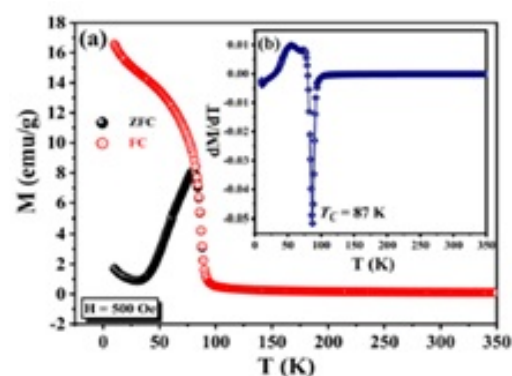


Figure : Temperature dependence of the magnetization measured of $\text{Dy}_2\text{CoMnO}_6$ under an applied magnetic field of 500 Oe during zero-field-cooled (ZFC) and field-cooled (FC) protocols; (b) corresponding dM/dT versus temperature plot highlighting the transition temperature more precisely.

► Transport-magnetism correlations in $(1-x)\text{La}_{0.67}\text{Ca}_{0.33}\text{MnO}_3:(x)\text{Ag}_2\text{O}$ perovskite manganite-composites

[Mamatha D. Daivajna, Manipal Institute of Technology (MIT), Manipal, Karnataka (CSR-IC-TIMR-06/CRS-273/2017-18/1279)]

The introduction of Ag_2O modifies the intergranular regions without altering the intrinsic perovskite lattice and leads to distinct effects in different temperature regimes. At low temperatures, grain-boundary contributions dominate the total magnetoresistance through spin-polarized tunneling, which is significantly suppressed in the Ag_2O composites due to the formation of additional conductive pathways between grains. At higher temperatures, improved intergranular connectivity shifts the metal-insulator transition temperature (T_{MI}) closer to the Curie temperature (T_{C}), resulting in a clear correlation between transport and magnetism, with charge transport below T_{C} governed by a polaron hopping mechanism.

anism.

[Ref. : Pramod R Nadig et al. J. Appl. Phys. 139, 093902 (2026).]

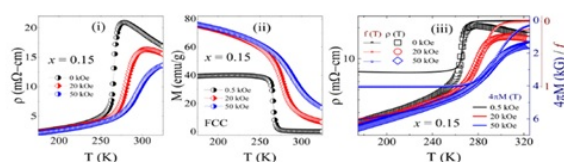


Figure : Temperature-dependent (i) $\rho(T)$ at 0, 20, and 50 kOe fields; (ii) M at 0.5, 20, and 50 kOe fields; and (iii) $(T) \cdot 4Mf(T)$ (obtained from the percolation model) for $x = 0.15$ of $(1-x)\text{La}_{0.67}\text{Ca}_{0.33}\text{MnO}_3:(x)\text{Ag}_2\text{O}$.

► Impact of interface engineering on domain wall motion in Ta/CoFeB/MgO multilayers with perpendicular magnetic anisotropy

[Dr. Sachin Pathak, UPES Dehradun, Uttarakhand]

Impact of interface engineering on the behaviour of magnetic domain walls (DWs) in perpendicularly magnetized Ta/CoFeB/MgO ultrathin films, for next-generation high-density non-volatile energy efficient memory applications that utilize DW motion is studied. Since perpendicular magnetic anisotropy (PMA) is an interfacial property, the CoFeB interfaces were modified through thermal annealing in the temperature range of 100 to 250 °C. It is observed that the multilayer demonstrates PMA up to a temperature of 200 °C. Chemical analysis reveals that after annealing, there is diffusion of boron towards MgO leading to the formation of boron oxide along with the reduction of Co-O bonds, which leads to the suppression of PMA along with an increase in coercivity. Furthermore, we examined the velocity of DW driven by an external field within the creep regime through the method of symmetric bubble expansion. Interfacial atomic movement across interfaces induces intermixing, leading to alloy formation. This structural modification enhances the pinning centres, as reflected in the increased roughness of the DWs. This intermixing also led to a significant increase in the creep constant, highlighting the role of interface in controlling DW dynamics.

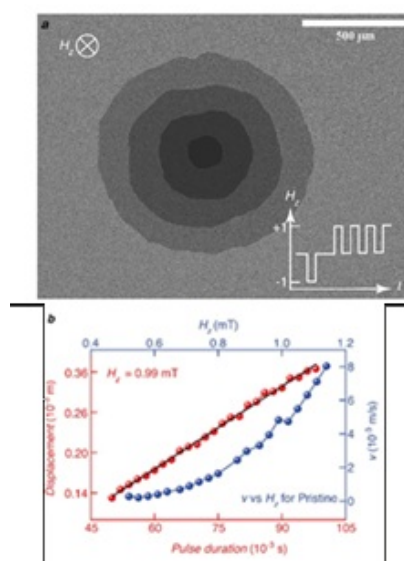


Figure : (a) Symmetrically expanding bubble domain by an out-of-plane magnetic field H_z of 0.99 mT with a duration of 80 msec for pristine multilayer (b) Left-bottom axis shows the bubble displacement vs pulse duration used to calculate the velocity of DW using slope (shown in black line) at fixed field of 0.99 mT for pristine multilayer (Shown in red color). The right-top axis shows v vs H_z for the pristine multilayer in the blue curve.

[Ref. : Anmol Sharma et al., Applied Surface Science 704, 163469 (2025).]

► Evolution of Temperature Dependent Electrical and Magnetic Behavior in a Series of Antimonate Triple Perovskite $\text{Sr}_3\text{CoSb}_{2x}\text{Ti}_x\text{O}_9$

[Mohd Ikram, National Institute of Technology Srinagar, Jammu and Kashmir]

Temperature-dependent magnetic susceptibility of $\text{Sr}_3\text{CoSb}_{2x}\text{Ti}_x\text{O}_9$ ($x = 0.0, 0.1$, and 0.5) exhibit the divergence between ZFC and FC curves at low temperatures, indicating magnetic irreversibility and the onset of spin frustration. CurieWeiss analysis indicates elevated effective magnetic moments and progressively negative Weiss temperatures with doping, aligning with developed antiferromagnetic interactions and the onset of magnetic frustration. The MH and Arrott plots validate the presence of mild ferromagnetic characteristics in doped samples, presumably resulting from $\text{Co}^{2+}/\text{Co}^{3+}$ valence variations caused by Ti^{4+} substitution. These findings emphasize the dual function of Ti^{4+} doping in influencing spin correlations and dielectric relaxation, indicating potential multifunctional applications in

magnetodielectric materials.

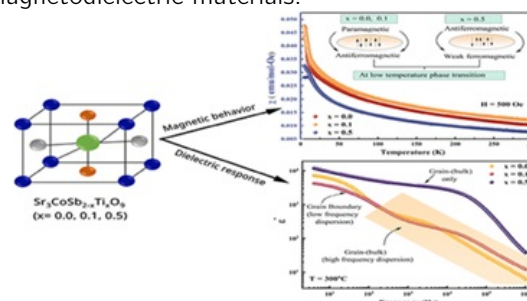


Figure : Crystal structure, temperature dependence of magnetic susceptibility and frequency dependence of dielectric constant of $\text{Sr}_3\text{CoSb}_{2x}\text{Ti}_x\text{O}_9$ ($x = 0.0, 0.1$, and 0.5).

[Ref. : Muntha Majeed et al, Langmuir 41, 31359 (2025).]

► Electronic, magnetic and thermal behavior near the Invar compositions of Fe-Ni alloys

[V.R.R. Medicherla, ITER, Siksha O Anusandhan Deemed to be University, Bhubaneswar]

The XRD studies of $\text{Fe}_{1-x}\text{Ni}_x$ ($x = 0.32 - 0.50$) suggest a single phase with fcc structure for $x = 0.36, 0.40$, and 0.50 alloys and a mixed phase for $x = 0.32$ alloy containing both bcc and fcc structures. The lowest coefficient of thermal expansion (CTE) is observed for $x = 0.36$ Invar alloy while $x = 0.50$ alloy exhibits the highest CTE among the alloys studied. The CTE of the fcc component of mixed phase alloy is close to that of Invar alloy. The temperature

dependence of magnetization of the alloys down to 2 K reveals an overall antiferromagnetic interaction within the ferromagnetic phase causing the magnetization decrease with lowering temperature. The core level and valence band spectra, and the magnetization data suggest significant role of disorder for the Invar compositions.

[Ref. : Ananya Sahoo et al, J Electron Spectroscopy and Related Phenomena 280, 147540 (2025).]

► Non-equilibrium spin dynamics of the frustrated trication spinel ZnMnCoO_4 in the hierarchical free-energy framework

[Subhash Thota, IIT, Guwahati (CRS/2021-22/09/849)]

Short-range spin correlations, memory and rejuvenation effects have been reported in the trication oxispinel ZnMnCoO_4 whose low-temperature spin dynamics, triggered by magnetic frustration (fr 6), could be better explained by the phenomenological hierarchical free-energy model than the short-range droplet theory. Accordingly, the aging mechanism of the system had an asymmetric memory response to the positive and negative thermal cycles within the cluster-glass state ($T < 32.6$ K) and demonstrated a hierarchical organization of the phase space where its

metastable energy states undergo continuous splitting with decreasing temperature. Werons probabilistic relaxation model (here, the fractal character $\beta 0.4$, the hierarchical constraint $k > 0$, and the order parameter $q(T 0.12\text{TSG}) = 1.88$) based on a purely stochastic approach, was best suited for understanding the slow spin dynamics of the cluster-glass phase in the entire temporal range.

[Ref. : M Roy-Chowdhury et al, J. Phys.: Condens. Matter 37, 135806 (2025).]

» (viii) Significance of the structural configuration of B2 disorder in Co and Ti based Heusler alloys

[R. Bindu, IIT Mandi, Himanchal Pradesh]

The study highlights the crucial importance of a detailed understanding of the nature of B2 disorder in $\text{Co}_2\text{Mn}_{1-y}\text{Cr}_y\text{Al}$. In the case of $y = 0$, in the temperature range of study, the resistivity is driven by the functional form associated with (a) three-dimensional enhanced electron-electron Coulomb interaction scattering mechanism and (b) an unconventional one-magnon process. For Ti_2MnAl , the transport shows metallic glasslike behavior at high temperature, while at low temperature it follows both the Cote-Meisels model and quantum correction model. In this compound, the magnetic studies suggest the formation of superparamagnetic clusters in the paramagnetic matrix at low temperatures.

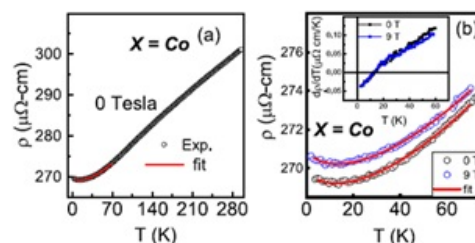


Figure : Resistivity vs temperature fitting for Co_2MnAl ($x = \text{Co}$). (a) The red line shows the fit using Eq. (3). (b) Fitting at 0 and 9 T with a sum of residual resistivity, 3D electron-electron Coulomb interaction (EEI) $T^{1/2}$ term and unconventional one-magnon scattering $T^{3/2}$ term.

[Ref. : Swati Pathak et al, Phys. Rev. B 112, 064207 (2025).]

» Indication of room-temperature magnetodielectricity and weak spontaneous polarization in (Sr, Mn) co-doped $\text{La}_2\text{FeCrO}_6$

[D D Sarma, IISc Bangaluru]

A systematic study of pure and Mn-doped $\text{La}_2\text{FeCrO}_6$ (LFCO) revealed an unusual magnetic transition controlled by FM (or FiM) interactions between the constituent ions, as well as additional AFM interactions arising from large ASD and APB phases in these systems. The degree of site ordering largely governs the magnetic behavior of both the pure and doped LFCO samples, as reported here and in the literature. Indications of room-temperature MD coupling, possibly associated with ASD and

the formation of APB phases, have been observed. The plausible role of SPC in the observed magnetodielectricity is discussed. Furthermore, evidence of room-temperature and possible spontaneous polarization was observed in intermediate-doped samples, where the strength of the SPC is maximal. This leads us to include lattice contraction upon doping as an additional reason for the observed behaviors. [Ref. : Sumanta Mukherjee et al, J. Phys.: Condens. Matter 37 495802 (2025).]

» Probing the Role of Lattice Strain/Constraint in Crystal Geometry and Electronic Structure of Sr-Based Oxide Thin Films and Bulk Systems: A Comparative Study:

[Ms. Divya Kumari and Dr. Seema Sharma, A.N. College, Patna]

In ceramic oxide thin films, lattice strain is a powerful tool for engineering material properties. As the film conforms to the substrate's lattice, mismatches induce strain that reshapes the crystal structure and tunes the electronic band landscape, unlocking novel physical behaviors absent in the bulk form of ceramics. Herein, a comparative study between bulk and thin films of double perovskite oxides, $\text{Sr}_2\text{FeCoO}_6$ (SFCO), $\text{Sr}_2\text{FeMnO}_6$ (SFMO), and SrLaFeMnO_6

(SLFMO) on the background of crystal geometry and electronic structure is reported. The observed X-ray patterns depict massive broadening in the peak features, which leads to high lattice strain (two fold to five fold) in the studied films. Compared to the bulk states, the electronic charge states of Fe and Co are pushed to lower oxidation states, while Mn prefers to lose electrons. Interestingly, in thin films, the Fe^{2+} state is observed for SFMO and SLFMO,

and Co^{3+} is entirely converted into Co^{2+} in SFCO, compared to their bulk counterpart. This study has broader implications concerning the role of lattice strain in influencing the geometrical configuration

and the electronic structure, thereby affecting the structure-sensitive functional properties.

[Ref. : Divya Kumari and Dr. Seema Sharma, Phys. Status Solidi B. 263, e202500379 (2026).]

► Influence of substrates and buffer layers on the magnetic properties of DyMnO_3 based heterostructures:

[Urjitsinh Rathod and Dr. Ashish Ravalia, Saurashtra University, Rajkot]

Three distinct DyMnO_3 based thin film heterostructures: $\text{DyMnO}_3/\text{Sr}_{0.998}\text{Nb}_{0.002}\text{TiO}_3$ (100), $\text{DyMnO}_3/\text{LaNiO}_3/\text{LaAlO}_3$ (100) and $\text{DyMnO}_3/\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3/\text{SrTiO}_3$ (100) were fabricated using the pulsed laser deposition technique (PLD). The study of structural, morphological, and magnetic properties is carried out on heterostructures using X-ray diffraction (XRD), Atomic Force Microscopy (AFM), and magnetic susceptibility measurements. It indicates the crystalline structure along with the epitaxial growth of films as obtained from XRD analysis. AFM imaging further provides the surface morphology as well as the roughness. This study elucidates the role of strain and interfacial effects in tuning the magnetic properties of DyMnO_3 heterostructures. The comparison and analysis of these results provide valuable insights into

the interplay between structural, morphological and magnetic properties in thin film heterostructures. *MH* loops at 5 K were studied using mathematical formulae of various combinations of different types of magnetism such as Langevin Paramagnetism, Antiferromagnetism, Non-linear Ferromagnetism and Diamagnetism to formulate the Python scripts, which have been used to understand the magnetic contributions of the different layers in the overall heterostructure and derive the values for the same. This study not only contributes to our fundamental understanding of these materials but also holds promise for the development of novel electronic and magnetic devices with tailored functionalities.

[Ref. : Urjitsinh Rathod and Dr. Ashish Ravalia, Saurashtra University, Rajkot, Mater. Sci. Eng. B 318, 118304 (2025).]

► Novel synthesis of positively charged N, S doped carbon dots as an efficient fluorescent probe for L aspartic acid sensing

[CRS/2021-22/01/410]

The surface of carbon dots can be easily modified by doping with heteroatoms to tune their optical properties. Hydrothermal treatment of molecular precursors is one of the most useful ways for heteroatom doping. Here, we have developed a novel strategy to dope carbon dots with heteroatoms by the hydrothermal reaction of the nonmolecular, sub-100 nm precursor, carbon powder with L-cysteine. The synthesized carbon dots, N, S-CDs, are positively charged and exhibit an excitation-dependent blue fluorescence (FL). Their average particle size is 1.77 nm, and their average fluorescence lifetime is 2.63 ns, with a fluorescence quantum yield of 25.14 %. The N,S-CDs possess good photostability, and the effect of pH on their FL behavior is also studied. The N,S-CDs act as a selective and sensitive fluo-

rescent probe for the detection of L-aspartic acid in aqueous media, and the limit of detection is found to be 2 nM. Fluorescence quenching occurs through the combination of static as well as dynamic paths.

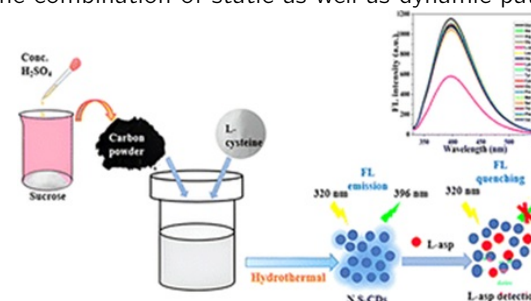


Figure : Fluorescent carbon dots N, S-CDs for sensing applications.

[Ref. : A. Dutta et al., Nanoscale Advances 7, 1074710758 (2025).]

Kolkata Centre



**DR. SANDEEP S. GHUGRE****Centre Director****Kolkata Centre****Email** : centredirector.kc@csr.res.in; sandeep@csr.res.in**Address** : UGC-DAE Consortium for Scientific Research
Sector III, LB-8, Bidhan Nagar,
Kolkata - 700 106, W.B. India.**Phone** : +91-33-23358035 / 23351866 (D: 23356542)**Centre Director's Message**

The Kolkata Centre has undertaken major strides, during the past year, towards expanding its research aspirations as well as towards augmenting the experimental facilities for extended support to the university users. The new premises of the Centre is now operational at the New Town Rajarhat Campus and housing high-end equipments of diverse usage and applications. One of the principal additions to the facilities of the Centre is the Gamma Irradiation Chamber (GIC) that is now installed at the new laboratory complex and is ready for use in the in-house and user research programmes. The GIC at the Kolkata Centre is the GC5000 model procured from the BRIT (DAE) that can deliver a (maximum) dose rate of 4.5 kGy/hour. The facility will be extensively used for the cancer biology research at the Centre along with similar studies being pursued under the collaborative programmes. The facility will also cater to multidisciplinary research areas, such as investigations on the radiation hardness of high density devices and circuits and photo-excitation of nuclear isomers of theranostic pertinence. The radiation and stress biology programme of the Centre has also been facilitated with an inverted fluorescence microscope and a Real-Time PCR system (under ANRF funding) to benefit the investigations of exposed and treated cell lines and other samples. And, most importantly, as per the continuing mandate of the Consortium, the equipments remain available for use by the larger fraternity of university based researchers. Dedicated efforts are made to maximize the up-time of all the facilities, to better serve the interest of the users. The low background gamma-ray counting facility of the Centre has been relocated to the new campus and has been added with a new single crystal HPGe detector. The increased number of counting stations will help concurrent measurements on more number of environmental/ irradiated samples. The Raman Spectrometer at the Centre has recently undergone major maintenance and is now merited with capabilities of

structural and chemical analysis of a wider variety of samples and measurements. The new and the existing facilities together have rendered the Centre befittingly disposed to advance its heterogeneous research programmes as well as cater to an expanded user base from institutions across the country.

Further to the aforementioned accomplishments, the Centre has also embarked on the pathway to bolster its research purview and the user support ecosystem. Procedures for procurement have recently been completed for a 400 MHz Nuclear Magnetic Resonance (NMR) Spectrometer and XRD systems equipped for low and high-temperature configurations, High-Resolution XRD (HRXRD), and Grazing Incidence XRD (GIXRD). These facilities will manifold the wherewithal for material characterization at the Centre.

Apart from the regular awareness workshops, the Centre has hosted two online user meetings in coordination with VECC, Kolkata. One of these was directed at the use of the new K500 Superconducting Cyclotron (SCC) Facility at VECC, for nuclear physics experiments. The meeting provided the premise to deliberate on the different measurements possible at beam energies of 10 - 20 MeV/u, as delivered by the SCC. The second meeting was on the use of the low- and the high-energy accelerators at VECC for materials science experiments. The discussions included the complementary role of the Kolkata Centre in the characterization exercises for the irradiated samples while using the whole arsenal of experimental facilities herein.

The Centre continued to host UG and PG students from local institutions for internship programmes and laboratory visits towards fulfillment of the curricular requirements under the new education policy in the country. These programmes are expected to go a long way in inspiring the young generation of college and university students to pursue research as a career and eventually serve the national academia.

DR. SOUVIK CHATTERJEE

Scientist-F

Email: souvik@csr.res.in

**Research Interests:** Magnetic and electrical properties of transition metal alloys and oxides.**Group members:** (1) Dr. Rajib Mondal (Scientist-E), (2) Sanat Kumar Adhikari, SRF (Institute), (3) Riya Roy, SRF (CSIR-Direct), (4) Sanchita Ghosh, JRF (Institute), (5) Anirban Saha, JRF (CSIR), (6) Rosni Roy, SRF (Institute), (7) Sandip Paul, JRF (CSIR), (8) Gourab Kanti Jana, JRF (ANRF) (9) Dr. P. V. Rajesh (SA-F) (10) Mr. Bikram K Behera (JE-F), (11) Mr. Mukesh Kumar (SA-F);**ANRF TARE visitor:-** Dr. Kalyanashis De (Assistant Professor, The Neotia University)**Total Ph.Ds awarded:** 6**Facilities:** (1) X-ray powder diffractometer, (2) 15 Tesla cryogen free system with VSM, Resistivity, Dielectric, and Pyroelectric measurement options, (3) 4 K CCR for zero-field resistivity and dielectric measurements, (4) Ferroelectric loop tracer, (5) Tri-arc furnace, (6) resistive furnaces**►►► In-house Research Highlights**

Our research group is primarily engaged in investigating the structural, magnetic, and magneto-functional properties of a wide range of transition metal-based alloys and oxides. In recent years, our focus has increasingly shifted toward magnetic equiatomic alloys and Mn-based binary systems within this class, owing to their rich phase behavior and promising functional properties. To gain comprehensive insights into these materials, we employ a combination of experimental techniques, including DC magnetization measurements, electrical transport studies, X-ray and neutron powder diffraction, as well as X-ray absorption spectroscopy. These complementary approaches enable us to correlate microscopic structural features with macroscopic magnetic and functional responses. Some of the key findings and outcomes of our research during the period 202526 are summarized below:

► **Tuning magneto-structural and magnetocaloric properties of MnNiGe alloys through strategic use of self and dual doping approaches**

The present work investigates the influence of self-doping, as well as the combined effect of self- and vacancy-doping, on the structural, magnetic, and magneto-functional properties of MnNiGe-based equiatomic alloys with nominal compositions $\text{Mn}_{1-x}\text{Ni}_{1+x}\text{Ge}$ ($x = 0.2$ and 0.15), $\text{Mn}_{1+y}\text{Ni}_{1-y}\text{Ge}$ ($y = 0.2$ and 0.22), and $\text{Mn}_{1+z}\text{Ni}_{0.9-z}\text{Ge}$ ($z = 0.03$ and 0.06). Experimental results indicate that all six alloys undergo a martensitic-type first-order phase transition, with the transition temperature systematically shifting toward lower values as the doping concentration increases. Structural analysis further

reveals that the martensitic phase transition remains incomplete in these systems. A significant magnetic entropy change observed near the transition temperature highlights the potential applicability of these materials as magnetic refrigerants. Notably, perturbations at the magnetically active Mn site through self-doping exert a more pronounced influence on both structural and magnetic properties compared to modifications at the non-magnetic Ni site. Furthermore, the introduction of vacancies at the Ni site enhances the degree of incompleteness of the martensitic phase transition in the dual-doped alloys. In addition, field-induced metamagnetic transitions, non-monotonic inverse magnetocaloric behavior, and indications of a possible spin-reorientation transition are observed in alloys exhibiting combined self- and vacancy-doping.

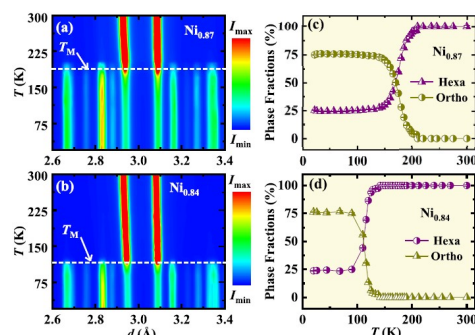


Figure: Temperature evolution of structural reflections and variation of phase fractions for $\text{Mn}_{1.03}\text{Ni}_{0.87}\text{Ge}$ ($\text{Ni}_{0.87}$) and $\text{Mn}_{1.06}\text{Ni}_{0.84}\text{Ge}$ ($\text{Ni}_{0.84}$) alloys.

[Ref: S. K. Adhikari and R. Roy *et al.*, Physical Review B, **112**, 054426 (2025)]

Collaborative Research Activities

In addition to the in-house research activities, twenty-nine (29) Collaborative Research Schemes (CRS) are currently ongoing. Furthermore, several one-time users have also availed the facilities for their research work. One representative research activity is described below:

Stability of the collinear up-up-down-down magnetic ordering in $\text{Ca}_3\text{CoMnO}_6$

$\text{Ca}_3\text{Co}_{2-x}\text{Mn}_x\text{O}_6$ is a quasi-one-dimensional Ising chain magnet that exhibits a unique collinear up-up-down-down ($\uparrow\uparrow\downarrow\downarrow$) magnetic ordering, leading to the emergence of ferroelectricity below the Néel temperature of 13 K. This distinctive long-range magnetic order has often been suggested to stabilize only in Co-rich (i.e., $x < 1.0$) non-stoichiometric $\text{Ca}_3\text{CoMnO}_6$, while remaining absent in the stoichiometric ($x = 1.0$) compound. In this work, by combining multiple experimental techniques with first-principles density functional theory calculations, we demonstrate that the $\uparrow\uparrow\downarrow\downarrow$ magnetic ordering can, in fact, be stabilized even in stoichiometric $\text{Ca}_3\text{CoMnO}_6$ ($x = 1.0$). This stabilization occurs through an optimal degree of cationic site disorder, wherein a fraction of Mn and Co ions interchange their positions between trigonal prismatic (Co sites in the ordered structure) and octahedral (Mn sites in the ordered structure) environments. This redistribution effectively tunes the competing magnetic exchange interactions. Notably, the relative energy stability of the $\uparrow\uparrow\downarrow\downarrow$ magnetic configuration exhibits a non-monotonic dependence on the extent

of cationic disorder, with a maximum stability observed around $\sim 16\%$ disorder. These findings provide crucial insights into the mechanism responsible for stabilizing this unique functional magnetic ordering, thereby enhancing the understanding of this promising class of multiferroic materials.

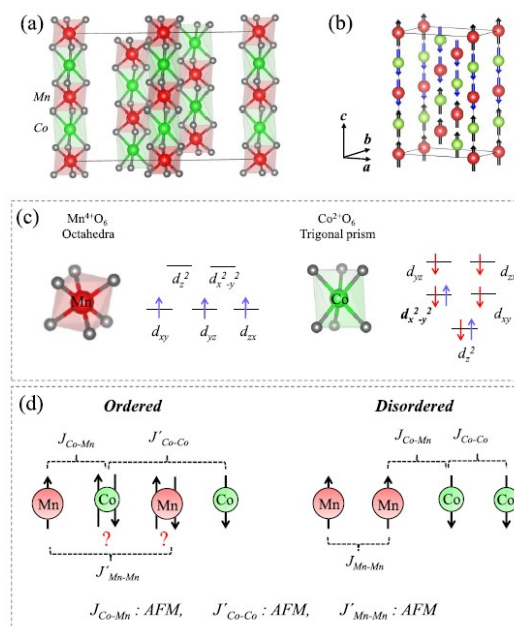


Figure : Schematic illustrations of crystal structure, up-up-down-down AFM ordering, and crystal field level schemes for $\text{Ca}_3\text{CoMnO}_6$ compound.

[Ref: Pratap Pal *et al.*, Physical Review B: **112**, 214448 (2025)]

Other Information

Sponsored Projects

- **Title:-** "Structural and magnetic Transitions in antiferroelectric and antiferromagnetic frustrated magnetic compound $\text{Cu}_3\text{Bi}(\text{SeO}_3)_2\text{O}_2\text{Cl}$: Impact of rare earth and transition metal doping",
PI:- Dr. S. Bandyopadhyay (University of Calcutta),
Co-PI:- Dr. Souvik Chatterjee,
Funding organization:- ANRF,
Total cost:- ~ 39.25 Lakh, **Duration:-** 3 years.

Awards, Honours and Recognitions

- Dr. Souvik Chatterjee invited to be the member of the Facility Access Panel (FAP1 Crystal-

lography) of ISIS facility, Rutherford Appleton Laboratory, UK.

Foreign Visits by Faculty and Students

- Miss Riya Roy and Mr. Anirban Saha; during May 23 - 29, 2025; Tsukuba, Japan; To perform diffraction experiment at Photon Factory, KEK, Japan.
- Dr. Souvik Chatterjee; during December 02-10, 2025; ISIS facility, Rutherford Appleton Laboratory, UK; To attend Facility Access Panel Meeting, Rutherford Appleton Laboratory, and to perform inelastic neutron scattering experiments at MARI.

DR. UJJAL DAS

Scientist-D

Email: ujjal.das@csr.res.in

Research Interests: The roles of miRNAs, exosomes, and cell-free DNA as therapeutic modulators and the identification of non-invasive biomarkers in cancer research.

Group members: (1) Dr. Goutam Ghosh (Scientist-G), (2) Saptadeep Das, JRF (ANRF), (3) Sulagna Dutta, SRF (NET-UGC), (4) Swapnomoy Chakraborty, JRF (DBT), (5) Sajid Nawaz, JRF (Institute), (6) Mr. S. Selvaraj (SA-F)

Total Ph.Ds awarded:

Facilities: (1) Flow-cytometer, (2) UV-Vis spectrometer, (3) Plate reader, (4) qPCR, (5) Western Blot, (6) Gel documentation

►►► In-house Research Highlights

Apart from existing research work, this year the Biology Group at the Kolkata Centre advanced its research through in vivo animal model experiment in collaboration with Kalyani University, marking significant progression beyond the previous in vitro investigations. Following submission and approval of the project by the institutional animal ethics committee, the study was successfully conducted using a mouse tumor model.

► CHCL EGCG effectively enhanced radiosensitivity of breast tumour model of BALB/c mice

The investigation demonstrated that chitosan-coated liposomal encapsulation of EGCG effectively enhanced the radio-sensitivity of breast tumour by suppressing the β -catenin signaling pathway and caused a measurable reduction in tumour volume. These findings highlight the translational potential of nano-formulated phytochemicals in improving radio-therapy outcomes and represent a crucial step forward in bridging laboratory research with preclinical applications. Figure 1A illustrates the tumour development in BALB/c mice and the treatment schedule for CHCL-EGCG and radiation treatment. As shown in Figures 1B and 2A, the control group exhibited a continuous increase in tumour volume, whereas radiation alone produced a modest but significant reduction (1520%) $p < 0.05$. EGCG treatment led to a pronounced inhibition of tumour growth (50% reduction, $p < 0.01$ vs control). Notably, the combination of EGCG and radiation resulted in the greatest tumour suppression ($p < 0.001$), indicating a synergistic effect (Figure 2A). A similar pattern was observed for tumour weight (Figure 2B), with the combination group showing the most significant reduction ($p < 0.001$), followed by EGCG alone ($p < 0.01$) and radiation alone ($p < 0.05$).

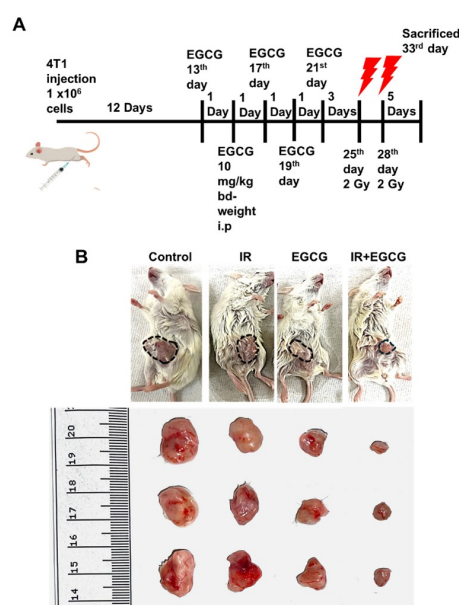


Figure 1: Effect of combination treatment on murine tumour: (A) Schematic line diagram shows the experimental design. (B) The images of tumour-bearing mice and isolated tumours from different experiment groups.

Histopathological analysis (Figure 2C) showed dense, intact tumour cells in the control group, while radiation induced mild structural disruption. EGCG treatment caused significant cellular damage with disrupted architecture and localized necrosis. The combination group exhibited the most severe effects, with extensive necrosis and marked architectural disintegration. Immunohistochemical analysis (Figure 2D) revealed strong nuclear β -catenin expression in the control group, indicating active proliferation. EGCG significantly suppressed nuclear β -catenin, suggesting reduced proliferation and enhanced apoptosis. Notably, the combination treatment showed the greatest β -catenin suppression ($p < 0.001$), confirming enhanced tumour regression.

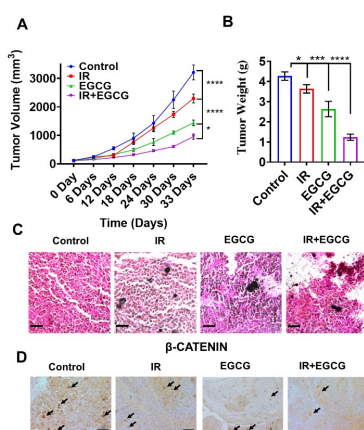


Figure 2: (A) The line diagram represents the change in tumour volume under different experimental conditions with time. (B) The bar diagram represents the change in tumour weight under different experimental conditions. (C) The histopathological images of tumour tissue under different experimental conditions. The shrinkage in tumour tissue with severe damage is clear in the combination group. The scale bar in the image indicates 20X magnification. (D) The level of beta-CATENIN. Haematoxylin was used to stain the nuclei and beta-CATENIN was stained by DAB system. The scale bar in the images indicates 20X magnification.

Collaborative Research Activities

The research initiative with multiple universities explores innovative strategies in cancer therapy, microbiology and radiobiology.

Bacteriocin-mediated silver nanoconjugate: synthesis, characterization, and application as antibiofilm agent against two common pathogenic bacteria

Antibiotic resistance and biofilm-associated infections demand alternative therapeutic strategies. This study developed bacteriocin-capped silver nanoparticles (Bac-AgNPs) using bacteriocin from *Enterococcus faecalis* BDR22. The nanoparticles showed strong antibiofilm activity against *Staphylococcus aureus* and *Pseudomonas aeruginosa*, with 82% and 78% reduction, respectively. Bac-AgNPs disrupted the biofilm EPS matrix, confirmed by SEM

and FTIR analyses. Flow cytometry revealed ROS-mediated bacterial cell death upon treatment (Figure 1). Importantly, the nanoparticles exhibited no cytotoxicity toward HaCaT cells, highlighting their potential for the treatment of resistant nosocomial infections.

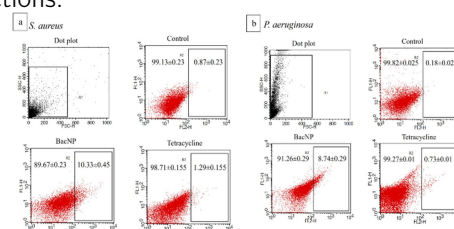


Figure 1: Dot plots (SSC-H vs. FSC-H) and fluorescence plots (FL1-H vs FL2-H) indicate the viable and PI positive cells in tetracycline treated, Bac-AgNP treated samples of (A) *S. aureus* and (B) *P. aeruginosa*.

Other Information

Sponsored Projects

- "Identification of key cfDNA and exosomal factors in modulating the radiation bystander effect, radio-resistance and senescence development in squamous carcinoma cells", PI:- Dr. Ujjal Das, Funding organization: ANRF PME-CRG, Total cost: 60,97,960 INR, Duration:

3 years.

- "Role of LDH in metabolic regulation of cancer cells", PI:- Dr. Ujjal Das, Funding organization: DSTBT, WB, Total cost: 1 lakh (75k consumables, 25k fellowship), Duration: 60 days.

DR. GOUTAM GHOSH

Scientist-G

Email: ghoshg@csr.res.in



Research Interests: Nano-bio interface, Application of tailored functional nanoparticles on therapeutic cause.

Group members: (1) Dr. Ujjal Das (Scientist-D), (2) Sulagna Dutta, SRF (NET-UGC), (3) Saptadeep Das, JRF (ANRF), (4) Swapnomoy Chakraborty, JRF (DBT), (5) Sajid Nawaz, JRF (Institute), (6) Mr. S. Selvaraj (SA-F)

Total Ph.Ds awarded:

Facilities: (1) Flow Cytometer, (2) UV-Vis Spectrometer, Plate Reader, (3) Cell Culture laboratory, Incubators, Auto-clave chamber, (4) Low Temperature Centrifuge, (5) Fluorescence Microscope, (6) qPCR, (7) Western Blott

»»» In-house Research Highlights

Our group primarily focuses on investigating cancer cell viability following interaction with surface-tailored nanoparticles. Research is planned to fully understand the intracellular pathways of cell death and the corresponding cell-cycle arrest mechanisms. Some recent results are discussed below. We also study the radiation-induced bystander effects (RIBEs). RIBEs pose a major concern where radiation therapy is needed for cancer treatment. In our forthcoming radiation-based research, the focus is made on to reducing RIBEs so that radiotherapy becomes the most fundamental and effective treatment for cancer. For the irradiation of cancer cells, gamma and alpha sources will be used. At present, the Kolkata Centre of UGC-DAE CSR, has a gamma chamber. Our Centre also has a well-equipped cell culture facility.

» Nanoparticle-induced cancer cell apoptosis via cellular stress pathways

The cell death was studied using the Flow Cytometry technique. The results suggested apoptotic death of cancer cells after interaction with chloride counterion-conjugated iron oxide nanoparticles (IONPs). Detailed studies indicated that the electrostatic binding of cationic IONPs to the negatively charged cancer cell membranes, untethered chloride ions enter the intracellular cytoplasmic medium. Consequently, a cellular stress is developed, leading to ROS signal generation through the usual mitochondrial pathway and activation of the caspase signal to execute DNA damage in the arrested cells. The DNA damage was verified by studying the p53 accumulation in the nucleus of the apoptotic cells. The accumulation of p53 in the nucleus ensures holding of cell cycle progress and repair of DNA damage. A manuscript with detailed results of this investigation is now under review.

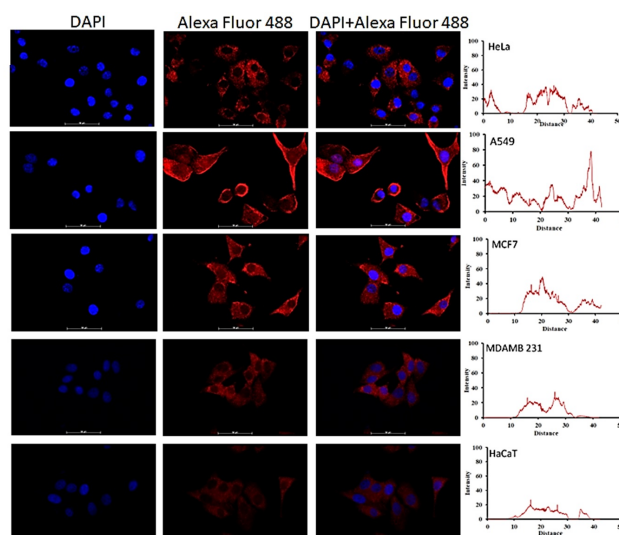


Figure : Fluorescence microscopic images of the expression of CLIC1 protein in the cell membranes of the cancer cells (HeLa, A549, MCF7, and MDAMB231) and noncancer cell HaCaT. The extreme right panel graphically represents the CLIC1 level in different cells.

Detailed investigation indicated that the passage of chloride ions from the extracellular medium (ECM) into the cellular medium occurred through the CLIC1 protein channels. Therefore, the expression of CLIC1 in the cell membranes was studied using the Fluorescence microscopy technique. For this purpose, cells were stained with the fluorescence dye (Alexa Fluor 488) to appear red in the images. Cells were also stained with DAPI to identify the nuclear DNA. From the fluorescence images and the respective graphs, we concluded that the expression of CLIC1 in the cancer cell membranes is usually higher than in any non-cancer cell membranes. Thus, our chloride counterion-conjugated cationic IONPs kill cancer cells, but not any non-cancer cells.

► Nanoparticle-assisted modification of radiation induced bystander effects (RIBEs)

Radiation-induced bystander effects (RIBEs) are defined as biological effects observed in nuclei that were not directly exposed to irradiation. RIBEs are associated with different sorts of damage, including DNA fragmentation, chromosomal instability, mutation, and apoptosis. Based on the results showing that chloride counterion-conjugated IONPs induce apoptosis in cancer cells, our plan is to treat cancer cells with chloride-conjugated IONPs before irradiation. The planned protocol has been schematically shown in Fig. 2. The main focus will be to investigate changes in the expression of proteins, which are associated with bystander pathways, before and after treatment with nanoparticles. The result between only irradiated cells and nanoparticle as well as irradiated cells will be compared to optimize the appropriate treatment protocol and dose for clinical application. The successful completion of this inves-

tigation will hopefully offer a the simplest therapeutic protocol for cancer treatment.

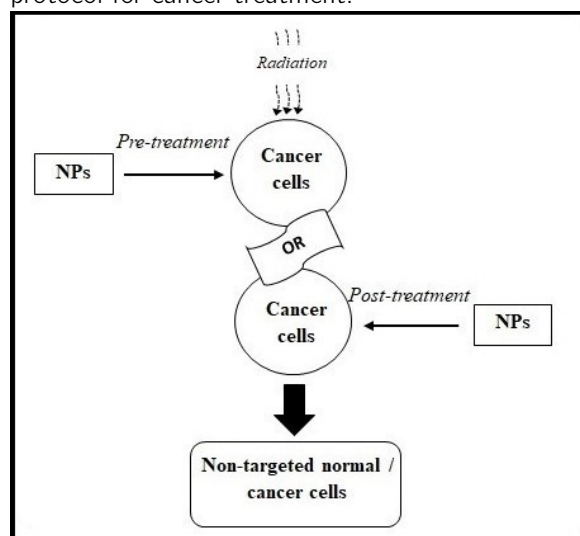


Figure : Schematic presentation of the experimental plan by pre-/post- treatment of cancer cells with IONPs before radiation treatment.

►►► Collaborative Research Activities

In addition to the in-house research activities, nine (9) Collaborative Research Schemes (CRS) are cur-

rently ongoing. Furthermore, several one-time users have also availed the facilities for their research work.

►►► Other Information

► Sponsored Projects

- **Title:-** "Biological evaluation of Gadolinium-Morin complex for its anticancer effect",
- **PI:-** Dr. Goutam Ghosh,

- **Funding organization:-** RISE, West Bengal Biotech Development Corporation Ltd.

- **Total cost:-** 1 lakh (75k consumables + 25k fellowship),

- **Duration:-** 60 days.

DR. SANDEEP S. GHUGRE

Centre-Director

Email: sandeep@csr.res.in



Research Interests: In-beam gamma-ray spectroscopy for nuclear structure studies. Developments in digital algorithms for pulse processing and data acquisition; algorithms for spectrum analysis. Energy Dispersive X-Ray Fluorescence (EDXRF) studies for multi-disciplinary applications. Positron Annihilation Spectroscopy (PAS). Use of open-source tools for teaching and research.

Group members: (1) Dr. Rajarshi Raut (Scientist-G) (2) Dr. Soumen Nandi (Scientist-D) (3) Anil Sharma (SRF, Institute), (4) Soumalya Kundu (SRF, UGC), (4) Aditi Das (JRF, DST-INSPIRE), (6) Subhra Sankar Dutta (JRF, Institute), (7) Mr. Kausik Basu (SA-F), (8) Mr. Jaganmoy Biswas (SA-F), (9) Dr. Aparna Datta (SA-F, RSO)

Total Ph.Ds awarded: 10

Facilities: (1) HPGe detectors, single crystal and clovers (2) LaBr₃ scintillator detectors (3) Digitizers, 250 MHz and 500 MHz for pulse processing and data acquisition (4) Analog pulse processing electronics (5) Multichannel Analyzer

»»» In-house Research Highlights

The Nuclear Physics Group at the Kolkata Centre pursues diverse and multidisciplinary interests, beyond its primary practices in nuclear structure studies and allied areas. The extended pursuits are primarily based on the use of spectroscopic techniques/methodologies for applications in cross-disciplinary domains such as environmental studies and material characterization endeavors. Some of these activities that progressed through the past year are described here.

» Digitizer based Setup for Positron Annihilation Spectroscopy

Positron Annihilation Spectroscopy (PAS) is an experimental technique for probing subsurface defects in matter. The method is based on detection of 511-keV γ -rays emitted following the annihilation of positron and electron. The lifetime of the positron is dependent on the electron density that, in turn, characterizes the defects in the medium. Alternatively, the Doppler broadening of the emitted γ -rays encode information on the electron momentum at the defect site. The Kolkata Centre has been practicing PAS for several years, while using a setup based on analog pulse processing. It is generally noted that the field of radiation detection and measurement has largely evolved into use of digital algorithms owing to faster processing, better throughput, portability and easier maintenance. Efforts were thus undertaken to transition the PAS system at the Kolkata Centre into a completely digital one wherein the detector output pulse would be directly processed by digitizers and time stamped data would be acquired therefrom. Accordingly, the setup of two fast scintillator detectors, BaF₂ or LaBr₃, has been installed along

with 250 MHz digitizers from M/s CAEN. Fig. 1 illustrates part of the setup along with output and results obtained from the digitizer. Extensive optimization of the digitizer parameters, particularly for the CFD settings, have been carried out towards obtaining the best time resolution for the setup. The current value of the same is ~ 400 ps that is being further improved towards fulfilling the requirements for the PAS measurements.

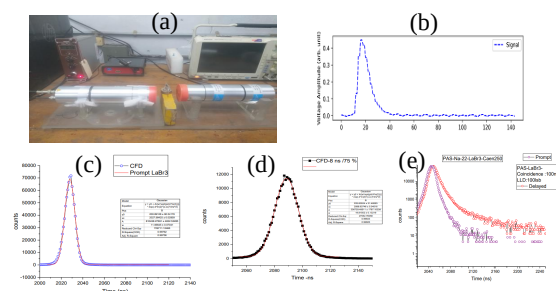


Figure 1: (a) Setup of two LaBr₃ detectors along with 250 MHz digitizer for pulse processing and data acquisition. (b) Digitized trace of LaBr₃ output pulse using CAEN 250 MHz digitizer module. (c) Time-of-Flight (TOF) spectrum corresponding to 1173.2 and 1332.5 keV transitions of ⁶⁰Co source while using CFD enabled timing in the digitizer settings. (d) Optimized TOF spectrum corresponding to CFD delay of 8 ns and attenuation fraction of 75% (e) TOF spectra corresponding to prompt and delayed coincidences between the annihilation gamma-rays.

► Framework for Optimizing the Digital Algorithms Used in Spectroscopic Applications

The use of digitizers has merited the spectroscopic measurements with capabilities of sustaining higher event rates while still upholding the experimental objectives. Such accomplishments notwithstanding, there is a continuous need to explore alternative algorithms towards better energy and timing resolution of the digitizer based setups for spectroscopic applications. Such a setup principally consisting of a FPGA board (KCU105 from M/s Xilinx) and a compatible ADC card (1 GHz) has been installed at the Kolkata Centre. The setup allows for digitization of fast detector pulse that could be subjected to exploratory algorithms for energy and timing performance. The results obtained in the process are

expected to facilitate optimization of the associated parameters followed by application of the algorithms in real time. Such a setup would also help understanding the functionalities of different digitizer parameters as used in the large scale processing and data acquisition by commercial digital systems.



Figure 2: FPGA board with compatible ADC card and cooling system at Kolkata Centre.

►►► Collaborative Research Activities

Further to the in-house research activities, the group supports collaborative endeavors as per the mandate of the Consortium.

► Self Consistent Methodology for Quantification of Trace Elements in EDXRF

The Energy Dispersive X-Ray Fluorescence (EDXRF) technique is widely used for determining the elemental composition of materials that are of relevance in multidisciplinary contexts. This work is directed at the development and vindication of a methodology for analyzing the XRF spectra that is primarily based on using the different regions of the spectrum background for compensating the differences in the measurement conditions for the data

on the sample of interest and that on the reference. The results obtained have been found to be in superior agreement with those following the conventional methods, and have established the current methodology as a simplified approach to the analysis of the data from XRF measurements. The efforts have been extended to the development of in-house reference/ standards for EDXRF studies. And, there have been continuing developments in the data analysis methodology, such as adapting wavelet based algorithms for background subtraction.

[Ref: Tanushree Panigrahi et al., Spectroscopy Letters; DOI: doi.org/10.1080/00387010.2025.2492137 (2025)]

►►► Other Information

► Invited Talks

- Research over the Horizon: Opportunities at UGC-DAE-CSR, Keynote address at the National Conference on Frontier Developments in Physics and Atmospheric Science (FDPAS-2026), organized by the Departments of Physics and Atmospheric Science at Fakir Mohan University, Balasore, 23rd March 2026.
- Research in CSR Framework : Opulence & Opportunities, invited talk at XV Conference of Physics Academy of the North-East (PANE 2025), organized by the Department of Physics, Nagaland University, November 18-

20, 2025.

- The Dirt on Our Hands & Its Iffy Legacy, invited talk at the Workshop on Indian National Gamma Array (INGA): New Results and Future Perspectives, organized by Inter University Accelerator Centre (IUAC), New Delhi, 28-30 October, 2025.

► Awards, Honours and Recognitions

- Dr. Sandeep S. Ghugre has been elected as a Fellow of the National Academy of Sciences, India (NASI).

DR. RAJIB MONDAL

Scientist-E

Email: rmondal@csr.res.in



Research Interests: Single crystal growth and anisotropic physical properties studies of intermetallic compounds and alloys.

Group members: (1) Dr. Souvik Chatterjee (Scientist-F), (2) Rosni Roy, SRF (Institute), (3) Sandip Paul, JRF (CSIR), (4) Gourab Kanti Jana, JRF (ANRF), (5) Sanat Kumar Adhikari, SRF (Institute), (6) Riya Roy, SRF (CSIR-Direct) (7) Dr. P. V. Ramesh (SA-F) (8) Mr. Bikram K Behera (JE-F), (9) Mr. Mukesh Kumar (SA-F); **ANRF TARE visitor:** Dr. Soumya Mukherjee (Assistant Professor, Kazi Nazrul University, Asansol, India)

Total Ph.Ds awarded: 0

Facilities: High temperature box and tubular furnaces, Mössbauer spectrometer, Ultra-sonic cleaner

►►► In-house Research Highlights

The Condensed Matter Physics and Materials Science group of Kolkata Centre conducts research centered on growth and characterization of high quality single crystals of intermetallic compounds and alloys, along with experimentally exploring how their structures influence the properties of functional quantum materials. Topological materials, two-dimensional magnetic van der Waals materials, rare-earth based topological materials, etc. are the materials of current interest of our group. To explore the materials physics, various experimental facilities, such as, x-ray diffraction, Raman spectroscopy, Mössbauer spectroscopy, magnetic, electrical and magneto-transport properties measurements, anomalous and topological Hall Effect experiments etc. are used to characterize and study the anisotropic physical properties of the materials in single crystalline form. Some of our recent research works are the following:

► **Single crystal growth, anisotropic magnetic, magnetotransport, anomalous and topological Hall effect studies of two-dimensional magnetic van der Waals materials**

Recently, there has been growing interest in investigating novel physical phenomena in quasi2D magnetic vdW materials. Over the past decade, magnetic 2D-vdW layered materials have drawn significant attention from researchers, not only for their intriguing underlying physics but also for their potential in miniaturized technologies such as spintronics and nanoelectronic devices. A variety of magnetic 2D-vdW materials have been discovered and investigated, including CrSiTe₃, CrGeTe₃, FePS₃, NiPS₃, CrI₃, VSe₂, MnSe₂, Fe_nGeTe₂ ($n = 3, 4$ and 5), Fe₃GaTe₂, etc. Currently, our group is interested in the single crystal growth, Raman spectroscopy, Mössbauer spectroscopy and various

anisotropic magnetic and magneto-transport properties of transition metals based 2D-vdW materials such as Fe_nGeTe₂ ($n = 3, 4$ and 5), Fe₃GaTe₂, etc.

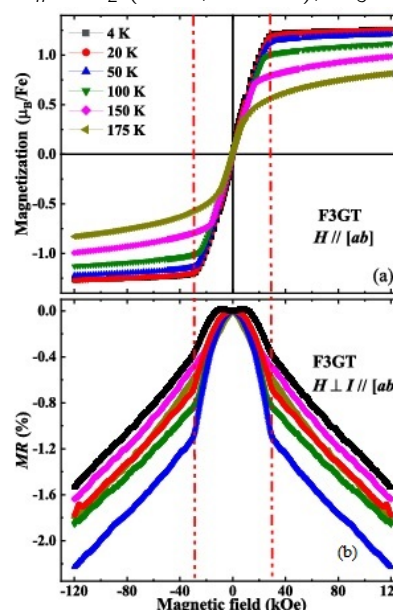


Figure : Field dependent magnetization and magnetoresistance of F3GT crystal for $H // [ab]$

We have successfully grown the high purity single crystals of pure and transition metals doped Fe_{3-x}GeTe₂, Fe_{5-x}GeTe₂ by chemical vapor transport method and Fe₃GaTe₂ by self-flux method. Temperature and field dependent magnetic susceptibility measurements of Fe_{3-x}GeTe₂ (F3GT) revealed anisotropic magnetic behavior and a ferromagnetic transition at 180 K (TC) (Ref.: Rosni Roy and Rajib Mondal, Phys. Rev. B 109, 024416 (2024)). Temperature dependent study of linear electrical resistivity reveals metallic nature of F3GT.

The nature of magnetic field dependence of magnetoresistance is very unusual, however exotic, revealing significant anisotropic behavior. Field dependent magnetoresistance along the hard magnetization direction depicts quadratic magnetization dependence till the saturation magnetization field, which is reminiscent of the chiral spin texture of skyrmion host material. Hall effect of F3GT depicts anomalous

Hall and topological Hall signature as expected for a candidate skyrmion host material like $\text{Fe}_{3-x}\text{GeTe}_2$ [Rosni Roy et al., Physical Review B 112, 054402 (2025)]. We are currently studying the anisotropic magnetic and magnetotransport properties of pure and doped F3GT and Fe_3GaTe_2 and effect of excess iron in F3GT which are of current research interests in two-dimensional materials physics.

Collaborative Research Activities

In addition to in-house research activities, we are actively collaborating with different university, college and research institute groups. Few of the recent collaborative research activities during the period 2025-2026 are given as the following:

Magnetic and transport behavior in disordered quaternary Heusler alloy FeRuMnSi

Theoretical and experimental structural, physical properties of the quaternary Heusler alloy FeRuMnSi have been investigated. Observations of competitive ferromagnetic and antiferromagnetic interactions in the disordered system are corroborated with the first-principles calculations. DC magnetization measurements indicate that the compound undergoes an antiferromagnetic transition around 175 K. A glassy magnetic phase emerges, as reflected by the divergence between ZFC and FC magnetization curves below 150 K. A frequency-dependent peak at 8.5 K in the AC susceptibility, together with the absence of a corresponding anomaly in the heat capacity, supports the presence of cluster glass behavior. Furthermore, the longitudinal resistivity exhibits an upturn below 22 K, likely due to electronelec-

tron interactions induced by structural disorder [Ref.: Panda et al., Journal of Alloys and Compounds 1061, 187369 (2026)].

Magnetic and transport properties of ferrimagnetic $\text{Gd}(\text{Fe}_{0.75}\text{Mn}_{0.25})_2\text{Si}_2$

Magnetic properties induced by doping concentration of Mn at the Fe site of the GdFe_2Si_2 has been investigated in this work. While, GdFe_2Si_2 shows an antiferromagnetic (AFM) transition at ≈ 8.8 K, $\text{Gd}(\text{Fe}_{0.75}\text{Mn}_{0.25})_2\text{Si}_2$ compound shows ferrimagnetic (FiM) transition at $T_{N1} \approx 6.2$ K and cluster-glass behavior at $T_{N2} \approx 25$ K. Magnetization results show that above T_{N2} the system is not purely paramagnetic; instead, it exhibits short-range ferromagnetic correlations characteristic of a Griffiths phase (GP), which persist up to the Griffiths temperature $T_G \approx 110$ K. Detailed analyses of magnetic and transport measurements, supported by theoretical model fitting, confirm the presence of this short-range ferromagnetic interaction associated with the GP [Ref.: Ghosh et al., Journal of Alloys and Compounds 1039, 182719 (2025)].

Other Information

Sponsored Projects

- "Crystal growth and investigations of structural, magnetic and electronic properties of transition metal-based two-dimensional magnetic van der Waals materials for spintronic applications", PI:- Dr. Rajib Mondal, Funding organization: ANRF, Govt. of India, Total cost: 35.62 Lakhs, Duration: 36 Months.

Invited Talks

- Interplay of magnetism and magnetotransport properties of iron based single crystalline layered chalcogenide at the National Conference on Advances in Condensed Matter Physics 2026 (ACMP 2026), Guru Ghasidas Vish-

wavidyalaya (A Central University), Bilaspur, Chhattisgarh, India; 20th - 21st February, 2026.

Foreign Visits by Faculty and Students

- Dr. Rajib Mondal; during 16th - 21st December, 2025; Indian Beamline at Photon Factory, KEK, Japan; To perform synchrotron X-ray experiment at the Indian Beamline.
- Miss Rosni Roy; during 16th - 21st December, 2025; Indian Beamline at Photon Factory, KEK, Japan; To perform synchrotron X-ray experiment at the Indian Beamline.

DR. SOUMEN NANDI

Scientist-D

Email: snandi@csr.res.in



Research Interests: Experimental Nuclear Physics, Gamma-ray Spectroscopy, Nuclear Structure and Dynamics, β decay study of atomic nucleus, Nuclear Level lifetime measurement using Doppler shift methods, Total Absorption Gamma-ray Spectroscopy (TAGS)

Group members: (1) Dr. Sandeep S. Ghugre (Centre-Director), (2) Dr. Rajarshi Raut (Scientist-G) (3) Anil Sharma (SRF, Institute) (4) Soumalya Kundu (SRF, UGC) (5) Aditi Das (JRF, DST-INSPIRE) (6) Subhra Sankar Dutta (JRF, Institute) (7) Kausik Basu (SA-F)

Total Ph.Ds awarded: NA

Facilities: (1) HPGe detectors, single crystal and clover (2) LaBr₃(Ce) scintillator detectors (3) Digitizer based pulse processing and data acquisition systems, 12-bit 250 MHz PIXIE-16 (4) NIM electronics for pulse processing (5) MCA

»»» In-house Research Highlights

The activities of the Nuclear Physics Group at the Kolkata Centre broadly span studies on nuclear structure and dynamics using gamma-ray spectroscopy as well as the associated developments in the instrumentation and computational frameworks. The programme has been further broadened to encompass highly deformed, neutron-deficient transitional nuclei in the vicinity of $A \sim 180$, with detailed level lifetime measurements aimed at elucidating the evolution of nuclear shapes. Concurrently, a new research direction has been initiated to systematically investigate the β -decay of a wide range of isotopes across the nuclear chart.

» Programme to study neutron deficient transitional nuclei near $A \sim 180$

A new programme has been initiated to carry out gamma-ray spectroscopy studies of neutron-deficient nuclei around mass $A \sim 180$, incorporating detailed level lifetime measurements in the sub-picosecond to several hundred picosecond range respectively using Doppler-shift techniques and fast scintillator detectors. Neutron-deficient nuclei with $N \leq 104$ exhibit occupation of high- j orbitals— $h_{9/2}$, $h_{11/2}$, and $i_{13/2}$ —which exert a strong shape-driving effect, playing a crucial role in the onset and stabilization of nuclear deformation. This programme aims to deliver a rigorous and systematic understanding of configuration-dependent shape effects.

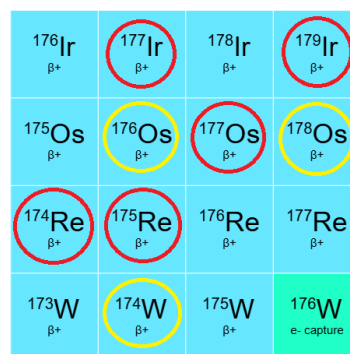


Figure 1. Encircled neutron-deficient isotopes near $A \sim 180$ populated via heavy ion induced fusion-evaporation reactions. Red circles: odd- A and odd-odd nuclei without known high-spin level lifetimes; yellow circles: even-even nuclei with available high-spin level lifetime data that could be used to benchmark the present analysis.

Heavy-ion-induced fusion-evaporation reactions, $^{165}\text{Ho}(^{20}\text{Ne}, xpxn)$ at 165 MeV, were employed to populate excited states in neutron-deficient nuclei near $A \sim 180$ using K-130 cyclotron at VECC. A ^{165}Ho target with a thickness of 1.1 mg/cm², supported by a 1.2 mg/cm² Mg backing, was used in the present experiment. The target-backing combination was so chosen to allow for lifetime measurements using the Doppler Shift Attenuation Method (DSAM) for level lifetimes in the range of tens of femtoseconds to few picoseconds. Gamma rays were detected using the digital INGA (Indian National Gamma Array) setup at VECC, comprising 10 Clover HPGe detectors, 2 LEPS detectors, and 7 CeBr₃ fast scintillators. The pulse processing and data acquisition was carried out using a digital system based on 12-bit 250 MHz PIXIE-16 digitizer.

modules running on a firmware conceptualized by the Nuclear Physics Group at the Kolkata Centre. The acquired data have been sorted using the IUCPIX package, also developed by the Nuclear Physics Group at the Kolkata Centre. Several $\gamma - \gamma$ matrices and a $\gamma - \gamma - \gamma$ cube was constructed in the exercise and are being analyzed using the regular software RADWARE [Radford, 1995]. It has been established that the heavy-ioninduced reaction predominantly populates ^{177}Ir , along with other isotopes, as illustrated in Fig. 1. The level lifetimes of the even-even Os and W isotopes are well documented and could be employed to validate the present analysis. To the contrary, there is a scarcity of lifetime data for the odd-even and the odd-odd nuclei in this ($A \sim 180$) mass region that the present endeavor proposes to address.

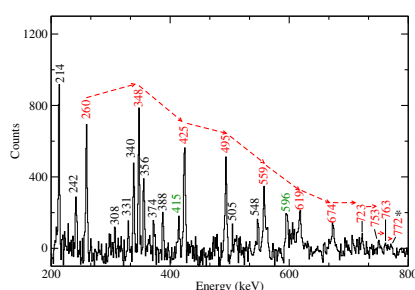


Figure 2. Representative double-gated (sum) spectrum that illustrate the transitions associated with the rotational sequence in ^{177}Ir and those underlying the particle alignment therein.

Preliminary analysis of ^{177}Ir has identified most of the previously reported γ rays and confirmed their placement in the level scheme. Fig. 2 illustrates representative double-gated spectrum (generated from the sum of multiple $\gamma - \gamma$ gates) extracted from

the $\gamma - \gamma - \gamma$ cube and exhibits a well-defined rotational pattern characterized by nearly equidistant γ -ray energies. This near-equidistant spacing evolves with increasing excitation energy and angular momentum, as the energy gap between successive γ rays gradually decreases, driving the sequence toward the backbending phenomenon and indicating the onset of particle alignment (band crossing). The lifetime analysis of the associated states will bring forth the accompanying changes of the collective properties/ deformation characteristics, as aspired in this study.

► Programme for β -decay Studies at the Kolkata Centre

The β -decay studies across the nuclear chart have assumed significance in nuclear structure studies, particularly in the light of the advanced experimental facilities based on diverse ion/ neutron beams and efficient detector arrays that help observation of rare/ exotic excitation phenomena. There are existing collaborations with Argonne National Laboratory, USA and SUBATECH, France, on such measurements. There have been recent publications [S. Nandi et al. Phys. Scr. **100** (2025) 075302] therefrom as well as results that are being finalized for submission. The plan is to further the programme using the national facilities such as the DURGA detector setup at the DHUVA Reactor, BARC. The prospective measurements using the facility could address β -decays of nuclei spanning $A \sim 100 - 140$ region that incorporate diverse physics problems of interest in nuclear structure pursuits. The measurements will be implemented in consultation with the facility group and while considering the particular features/ provisions of the setup. Proposals are also being contemplated, directed at the development and use of in-house array of fast scintillators for β -decay studies.

►►► Collaborative Research Activities

► Probing the Low-Lying and Isomeric Structure in the $A \sim 130$ Region

The Nuclear Physics Group actively collaborates with researchers from several institutions. One of

these is with the User Group at the IEM, Kolkata, that has recently been approved for support. The project investigates low-spin structures in $A \sim 130$ nuclei, such as (^{128}Cs), to resolve ambiguities and complete its low-lying level scheme.

►►► Other Information

► Invited Talks

- Lectures on nuclear instrumentation for stu-

dents of final semester under M. Sc. curriculum (nuclear physics specialization) of the Department of Physics, University of Calcutta, February-May, 2026.



DR. GOUTAM PRAMANIK

Scientist-E

Email: gpramanik@csr.res.in

Research Interests: Synthesis, characterisation and understanding the optical, electro-chemical properties of nanomaterials for various applications.

Group members: (1) Dr. Aparna Datta (SA-F), (2) Moupriya Mukherjee, SRF (Institute), (3) Sajid Nawaz, JRF (Institute)

Facilities: (1) FTIR (2) Luminescence Spectrometer (3) Steady-state cum Time Resolved Luminescence Spectrometer (4) UV-Vis NIR Absorption Spectrophotometer (5) Dynamic Light Scattering (6) Lyophilizer (7) Cyclic Voltammeter.

►►► In-house Research Highlights

Our group works at the interface of synthetic chemistry and material science to understand the role of chemistry on controlling the functionalities of nanomaterials for the applications in bio-imaging, bio-sensing and diagnostics. One of Our research directions is the following:

► Significant enhancement of photoluminescence and current density of graphene oxide film upon nitrogen ion implantation

In this study, a self-supported thin film of graphene oxide (GO) has been doped with nitrogen by using low energy (10 KeV) ion implantation technique. Detailed analysis using X-ray photoelectron spectroscopy (XPS), vibrational spectroscopies, and Field Emission Scanning Electron Microscopy (FE-SEM) revealed the successful implantation of pyridinic and graphitic nitrogen atoms. The extra electron in NGO favors the radiative relaxation pathways and boosts the photoluminescence of NGO by more than four times. The electrochemical features were evaluated using cyclic voltammetry (CV) and electrochemical impedance spectroscopy (EIS). The NGO exhibited a remarkable change in the shape of the curve, indicating its pseudo-capacitive origin along with a ~ 100 -fold higher current density in the CV than that of the undoped counterpart. The EIS graphs reveal a significantly lower charge transfer resistance (RCT) across the NGO electrode-electrolyte interface, which supports the significant enhancement of the current density. [Ref: M. Mukherjee et al., Applied Surface Science, **728**, 166094 (2026)]

► Fourier Transformed Infrared Spectroscopy-based macronutrients and mineral composition analysis of marine macroalgae of Visakhapatnam, Andhra Pradesh

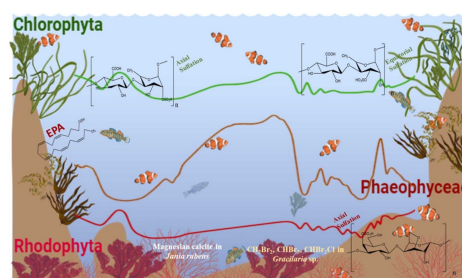


Figure : Biochemical diversity in marine macroalgae of Visakhapatnam, India.

The present study comparatively investigates the biochemical functional groups of marine macroalgae belonging to the chlorophyta, phaeophyta, and rhodophyta, collected from Visakhapatnam shore, Andhra Pradesh, using FTIR spectroscopy. FTIR analyses confirm the presence of proteins, polysaccharides, lipids and degree of sulfation in all the studied marine macroalgae. The hydrogen bonding among the polysaccharides in *Ulva lactuca* and *Gracilaria foliifera* is established through the shift of the O-H stretching frequency to a lower wavenumber. The intense C-H stretching vibration indicates a high amount of saturated fatty acids and polyunsaturated fatty acids present in brown macroalgae. The observation of S-O and C-O-S stretching indicates the sulfation of polysaccharides in all the macroalgae. The C-O-S bending vibration revealed that the sulfation occurs both in equatorial and axial positions in green macroalgae. In contrast, in the case of red macroalgae, *Hypnea valentiae* and *Centroceras clavulatum*, sulfation occurs mainly at the equatorial position. Besides FTIR, X-ray diffraction and X-ray fluorescence helped to understand the mineral compositions in the macroalgae. Overall, our study demonstrates the FTIR is enough to reveals the functional groups and chemical structural variation in the various marine macroalgae, obtaining valuable insights into their ecological roles and

contributions to the aquatic environment. [Ref: T. Panigrahi et al., *Regional Studies in Marine Science*:

95, 104881 (2026)]

Collaborative Research Activities

Apart from the in-house research activity, there are thirty (30) ongoing collaborative research schemes (CRS) and Collaborative research with Variable Energy Cyclotron Centre (VECC). Two such research activity:

Carbon Ion Engineering of Silicon Cathodes for Enhanced Photoelectrochemical Hydrogen Evolution

In this study, a single-step scalable surface modification strategy using low-energy carbon ion implantation to engineer a nanostructured Si/SiC/C heterointerface on p-type silicon has been reported. The implantation process forms a composite surface layer comprising silicon, silicon carbide, and graphitic carbon, as confirmed by X-ray photoelectron and optical spectroscopies. This heterostructure exhibits enhanced light absorption, reduced recombination, and improved charge transport. Without any p-n junction formation, metal cocatalyst deposition, or multistep processing, the one-step engineered p-Si electrode exhibits an impressive cathodic current density of 10.7 mA/cm² at -1.15 V vs RHE under acidic conditions, which is substantially higher than that of pristine p-Si. Electrochemical impedance spectroscopy reveals reduced charge transfer resistance, while the formation of built-in electric fields at the c-Si/ α -Si and α -Si/SiC junctions promotes efficient charge separation. The carbon-implanted SiC phase also provides a tunable band gap with superior optoelectronic properties compared to pure SiC.

[Ref: Sunaina et al., *Langmuir*: **42**, 6227 (2026)]

Cancer Cell Detection and Precision Targeting Drug Delivery by Covalently Functionalized Liposome

In this study, the potential of covalently conjugated folic acid-liposomes (FA-liposomes) has been applied to detect cancer cells and thereafter for targeted drug delivery. Doxorubicin (Dox) has been used as a standard anticancer drug as well as the fluorophore probe for optical detection. To make a rigid sensor probe and nanocarrier, the amine-functionalized phospholipid modifications have been assembled for liposome formation, followed by Dox-encapsulation (FA-Lip-Dox). The targeting efficiency of FA-Lip-Dox was evaluated using three cell lines: CHO (non-cancerous, control), U87MG (cancerous, low FR expression), and KB (cancerous, high FR expression) for cell detection. Additionally, for targeted drug delivery, significant Dox penetration in FR-overexpressed cancerous cells has been observed by fluorescence imaging and flow cytometry, while non-targeting cells exhibited negligible drug accumulation. This targeted delivery approach aims to maximize therapeutic efficacy in malignant cells while minimizing off-target effects and toxicity in healthy cells. The study found low cytotoxicity toward normal cells, highlighting the potential use of FA-Lip-Dox as a targeted nanocarrier for cell detection and effective drug delivery in cancer treatment.

[Ref: M. Ghosh et al., *ACS Appl. Bio Mater.*: **8**, 8285 (2025)]

Other Information

Sponsored Projects

- "A proposal was funded by Department of Science & Technology and Biotechnology, Government of West Bengal to participate in the RISE Programme (Research Internship in Biotechnology based - Sciences and Engineering) as a Training Partner.

Invited Talks

- Optically Active Color Centres in Diamond at the International Conference and Exposium on

Quantum Sensing and Metrology (ICEQSM), Kolkata, India; 10th-13th September 2025.

- Synthesis, Characterisation and Understanding the Properties of Nano-Materials for Various Applications Distinguished Lecture as part of the Student Induction Programme 2025, Organised by University of Engineering and Management (UEM), Kolkata.; 15th July 2025

DR. RAJARSHI RAUT

Scientist-G

Email: rajarshi@csr.res.in

Research Interests: Nuclear structure and dynamics using in-beam gamma-ray spectroscopy. Lifetime measurements using Doppler shift methods. Developments in nuclear instrumentation and algorithms for data reduction and analysis. Applications of gamma-ray spectroscopy in multidisciplinary domains.

Group members: (1) Dr. Sandeep S. Ghugre (Centre-Director), (2) Dr. Soumen Nandi (Scientist-D) (3) Anil Sharma (SRF, Institute) (4) Soumalya Kundu (SRF, UGC) (5) Aditi Das (JRF, DST-INSPIRE) (6) Subhra Sankar Dutta (JRF, Institute) (7) Kausik Basu (SA-F)

Total Ph.Ds awarded: 4

Facilities: (1) HPGe detectors, single crystal and clover (2) LaBr₃(Ce) scintillator detectors (3) Digitizer based pulse processing and data acquisition systems, 12-bit 250 MHz PIXIE-16 (4) NIM electronics for pulse processing (5) MCA

»»» In-house Research Highlights

The activities of the Nuclear Physics Group at the Kolkata Centre primarily span investigation of nuclear excitations, particularly around the shell closures, level lifetime measurements in pico-seconds range and developments in the instrumentation and software framework for gamma-ray spectroscopy. The programme has recently been expanded to include spectroscopy of fission fragments produced in heavy-ion induced reactions as well as applications of gamma-ray spectroscopy in multidisciplinary domains.

» Programme on Nuclear Structure Studies in the Vicinity of the Doubly-Magic ⁵⁶Ni-core

Our Group has been systematically investigating level structures of nuclei in the A~60 region, for some years now. These nuclei, particularly those around the shell closures at Z, N = 28, are of widespread interest owing to their evolving excitation mechanisms that are manifested with changing excitation energy as well as particle occupancy of the fp model space consisting of $p_{3/2}$, $f_{5/2}$, $p_{1/2}$, $g_{9/2}$ orbitals. The excitation scheme of ⁶⁹Ga (Z = 31, N = 38) nucleus has been recently studied as a part of the continuing programme. The excited states of the nucleus were populated in ⁵⁹Co(¹³C,2pn) reaction at $E_{lab} = 45, 50$ MeV. The in-beam experiment was carried out at the Pelletron Facility at IUAC, New Delhi and the setup of the Indian National Gamma Array (INGA) therein was used as the detection system. The acquired data were processed using the SPRINGZ code, developed in-house by the Nuclear Physics Group at the Kolkata Centre, and analyzed using the regular codes such as RADWARE [Radford, DOI: [doi.org/10.1016/0168-9002\(95\)00183-2](https://doi.org/10.1016/0168-9002(95)00183-2)] and CU-

BIX [www.agata.org/software/cubix]. The level scheme of the nucleus has been extended up to an excitation energy of ~ 8 MeV and spin ~ 16ħ with the addition of several new γ-ray transitions and modifications in the placements of some of the existing ones. The experimental level energies have been compared with those calculated in the shell model framework, using the KShell [github.com/jorgenem/kshell_public] code. The overlap between the experimental and the theoretical level energies has been found to be reasonable. The band structures observed in the excitation scheme were probed for the associated deformations in the framework of the Total Routhian Surface (TRS) calculations; the positive parity $\pi g_{9/2}$ band was interpreted to be associated with prolate shape while the $\pi f_{5/2}$ and $\pi p_{3/2}$ sequences were ascribed to γ-soft potential minima. In addition, octupole correlation has been identified in the nucleus following the B(E3)/B(E1) ratio corresponding to the de-excitation of the 9/2⁺ band-head of the $g_{9/2}$ band. The results have been recently published. [Ref: Anil Sharma *et al.*, Physical Review C **113**, 014304 (2026); DOI:<https://doi.org/10.1103/x7qb-2m4w>]

» Quest for Quasi-fission in Heavy-ion Induced Reaction

The synthesis of the Super Heavy Elements (SHE) is one of the zealous pursuits in contemporary nuclear physics research and broadly aims at extending the boundaries of the periodic table and probe for the "island of stability" therein. The challenges associated with the exercise of SHE production include the non-equilibrium processes such as Quasi-fission (QF) that impede the formation of a fully

equilibrated compound nucleus and thus hinder the formation of SHEs. It is thus imperative to understand and ascertain the factors that relate to the the QF process while optimizing target-projectile combinations for synthesis of SHE. There have been considerable theoretical and experimental efforts in this context but these often fall short of identifying specific features pertaining to the reaction dynamics of particular systems and warrant more comprehensive investigations. The di-nuclear system (DNS) model [Nasirov *et al.*, Phys. Rev. C 84, 044612 (2010)] is one of the theoretical frameworks of widespread use for describing the non-compound processes such as the QF, but requires experimental validation. For instance, the (DNS) model predicts significant QF cross-sections in the $^{16}\text{O} + ^{209}\text{Bi}$ reaction manifested by significant yields of (mass-asymmetric) light ($A < 60$) fission fragments (FFs). However these could not be confirmed experimentally while using gas based detectors that are known to be characteristically insensitive to lighter fragments. The present study is a complementary one that uses γ -ray spectroscopy for identification of the FFs and is not limited by the mass of the nuclei for investigation. The experiment was carried out using the digital INGA setup at VECC based on an array of Compton suppressed HPGe clover detectors and digital pulse processing and data acquisition system. The digital system was conceptualized and implemented by the Nuclear Physics Group at the

Kolkata Centre. The acquired γ - γ coincidence data were sorted using the IUCPIX package, also developed by our Group at the Kolkata Centre, and analyzed using the regular software, such as RADWARE and CUBIX. The results do not indicate population of light FFs that'd follow the QF, and uphold the findings of the previous experiments using gas detectors. Further, this study reports the mass distribution of the even-even and the odd-A FFs using γ - γ coincidence techniques. The overlap of the distribution extracted from this investigation with that of the previous studies further vindicates the symmetric fission process and the absence of QF. [Ref: Soumalya Kundu *et al.* Proc. DAE Symp. Nucl. Phy. 69, 63(2025); Oral Presentation]

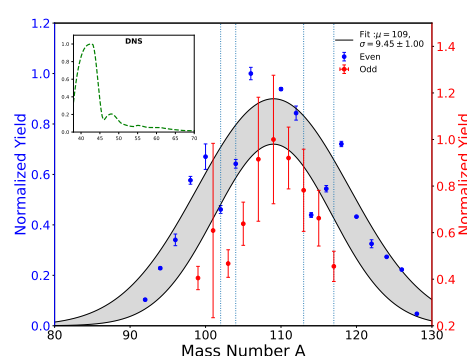


Figure : Mass distribution of fission fragments following $^{16}\text{O} + ^{209}\text{Bi}$ reaction at $E_{\text{lab}} = 140$ MeV.

Collaborative Research Activities

The Nuclear Physics Group also collaborates with Users from different institutions. One of the recent collaborative endeavors is reported here.

On the Ground State of ^{178}Ta

This study aims to resolve the ambiguity in the assignment of the ground state of ^{178}Ta nucleus between the two low lying long-lived isomers, 1^+ ($T_{1/2} = 9.3$ min) and 7^- ($T_{1/2} = 2.36$ hrs). The states were populated in $^{178}\text{Lu}(\alpha, n)$ reaction at $E_{\text{lab}} = 25$ MeV using the irradiation facility of the K130 cyclotron at VECC and the decay of the two states, to the ^{178}Hf daughter nucleus, was measured offline

using the digital INGA setup therein. The population of the individual states were extracted (1^+ : $66.2 \pm 3.0\%$, 7^- : $33.8 \pm 0.9\%$) from offline analysis of the decay data while using the IUCPIX framework of the Kolkata Centre and the regular RADWARE [Radford] package. The experimental results are well reproduced in the model calculations using the TALYS framework (nds.iaea.org/talys/) while defining 1^+ as the ground state and 7^- as an excited state at 20 keV. The calculations using Two Quasiparticle Rotor Model (TQRM) also predicts the same order of levels. Thus, the study concludes on the 1^+ state as the ground state of ^{178}Ta . [N. Susshma *et al.*, Preprint Submitted to Nuclear Physics A]

Other Information

Invited Talks

- 3 Online Lectures on Nuclear Physics Experiments for Department of Physics, SSSIHL, Prasanthi Nilayam; 24-26 March, 2026.

Awards, Honours and Recognitions

- Member of the Board of Studies (UG & PG) of the Department of Physics, Panskura Banamali College, West Bengal.



PROF. AMLAN J. PAL

DAE - Raja Ramanna Chair

Email: amlan.pal@gmail.com

Research Interests: Device Physics (Experimental)

Group members: Nil

Total Ph.Ds awarded: Before December 2025: 31; After December 2025: 1

Facilities: Shared with all faculties

»»» In-house Research Highlights

» In-house Research Activities

Following the commencement of the tenure of the Raja Ramanna Chair at the Kolkata Centre, research activities were continued in the areas of device physics, electronic properties of semiconductors, and solar cells based on halide perovskites.

One of the aforementioned studies addressed the perspectives on the existence of ferroelectricity in typical perovskites such as methylammonium lead iodide (MAPbI_3), which have remained inconclusive owing to overlapping effects from ion migration, charge accumulation, and ferroelasticity. We introduced measurements of tunneling current using scanning tunneling microscopy (STM) and Kelvin probe force microscopy (KPFM) under voltage-induced poling to probe polarization dynamics in perovskite films. While a poling-dependent tunneling current was observed in STM, KPFM measurements revealed a reversal (flip) in surface potential upon poling, indicating the presence of remnant polarization at the nanoscale.

These results provide compelling evidence of ferroelectricity in unstrained MAPbI_3 films, ruling out contributions from ferroelasticity and ion migration.

The findings open pathways for integrating polarization phenomena into optoelectronic devices. [Ref.: *Nano Letters*, **26**, 4234 (2026).

Another study in this domain focused on the role of additives in improving the performance of electronic devices by promoting homogeneous film formation and smoother surfaces, thereby enabling efficient interfaces with charge transport layers. Notably, most additives used in perovskite solar cells possess an intrinsic electric dipole moment.

We investigated the electric polarization in additive-incorporated CsPbI_3 thin films with a range of additives. Piezoresponse force microscopy (PFM) measurements yielded the effective piezoelectric coefficient (d_{33}), while KPFM measurements revealed changes in surface potential upon reversal of the poling direction. These measurements enabled quantitative estimation of electric polarization in the films. Furthermore, characterization of p-i-n heterojunction devices based on these films demonstrated a strong correlation between solar cell parameters and the electric polarization of the active layer. The additives significantly enhance both the induced polarization and film morphology, thereby improving device performance. [Ref.: *Small*, **22**, e06980 (2026)]

»»» Other Information

» Sponsored Projects

DAE Raja Ramanna Chair, for a period of three years, funded by DAE, with a financial support of Rs 40.5 lakhs.

» Invited Talks

- International Symposium on Advanced Materials and Devices (SAMDev 2025), Bose Institute, Kolkata, held during December 19-20, 2025

- International Conference on Solar Energy Photovoltaic, KIIT, Bhubaneswar, held during December 18-21, 2025
- National-Level One-Day Physics Seminar (funded by the DBT, Government of India), Ramakrishna Mission Vidyamandira, Belur, Howrah, West Bengal.

» Awards, Honours and Recognitions

- Gold Medal, Society for Materials Chemistry



PROF. ARUP KUMAR RAYCHAUDHURI

INSA Senior Scientist

Email: arupraychaudhuri4217@googlemail.com

Research Interests: Condensed Matter Physics (Experimental)

Group members: Nil, Collaborates with all faculties

Total Ph.Ds awarded: Before December 2024: 40; After December 2024: Nil, One registered

Facilities: Shared with all faculties

»»» In-house Research Highlights

The focus of the research activities continues to be on novel functional 2D materials, with emphasis on their possible applications in diverse domains, through collaborative endeavours with Indore Centre of the Consortium as well as S.N. Bose National Centre for Basic Sciences, Central Glass and Ceramic Research, Kolkata and IIT, Delhi

Material functionality, holds immense importance for diverse technological applications, and hence has been of contemporary interests. For example, the exploration of electronic correlations and orbital occupancy across the metalinsulator transition in a prototype V2O3 system are expected to provide valuable insights into the principal mechanisms, besides modulating the functional properties that have a direct correlation to their device-applications. In the current collaborative endeavor, study, the crucial role of trigonal distortion together with the orbital distributions in iso-structural paramagnetic metal (PM)

and paramagnetic insulating (PI) phases of epitaxial V2O3 thin films was investigated. An intriguing enhancement in electronic correlations and orbital switching across the PM to PI phases in V2O3 was established. The PM state demonstrates the preferential electron occupation in orbitals perpendicular to the film plane, while the PI state reveals a switch in electron occupation preference within the plane of V2O3 thin film, indicating an intriguing orbital switching from PM to PI state. These findings elucidates the understanding for tailoring the materials properties and promises for advancing material design. [*Orbital driven switching of electronic phases in V₂O₃ thin films*", Sophia Sahoo, Shailesh Kalal, Gaurav Chouhan, Mukul Gupta, DM Phase, VR Reddy, Rajamani Raghunathan, AK Raychaudhuri, Frank MF de Groot, RJ Choudhary Journal of Physics: Condensed Matter **38** (10), 105601 (2026)].

»»» Collaborative Research Activities

The transition from an insulator to a metal in the nickelate system $\text{Nd}_{1-x}\text{La}_x\text{NiO}_3$ $0 \leq x \leq 1$, through extensive structural, electrical transport, and Raman spectroscopy investigations. Attempts have been made to explain the observed changes both as a function of the composition as well as the temperature within the framework of localization-

dependent electron-electron interactions. ["*Phase Coexistence and Evolution of Insulator-Metal Transition in $\text{Nd}_{1-x}\text{La}_x\text{NiO}_3$ ($0 \leq x \leq 1$) in Presence of Correlation and Disorder*", P Majhi, A Goswami, S Datta, R Singh Bisht, B Ghosh, A K Raychaudhuri, Journal of Physics: Condensed Matter **37** (32), 325601 (2025)].

»»» Other Information

» Sponsored Projects

INSA Senior Scientist, for a period of three years funded by INSA, with a financial support of Rs.21 lakhs

» Academic Pursuits:

- Resource personnel for the Pre-Ph,D course Research methodology.
- Member of selection/promotion committees in IITs and IISERs
- Member of review committee Bose Institute, Kolkata

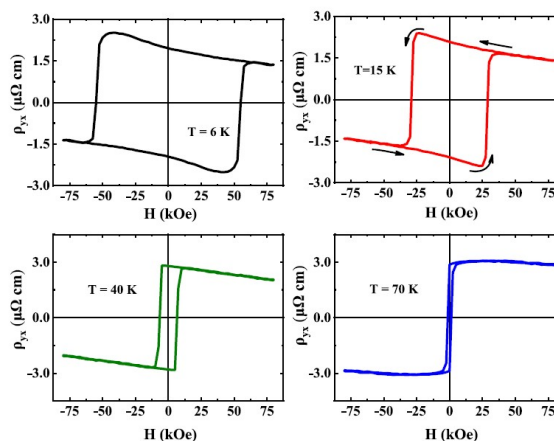
►►► Highlights of CRS Projects

► Magnetic metastability driven anomalous Hall effect in Fe_xTaS_2

Prof. Subham Majumdar, Indian Association for the Cultivation of Science, Kolkata

We report the observation of a robust thermoremanent magnetization (TRM) in Fe-intercalated TaS_2 single crystals, Fe_xTaS_2 , which develops upon cooling under a moderate magnetic field of 500 Oe or higher. Remarkably, the thermoremanence persists even in zero magnetic field up to ~ 160 K, significantly exceeding the ferromagnetic Curie temperature ($T_C = 90$ K) of the sample. The origin of TRM in this system can be attributed to the pronounced Ising anisotropy and the quasi-two-dimensional nature of the spin structure. Detailed analysis of the magnetization data reveals the presence of short-range magnetic correlations above T_C , manifested as a Griffiths-like singularity extending up to approximately $2T_C$. Furthermore, the TRM is reflected in the form of a large anomalous Hall effect (AHE) observed under zero magnetic field. Interestingly, unlike TRM which persists well above T_C the thermoremanent Hall effect disappears immediately upon heating the sample above T_C . This behavior sug-

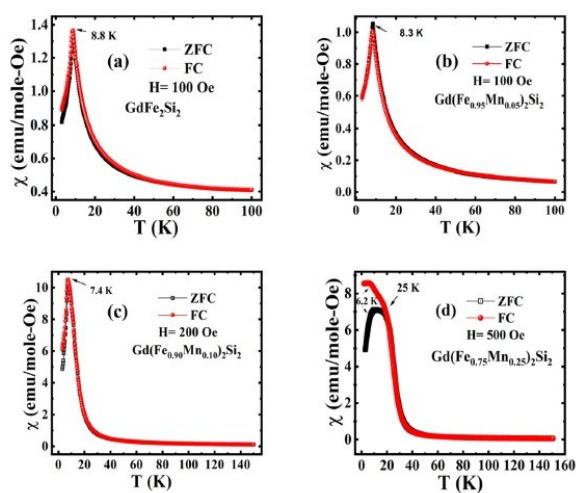
gests that the emergence of AHE is closely linked to the presence of long-range magnetic order.



[Ref: Md. Numan, et al. Physical Review B **111** (2025), 144403]

► Magnetic and transport properties of ferrimagnetic $\text{Gd}(\text{Fe}_{0.75}\text{Mn}_{0.25})_2\text{Si}_2$

Dr. Tapas Paramanik, Dept. of Physics, NIT Andhra Pradesh, Tadepalligudem-534101, A.P., India. [CRS/2021-22/02/487]



duced by doping concentration of Mn at the Fe site of the GdFe_2Si_2 has been investigated. While, GdFe_2Si_2 shows an antiferromagnetic (AFM) transition at ≈ 8.8 K, $\text{Gd}(\text{Fe}_{0.75}\text{Mn}_{0.25})_2\text{Si}_2$ compound shows ferrimagnetic (FiM) transition at $T_{N1} \approx 6.2$ K and cluster-glass behavior at $T_{N2} \approx 25$ K. Magnetization results show that above T_{N2} the system is not purely paramagnetic; instead, it exhibits short-range ferromagnetic correlations characteristic of a Griffiths phase (GP), which persist up to the Griffiths temperature $T_G \approx 110$ K. Detailed analyses of magnetic and transport measurements, supported by theoretical model fitting, confirm the presence of this short-range ferromagnetic interaction associated with the GP.

[Ref: Ghosh et al., Journal of Alloys and Compounds **1039** (2025), 182719]

This CRS work represents magnetic properties in-

► **Conclusive evidence of magnetic rotational band in ^{57}Fe : Extending the shears mechanism to the fp shell orbital.**

Dr. Gopal Mukherjee, VECC, Kolkata

This work identifies a Magnetic Rotational (MR) band in ^{57}Fe nucleus based on the decreasing behavior of the experimental magnetic dipole transition probabilities, $B(M1)$, determined from the measured lifetimes of the associated states of the sequence. The experiment was carried out using the digital INGA setup at VECC, centered on an array of Compton suppressed HPGe clover detectors and digital pulse processing and data acquisition system that was conceptualized and implemented by the Kolkata Centre. The acquired data was sorted using the IUCPIX package, developed at the Kolkata Centre. Further, the lifetime analysis used the velocity profiles of the residues through the target medium as simulated using the developments at the Kolkata Centre. This is the first instance in the lighter mass ($A < 60$) nuclei wherein the $B(M1)$ values of an

MR band are measured. A single-particle configuration of $\pi(f_{7/2})^{-2} \otimes \nu(p_{3/2}f_{5/2}p_{1/2})^3$ has been assigned to this MR band. This configuration, which involves only the negative parity proton and neutron orbitals below and above the $Z, N = 28$ shell closures, respectively is a unique one that has not been identified before for an MR band. The properties of the band have been well reproduced in the framework of the SPAC (Shears Mechanism with Principal Axis Cranking) model. Further, the large basis shell model calculations with GXPFI1A interaction also reproduce the observed levels in ^{57}Fe nucleus including the band head of the MR band, and validates the assigned configuration of this band.

[Ref: S. Basu, G. Mukherjee, et al. Physics Letters B **868** (2025), 139642]

► **Structural evolution and K mixing in ^{52}Cr : A shell model description**

Dr. Abhijit Bisoi, Indian Institute of Engineering Science and Technology, Shibpur.

The excitation scheme of the ^{52}Cr nucleus has been studied in this work. The $K=0+$ and $K=4+$ bands of the nucleus were populated through the $^{51}\text{V}(\alpha, 2n\text{p})$ reaction at $E_{\text{lab}} = 45$ MeV. The experiment was carried out using the digital INGA facility at VECC, consisting of an array of Compton suppressed HPGe clover detectors and a digital pulse processing and data acquisition system conceptualized and implemented by the Nuclear Physics Group at the Kolkata Centre. The acquired data was sorted using the IUCPIX package of the Kolkata Centre and the level scheme of ^{52}Cr was verified utilizing the results of intensity, directional correlation, and linear

polarization measurements. Lifetimes of a few excited states in the observed bands have been measured/remeasured using the Doppler shift attenuation method (DSAM). Large basis shell model calculations have been performed within the fp valence space in order to understand the microscopic origin of the aforementioned bands. Structural evolution and K-mixing throughout the bands in ^{52}Cr have been investigated using the calculated quadrupole moments and the results obtained from one-nucleon transfer spectroscopic factor calculations.

[Ref: A. Bera, A. Bisoi et al., Physical Review C **112** (2025), 044305]

► **^{98}Mo : A possible candidate for octupole collectivity in $A \approx 100$ region**

Prof. S. Chattopadhyay, SINP, Kolkata

The high spin level structures of the ^{98}Mo nucleus have been studied through discrete γ -ray spectroscopy, while using the digital INGA setup at VECC, based on an array of Compton suppressed HPGe clover detectors and the digital pulse processing and data acquisition system of the Kolkata Centre. This study extends the existing band structures

of the nucleus to higher spins and also reports two new E3 transitions. The spin and parity of most energy levels have been uniquely established from the present dataset. An extensive comparison with the ^{100}Ru nucleus, an octupole-deformed nucleus in the mass 100 region, reveals similarities that suggest the presence of octupole collectivity in ^{98}Mo .

This observation is relevant in establishing $A \approx 100$ as another valley of octupole collectivity.

[Ref: A. Karmakar, et al. Nuclear Physics A **1066** (2026), 123265]

► Configurations of high-K band structures in Hf isotopes

Prof. S. Tandel, Shiv Nadar University, Delhi-NCR

The structure of several Hf isotopes has been studied through their population in α -induced reactions and using the digital INGA facility at VECC. The setup is based on an array of Compton suppressed HPGe clover detectors and the digital pulse processing and data acquisition system conceptualized and implemented by the Kolkata Centre. The $K^\pi = 6^+$ band and the quadrupole and the octupole vibrational structures in ^{176}Hf have been extended with the inclusion of 13 new transitions. Half-lives

of high-K states in various Hf isotopes have been measured. The branching ratios of γ -rays in the rotational bands built on the K isomers have been determined and these have been used to infer their underlying nucleonic configurations. Calculations using the Ultimate Cranker code attest to the rigid, well-deformed prolate shapes of Hf isotopes and the resultant K symmetry.

[Ref: S. K. Singh, et al. Nuclear Physics A **1067** (2026), 123301]

► Investigation of new and evolving structures in ^{125}Te using γ -spectroscopy

Prof. A. K. Singh, Indian Institute of Technology, Kharagpur

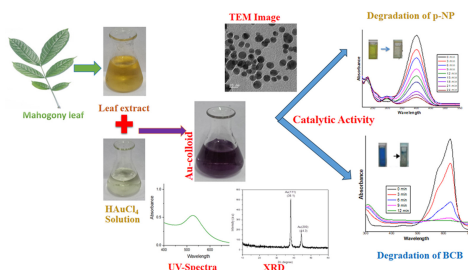
The excited nuclear states of ^{125}Te were populated in a fusion-evaporation reaction using a target of ^{124}Sn and α -beam at 31 and 35 MeV. The experiment was carried out at the digital INGA (Indian National Gamma Array) setup at VECC, while using the digital pulse processing and data acquisition system of the Kolkata Centre. The IUCPIX package, also developed by the Kolkata Centre, was used for sorting the acquired data. A total of 92 new γ -rays were identified and placed within the level scheme

of the ^{125}Te nucleus. Six new structures, three of positive parity and three with negative parity, have been identified. Previously observed level scheme has been verified and extended up to ≈ 5.7 MeV. The results were interpreted in the framework of the particle rotor model and possible configurations were assigned to the structures.

[Ref: A. Dey, A. K. Singh, et al. Physical Review C **113** (2026), 024319]

► Swietenia macrophylla leaf extract mediated synthesis of colloidal gold nanoparticle to be employed as catalyst for efficient reduction of p-Nitrophenol and Cresyl Blue Dye.

Prof. Dipankar Halder, Jadavpur University, Kolkata, India [CRS/2021-22/02/500]



The current study demonstrated the successful synthesis of aqueous gold colloid by employing the extract of the leaves of the Mahogany tree (*Swietenia macrophylla*), abundantly available in the local area

of West Bengal, India. UVVis spectroscopy, EDX analysis, and X-ray diffraction studies confirmed the presence of elemental gold in the colloid. Transmission electron microscopy (TEM) was used to study the morphology of the nanoparticles, revealing an average diameter of 10.78 ± 0.48 nm. Fluorescence spectroscopy was employed to investigate the fluorescence characteristics of the fluorophore present in the leaf extract and to study the fluorescence quenching of those fluorophores by the gold nanoparticles. In the application part, we tested how well the colloidal gold nanoparticles work as a catalyst

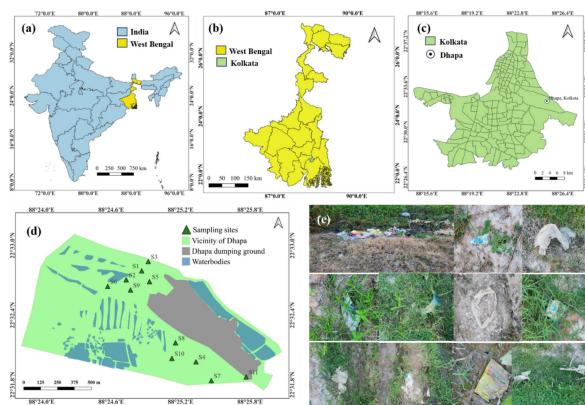
by examining its ability to reduce the common water pollutant p-nitrophenol and the brilliant cresyl blue dye. In both cases, gold nanoparticles showed good

catalytic activity.

[Ref: S. Maity, et al. Total Chemistry **1** (2025), 100019]

► Is our food safe? Microplastic occurrence and characteristics in vegetables cultivated in the vicinity of a municipal solid waste dumping groundsights from Kolkata, India

Prof. Punarbasu Chaudhuri, University of Calcutta, West Bengal, India [CRS/2022-23/02/816]



This study involves in investigating the occurrence and characterization of microplastics (MPs) in agricultural soil, vegetables (Cabbage, Chili, Brinjal, Spinach and Tomato), and their rinsed water samples. A total of 25 vegetable samples and 25 soil samples were collected from each field using a stratified design. In addition, 25 rinsed-water samples were obtained from the corresponding vegetable samples collected from the agricultural fields present in the vicinity of Dhapa dumpsite in Kolkata, India. The results of this study revealed that chili was

highly contaminated with 19.00 ± 2.92 MPs g^{-1} and cabbage was least contaminated with 10.20 ± 4.27 MPs g^{-1} . Polymeric profiling of the identified MPs revealed the presence of a varied range of polymers including polyethylene (PE), polyethylene terephthalate (PET), polypropylene (PP), polystyrene (PS), polyvinyl chloride (PVC), and polytetrafluoroethylene (PTFE) with varying dominance patterns. Soil, rinsed water, and all vegetable exhibited polymer hazard Index (PHI) scores > 1000 , corresponding to a level V hazard classification. Estimates of per day MP consumption (based on per capita consumption rate) indicates that spinach is associated with higher levels of MP consumption, while tomato and chilies contribute to lower levels in both rural and urban populations. The results underscore potential risks to human upon exposure, highlighting the urgent need for mitigation approaches, regulatory frameworks on dumping wastes, and sustainable agricultural practices to reduce MP contamination in food chain.

[Ref: K.S. Katnur, et al. Environmental Science and Pollution Research **32** (2025), 29769]

► Enhancement of NIR II Emission of Au₁₂Ag₃₂ Clusters by Tuning the Au Positions

Dr. Ananya Bakshi, Jadavpur University [CRS/2022-23/02/827]

Precise alloying at the preferred location to enhance the optical properties of metal nanoclusters is challenging as often the most stable isomer is produced. To alter the location of Au atoms on the $[\text{Au}_{12}\text{Ag}_{32}(\text{SR})_{30}]^{4-}$ cluster, a new approach by changing the reacting Au precursor following an inter-cluster reaction is reported. A Au(I) containing cluster, $[\text{Au}_{18}\text{Se}_8(\text{DPPE})_6]^{2+}$ as the Au source, while reacting with $[\text{Ag}_{44}(\text{SR})_{30}]^{4-}$, is used, and the 12 Au atoms occupy the surface position instead of the core. The whole reaction is monitored in-line using high-resolution trapped ion mobility spectrometry (TIMS), and the change in collision cross section (CCS) of the intermediates and the final product re-

veal that Au atoms can dynamically migrate within the cluster and in the final product is an all Au out isomer of $[\text{Au}_{12}\text{Ag}_{32}(\text{SR})_{30}]^{4-}$. Changing the location of the Au atoms shows an impact on the NIR II emission at ~ 1340 nm of parent $[\text{Ag}_{44}(\text{SR})_{30}]^{4-}$. The emission of the synthesized alloy is enhanced tenfold compared to $[\text{Ag}_{44}(\text{SR})_{30}]^{4-}$ and is ~ 20 nm blueshifted. Density functional theory calculations reveal that the Au/Ag atoms on the staple are slightly positively charged, making it convenient for the reacting Au(I)₁₈Se₈ cluster to be exchanged on the surface.

[Ref: H. Ansari, et al. Small **21** (2025) 2502758]

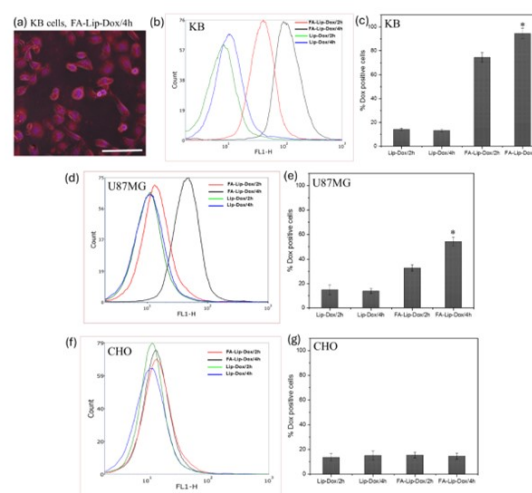
► Cancer Cell Detection and Precision Targeting Drug Delivery by Covalently Functionalized Liposome

Dr. Ankan Dutta Chowdhury , Amity University, Kolkata, India [CRS/2021-2022/02/506]

Selective targeting remains a major challenge in cancer diagnostics and drug delivery. This study explores folic acid-conjugated liposomes (FA-liposomes) for specific recognition of folate receptor (FR)-expressing cancer cells. Doxorubicin-loaded FA-liposomes (FA-Lip-Dox) were developed as both a therapeutic agent and fluorescent probe. Targeting efficiency was evaluated in CHO (normal), U87MG (low FR), and KB (high FR) cell lines. Enhanced uptake and drug accumulation were observed in FR-overexpressing cancer cells, while minimal uptake occurred in non-target cells. The system demonstrated low toxicity in normal cells, indicating its potential as an effective and selective nanocarrier for cancer detection and therapy.

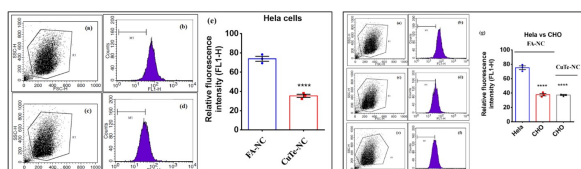
[Ref: M. Ghosh, et al. Appl. Bio Mater., **8** (2025),

9]



► Theragnostics of folic acid conjugated Cu on Te nanocomposite: Fluorescence sensing, imaging and selective cytotoxicity towards HeLa cells

Dr. Kamalika Sen, Calcutta University, West Bengal, India



A novel folic acidconjugated copper-doped tellurium oxide nanocomposite (FA-NC) was successfully synthesized using a green synthetic approach for potential cancer theranostic applications. The developed nanomaterial exhibited strong intrinsic fluorescence, enabling sensitive detection and imaging of folate receptor-positive HeLa cancer cells, with a detection limit of 1.82×10^3 cells/mL. Surface and compositional analyses confirmed key physicochemical transformations, including the reduction of Cu^{2+} to Cu^0 as verified by X-ray photoelectron spectroscopy

(XPS), along with successful folic acid functionalization, evidenced by Raman spectroscopic studies. The nanocomposite demonstrated selective cellular uptake and imaging in HeLa cells compared to normal HaCaT cells, indicating effective folate receptor-mediated targeting. In addition to its imaging capability, FA-NC showed significant antiproliferative activity against HeLa cells with an IC_{50} value of $15 \mu\text{g/mL}$. DNA interaction studies suggested moderate binding affinity ($K_d = 69.2 \mu\text{M}$), consistent with groove-binding behavior. Overall, these findings indicate that FA-NC is a biocompatible and cost-effective multifunctional nanoplatform with promising potential for targeted imaging and therapeutic applications in folate receptor-positive cancers.

[Ref: D. Das, et al. Inorganica Chimica Acta **594** (2026), 123076]

**PROF. TAPOBRATA SOM****Scientist in-Charge****Bhubaneswar Node****Email** : tsom@iopb.res.in; tsomiop@gmail.com**Address** : UGC-DAE CSR Bhubaneswar Node
Institute of Physics,
Bhubaneswar 751 005, India.**Phone** : +91-674-2306416 / 9437010830)**»»» Node in-Charge's Message**

The UGC-DAE Consortium for Scientific Research (CSR) Bhubaneswar Node was formally inaugurated on June 27, 2024 at Institute of Physics (IoP), Bhubaneswar. The Bhubaneswar Node (BN) operates under the administrative control of UGC-DAE CSR Kolkata Centre.

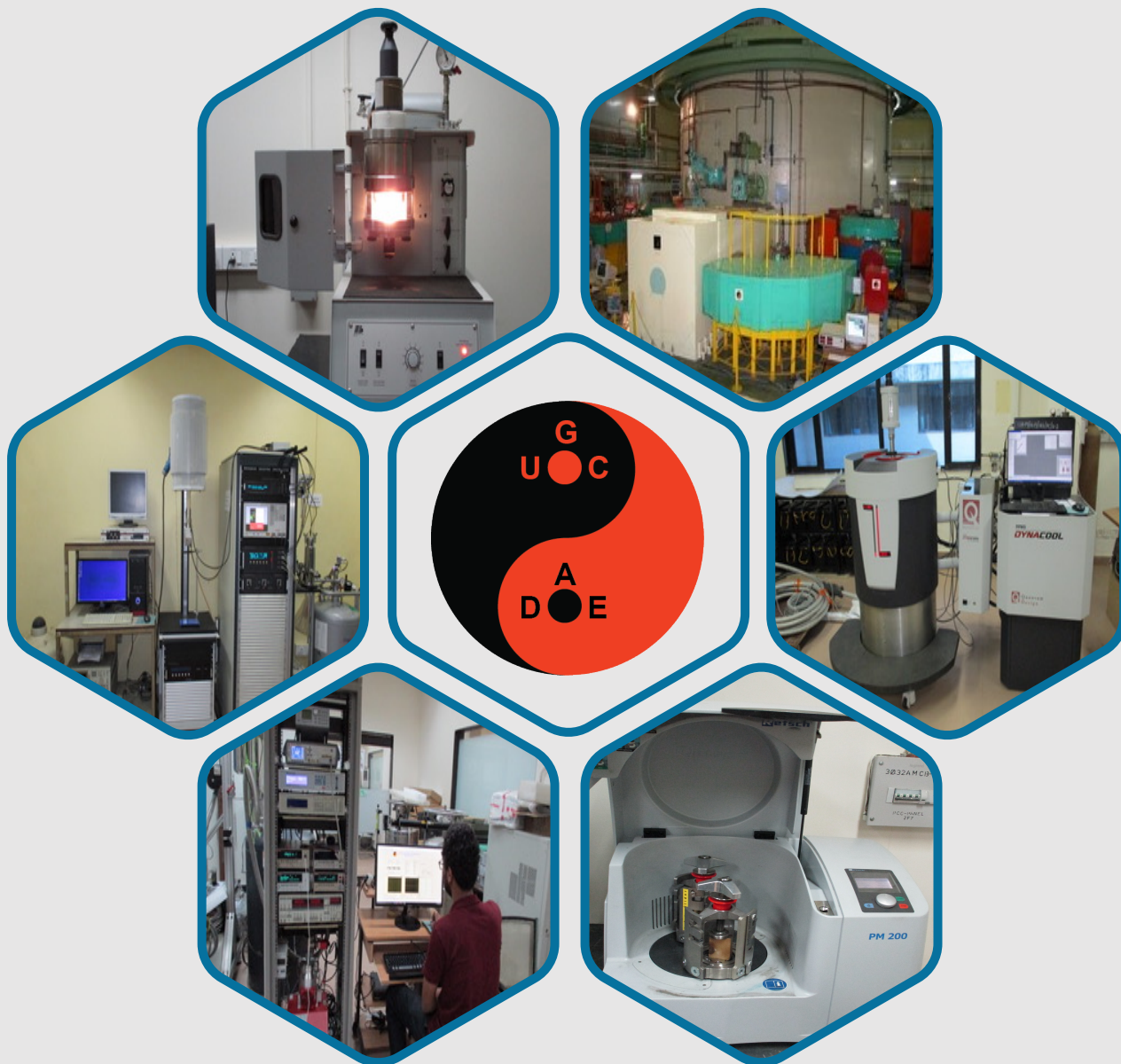
An awareness meeting of UGC-DAE CSR on Utilization of in-house and large scale DAE facilities was organized by UGC-DAE CSR, Kolkata Centre and Bhubaneswar Node for users in collaboration with Cooch Behar Panchanan Barma University, Cooch Behar, West Bengal, and Rajiv Gandhi University, Rono Hills, Doimukh, Arunachal Pradesh on September 18, 2025 in online mode.

The Node has routinely helped several users from

universities by extending access to atomic force microscopy based studies and sputter deposition set-up, which helped the Ph.D. students for their Ph.D. theses. Some of these universities are: Odisha University of Technology and Research, Bhubaneswar; KIIT (Deemed University); Bidhan Chandra College, Asansol (affiliated to Kazi Najrul University); TCG CREST (deemed University), Kolkata; and Saurashtra University, Rajkot; UPES, Dehradun, etc.

Recently, the Bhubaneswar Node has revived the low energy negative ion beam facility to provide ion beams up to 30 keV. Several ion species have been tested, viz. Hydrogen, Carbon, Oxygen, Silicon, Germanium, Titanium, Silver, Gold, etc. Very soon, the facility will be ready to deliver beams to the user community.

Mumbai Centre



**DR. P. D. BABU**

Centre Director

Mumbai Centre

Email : cd.mumbai@csr.res.in, pdbabu@csr.res.in

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246C 2nd Floor, Common Facility Building
BARC Campus, Trombay,
Mumbai - 400085, M.H. India.

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Centre Director's Message

Mumbai Centre of UGC-DAE CSR provides access to all its state-of-the-art inhouse research facilities and various mega research facilities of BARC to researchers from universities, institutes, and colleges from all over India.

Condensed matter physics is the major research area of Mumbai Centre. Dhruva Reactor of BARC is utilized for neutron scattering experiments along unique high and low temperature, high magnetic field facilities to investigate materials under extreme conditions. Over the years, 400 plus Collaborative Research Schemes (CRS) of 3-year duration have been completed. Currently, 79 CRS projects are running at Mumbai Centre. This year, 18 CRS projects have been sanctioned for the Mumbai Centre. Bulk of these projects are on neutron scattering, and low temperature and high magnetic field facilities. Relatively, a smaller number of CRSs are on newer BARC facilities that are made available in recent times.

The main research areas of Mumbai Centre in recent time have been the study of topological materials, skyrmionics systems, low-dimensional magnets, spin liquids, magnetically sensitive thermoelectrics, metal-oxide frameworks, magnetic solids, and multiferroics. In the last few years, Mumbai Centre had admitted a good number of Ph.D. students. At present, there are 14 students pursuing their Ph.Ds. Most of them have completed their course work successfully and have started carrying out their research work.

During this annual report period, the Centre has 92 publications in high-quality journals (32 in-house, 60 university collaborations). About 248 user groups have utilized the Centres facilities (excluding BARC

facilities) in this period. Many users from premier institutions such as IISc, IITs, NITs, Central universities in additions to State universities and colleges utilized our facilities. Users are from Kerala to Himachal Pradesh, Arunachal Pradesh, Nagaland, Jharkhand, etc., and from other remote areas as well.

I am pleased to inform that many experimental proposals submitted by our faculty members to various international neutron and synchrotron facilities, got accepted. These experiments have been successfully performed either by in-person visit of our faculty members or by sending the samples to the respective facilities. Dr. S. Rayaprol visited Photon Factory (KEK), Japan for carrying out experiments. Dr. S. Chattopadhyay visited ISIS neutron facility in the UK to perform neutron diffraction experiment. It is gratifying to note that for the last few years, 2-3 students are selected every year for the prestigious European Hercules Neutron and Synchrotron School. This year, one student was selected with financial support for in-person participation for about a month, and three other students participated via online mode in this school. In addition, 4 students made foreign visits for attending international conferences/workshops/schools.

The design and drawings for the Mumbai Centre building at its land in New Panvel, Navi Mumbai was submitted to UGC along with a detailed proposal. UGC in turn asked for a number of clarifications and details, which are replied and all necessary details are provided to UGC, and a financial sanction is sought from UGC. As soon as funds are received, DCSEM will start the building construction at the site.



DR. P. D. BABU

Centre Director

Email: pdbabu@csr.res.in

Research Interests: Magnetic, Electrical and thermal properties of alloys and novel functional materials, Neutron diffraction and scattering.

Group members: Ph.D. Students: (1) Ms. Bhagyashree Pol, (2) Ms. Mayuri Kamble, (3) Ms. Anu

Total Ph.Ds awarded: 1

Facilities: (1) Neutron Diffractometer, (2) 9T PPMS based Magnetometer, ac susceptibility, (3) 14T DynaCool PPMS based Heat Capacity electrical thermal properties, (4) CryoFMR.

►►► In-house Research Highlights

► Charge-density wave transition in ordered intermetallic compound γ -U₂Mo

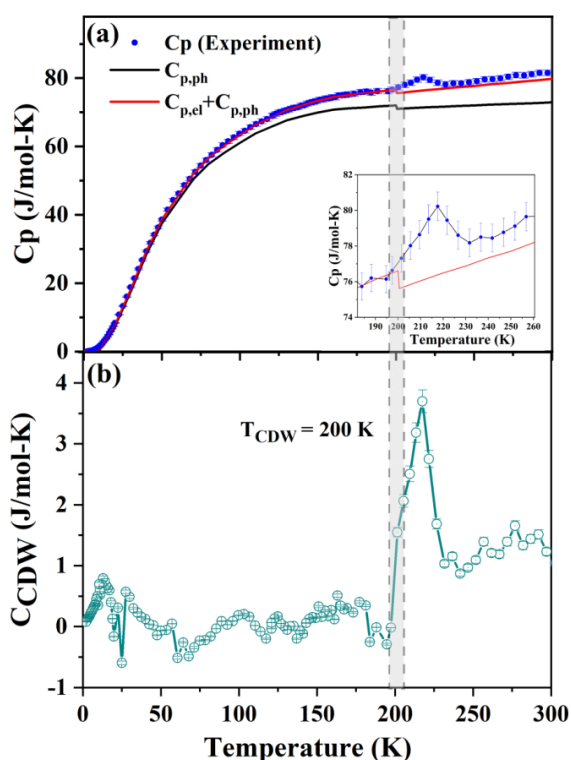


Figure 1: Variation of specific heat (C_p) of γ -U₂Mo (upper) and the excess part of C_p due CDW transition (lower).

The uranium alloyed with Zr, Mo, Nb, Ti, offer superior swelling, fabrication, and fuel-cladding chemical reaction properties, among the nuclear fuel materials. However, similar to pure α -Uranium, the alloyed Uranium compounds show susceptibility to a charge-density-wave (CDW) instability at low temperatures, which has rarely been investigated in de-

tail. In this study, we unequivocally experimentally identify CDW instability in γ -U₂Mo using diffraction and heat capacity measurements on hitherto unreported single phase γ -U₂Mo. We find that γ -U₂Mo undergoes phase transformation from ordered intermetallic tetragonal (I4/mmm) phase to monoclinic symmetry (C2/c) below $T_{CDW} \approx 200$ K, which remains stable at least up to 10 K. Ab initio molecular dynamics simulations confirm the CDW instability, and the CDW phase is determined. A detailed analysis of electronic structures and the real and imaginary parts of electronic susceptibility suggests the role of Fermi-surface nesting and hidden nesting leading to phonon instabilities that induce the CDW distortion. Our results emphasize the need for careful investigation of low-temperature CDW instability in other single-phase intermetallic nuclear fuels.

[Reference: S. Bhattacharya *et al.*, *Phys. Rev. Mat.* **10**, 045401 (2026)]

► Critical behavior of $\text{Co}_{10-x/2}\text{Zn}_{10-x/2}\text{Mn}_x$ ($x = 0, 2$) alloys

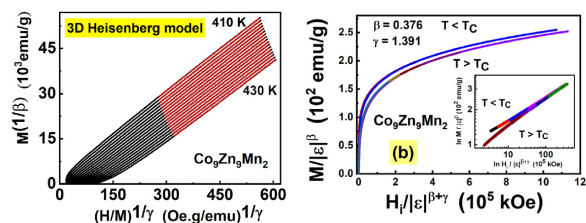


Figure 2: A representative Arrot plot (left) and universal curves based scaling equation of state analyses in the critical region for the compound $\text{Co}_9\text{Zn}_9\text{Mn}_2$

Structural, magnetic and critical behavior of $\text{Co}_{10-x/2}\text{Zn}_{10-x/2}\text{Mn}_x$ alloys for the nominal compositions of $x = 0$ and 2 have been investigated. Rietveld refinements reveal β -Mn type chiral cubic structures (space group $P4_132$) for the both

compounds DC Magnetization measurements indicate that Mn substitution suppresses magnetic order. The magnetic behavior for the alloys with $x = 0(2)$ has been studied in the critical region, from which the Curie temperature, $T_C = 448.03(418.03)$ K and critical exponents: $\beta = 0.368(0.375)$, $\gamma = 1.382(1.386)$, and $\delta = 4.79(4.65)$ were determined.

Detailed analysis suggests that the exponents are independent of the method of analysis and close to the theoretical prediction of the 3D nearest-neighbor Heisenberg model.

[Reference: Pradeep *et al.*, *J. Magn. Magn. Mater* **638**, 173695 (2026)]

Collaborative Research Activities

Unconventional relaxation dynamics in the chiral magnet $\text{Co}_8\text{Zn}_7\text{Mn}_5$: Evidence of inertial effects

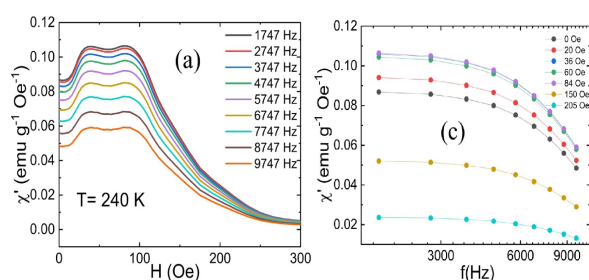


Figure 3: Variation of real part (χ') of ac susceptibility with T for different frequencies (f) (left) and (χ') versus f for different fields.

The magnetic relaxation dynamics was investigated

in a chiral magnet $\text{Co}_8\text{Zn}_7\text{Mn}_5$ across magnetic phases. Conventional Debye and Cole-Cole models fail to capture the frequency dependence of ac susceptibility across different magnetic phases, whereas incorporating an inertial component successfully describes the dynamics thereby yielding a consistent relaxation time (τ) of 10^{-5} s for $\text{Co}_8\text{Zn}_7\text{Mn}_5$. The field-dependent variation of τ exhibits a nonmonotonic nature, with the double-peak-like structure at the skyrmion phase transitions. These results reveal the presence of inertial effect in magnetic relaxation behavior of β -Mn type Co-Zn-Mn compounds and it is demonstrated that the inertial effect is an intrinsic property of β -Mn type Co-Zn-Mn compounds that is independent of any particular magnetic phase. It was explained that the spin fluctuations is the most plausible cause for inertial effects in chiral magnets.

[Reference: S. Patnaik & Group; *Phys. Rev. B* **113**, L020412 (2026)].

Other Information

Invited Talks

- "Invited talk on "Incommensurate Magnetic Structures and complex magnetism of certain Rare-Earth Intermetallics" at DAE SSP Symposium held at IIT Roorkee during Dec 18-23, 2026.
- "Incommensurate Magnetic Structures" at National Conf. on Material Science Nov 19-21, 2026 held at Savitribai Phule Pune Univ, Pune.
- "Magnetic Structure of Ho_3Co and its magnetism under high pressures" at Int. Conf. on Functional Materials for future technologies held at VIT, Vellore during Nov 5 - 7, 2025.
- "Neutrons as Probes of Condensed Mater" at Int. Conf. on Quantum and Nuclear Materials at Manipal Univ. Jaipur during Sept 11-12, 2025.
- "Magnetism and Magnetic materials" as part

of 2nd Refresher course under Malaviya Mission Teacher Training Centre (MMTTC), Indian Institute of Teacher Education (IITE) during Sept 1-13, 2025 held online.

- Two lectures on "Electrical and thermal properties at low temperatures" and "Magnetism through bulk Physical Properties" as part of DST training workshop at GITAM Univ. Vishakhapatnam during May 1-3, 2025

Foreign Visits by Faculty and Students

- Ms. Anu attended IEEE - Magnetic Society Summer School 2025 held at San Diego, USA during 21-26th June, 2025 and presented a paper
- Ms. Mayuri S. Kamble attended HERCULES European Neutron and Synchrotron School, at Institut LaueLangevin (ILL) Grenoble and SOLEIL Synchrotron, FRANCE during March 9th to April 12th, 2025



DR. SUMANTA CHATTOPADHYAY

Scientist - D

Email: sumanta@csr.res.in

Research Interests: Quantum materials; Neutron and X-ray diffraction; Extreme condition magnetometry

Group member: Mrs. Shubhangi S. Bhor (PhD student)

Total Ph.Ds ongoing: 1

Facilities: Powder neutron diffractometer; High temperature three-zone gradient heating tube furnace

»»» In-house Research Highlights

» Probing a quantum disordered magnetic ground state in $\text{Ba}_4\text{Nb}_{0.8}\text{Ir}_{3.2}\text{O}_{12}$

The presence of disorder in a crystalline magnetic system is usually expected to disturb quantum disordered ground states. However, only a few frustrated magnets appear to disobey this trend. By performing detailed low temperature magnetic investigation on single crystalline triangular-lattice compound $\text{Ba}_4\text{Nb}_{0.8}\text{Ir}_{3.2}\text{O}_{12}$ (BNIO) that has substantial Ir/Nb site mixing, we showed that there is no long-range order or spin freezing down to 20 mK. In BNIO, the low temperature specific heat follows a T^2 dependence. In addition, the muon relaxation rate does not show any temperature-independence at low temperatures. All the experimental outcomes are further supported by our DFT based calculations. Our combined experimental and theoretical results suggest that BNIO has a correlated magnetic ground state, which remains quantum disordered despite the presence of disorder.

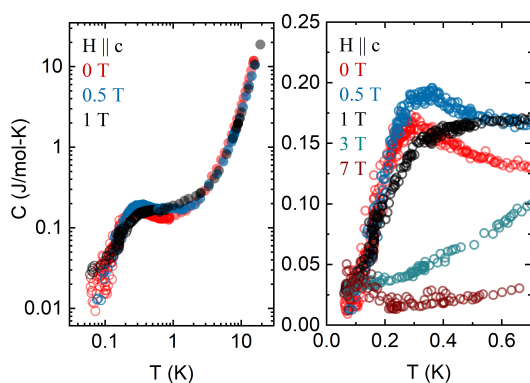


Figure 1: Low temperature specific heat data of BNIO.

» Investigation on the magnetic and electronic behaviours of alternating spin chain compound $\text{KCuGa}(\text{PO}_4)_2$

We performed a comprehensive investigation on the $S = 1/2$ spin chain system $\text{KCuGa}(\text{PO}_4)_2$. Magnetic susceptibility $\chi(T)$ measurements reveal a broad maximum at approximately 12 K followed by exponential decay, characteristic of a spin-gapped ground state. Analysis using a Heisenberg antiferromagnetic (HAFM) alternating spin chain model yields exchange couplings of $J_{\min} \approx -6.47$ K and $J_{\max} \approx -16.18$ K, resulting in an alternation parameter $\alpha \approx 0.40$ and a spin gap $\Delta = 12$ K. Spin-dynamics simulations utilizing the Landau-Lifshitz-Gilbert (LLG) method demonstrate excellent agreement with experimental $\chi(T)$ data. The spin gap magnitude is independently corroborated by magnetic heat capacity measurements. Furthermore, first-principles electronic structure calculations (DFT+ U) provide a theoretical $\alpha \approx 0.40$, consistent with experimental observations. These findings confirm that $\text{KCuGa}(\text{PO}_4)_2$ is a robust realization of an HAFM alternating spin chain system where low dimensionality drives the emergence of singlet states.

[Reference: V. K. Singh et al., J. Magn. Magn. Mater. **630**, 173391 (2025)].

Collaborative Research Activities

► Evidence of unconventional magnetism in the frustrated triangular lattice magnet $\text{Ba}_3\text{MnTa}_2\text{O}_9$

In this collaborative work, we investigated the triple perovskite $\text{Ba}_3\text{MnTa}_2\text{O}_9$, in which Mn^{2+} ($S = 5/2$) ions form a quasi-two-dimensional triangular lattice within the ab plane. Comprehensive measurements using dc/ac magnetization, specific heat, and ESR show no evidence of long-range magnetic ordering down to 0.5 K, even though strong antiferromagnetic correlations are present. The experimentally obtained entropy release is lower than the expected $R \ln(6)$, underscoring substantial geometric frustration. Complementary density functional theory (DFT) calculations and atomistic spin dynamics simulations indicate that competing exchange interactions and the systems low-dimensional magnetic network suppress static order, giving rise to unconventional magnetic properties.

[Reference: R. Mondal et al., Phys. Rev. B **112**, 155153 (2025)].

► Magnetic investigation on triangular sawtooth chain compound $\text{CaFe}_2\text{O}(\text{PO}_4)_2$

The interplay of geometrical frustration with one-

dimensional magnetism amplifies quantum fluctuations and gives rise to unconventional quantum states of matter. In this collaborative work, we investigated the magnetic properties of the well-isolated $S = \frac{5}{2}$ sawtooth spin-chain compound $\text{CaFe}_2\text{O}(\text{PO}_4)_2$ (CFPO). Magnetic susceptibility, heat-capacity, and ^{31}P nuclear magnetic resonance measurements collectively reveal pronounced magnetic frustration in this material. Although the compound has a comparatively large antiferromagnetic CurieWeiss temperature of about -1073 K, it undergoes several magnetic phase transitions at low temperatures, specifically at 15.5, 10.4, and 7.8 K, yielding a frustration parameter ($f \approx |\theta_{\text{CW}}|/T_N$) of roughly 70.

First-principles calculations reproduce the strong antiferromagnetic couplings in this quasi-one-dimensional sawtooth network, offering a microscopic understanding of the experimentally observed frustration, reduced dimensionality, and the emergence of LRO at low temperatures. Altogether, our findings demonstrate that CFPO hosts short-range magnetic correlations and persistent spin dynamics above the LRO regime, likely originating from the underlying $S = \frac{5}{2}$ sawtooth spin-chain model.

Reference: R. C. Moharana et al., Phys. Rev. B **113** 115137 (2026).

Other Information

► Invited Talks

- "Magnetic frustration: A source of unconventional magnetism", National level series of conferences, "Vigyan Yatra 2.0 - 2025", Organised by Saurashtra University, Rajkot on 17 July 2025 (online).
- "Neutron Scattering Facilities at Dhruva Reactor, BARC and In-House Facilities at Mumbai Centre", Awareness workshop organised by

UGC-DAE CSR on 22 September 2025 (online).

► Foreign Visits by Faculty and Students

- Sumanta Chattopadhyay visited Photon Factory (KEK), Tsukuba Campus (Japan) for carrying out scientific experiments on the Indian Beam line (BL18B) during February 13 - 19, 2026.



DR. S. D. KAUSHIK

Scientist - G

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Research Interests: Strongly Correlated Electron Systems, Study of Crystal and Magnetic structure of magnetic materials by neutron diffraction

Group members: (1) Sh. B. R. Mendole (SA-F), (2) Sh. M. Imran (JE-F), (3) Mrs. R. Athira (PhD student), (4) Ms. Pragati Pheswani (PhD student), (5) Mr. Akshay S. Kamble (PhD student), (6) Mr. Shubham A. Patil (PhD student)

Total Ph.Ds ongoing: 4

Facilities: (1) Neutron Powder diffractometer with temperature and magnetic field variation (2) Spark Plasma Sintering, (3) High temperature Furnaces (4) Arc melting system

►►► In-house Research Highlights

Main focus of our group is on microscopic understanding of frustrated magnetism in various class of oxide, intermetallic compounds. We aspire to develop correlation at microscopic level by studying temperature dependent neutron diffraction and other associated physical and magnetic properties.

► Negative magnetization in Y_2CoMnO_6 double perovskite and role of Anisotropy

Y_2CoMnO_6 is a well-known multiferroic material which stands out due to its potential applicability in the devices as it exhibits ordering in the vicinity of liquid nitrogen temperature. However, many conflicting reports pertaining to variation in magnetic and other physical properties exists in literature. Observation of negative magnetization is a case in point. Here phase pure Y_2CoMnO_6 sample was subjected to thorough x-ray and neutron diffraction scanning electron microscopy (SEM), Energy Dispersive x-ray spectroscopy (EDS), Raman study and detailed magnetization study. The analysis of the data suggests existence of significant magneto-crystalline anisotropy, evident from the large coercive field ~ 16.5 kOe at 3 K. In addition, Co/Mn antisite disorder (~ 10 – 12%) was also observed which collectively define the unique magnetic characteristics of Y_2CoMnO_6 .

Microscopic parameters viz. bond distances and bond angles, obtained from comprehensive x-ray,

neutron diffraction was thoroughly investigated from perspective of tuning physical and structural properties. These findings are published in *Journal of Materials Science: Materials in Electronics* [Reference: R. Athira, V. B. Jayakrishnan, S. Kesari, M. K. Thota, A. Kumar, and S. D. Kaushik, *Journal of Materials Science: Materials in Electronics* **37**, 260 (2026).].

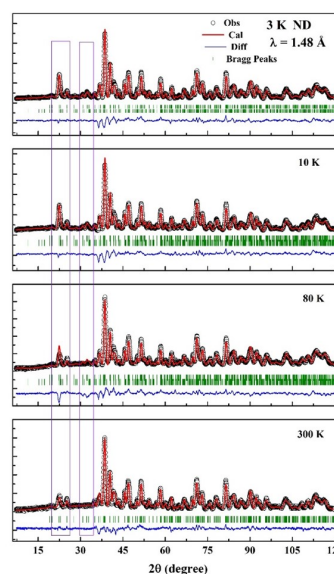


Figure 1: Temperature dependent Neutron Powder diffraction of Y_2CoMnO_6 .

►►► Collaborative Research Activities

► Neutron diffraction for cation distribution in NaFeMnO based compound for cathode application (Dr. U. Maitra., IACS)

Neutron diffraction has been carried out for un-

derstanding the cation distribution in Na-Fm-Mn-O based compound for cathode application. Analysis of neutron powder diffraction (NPD) data confirm that NLMAM crystallizes in the $P2$ -type structure with the $P6_3/mmc$ space group (Figure 2). The

refined lattice parameters are $a = b = 2.859(6)$ Å, $c = 11.179(6)$ Å, and the unit cell volume is $78.36(4)$ Å³. The structure formula comes out to be $\text{Na}_{0.72}\text{Li}_{0.11}\text{Mg}_{0.055}\text{Al}_{0.055}\text{Mn}_{0.78}\text{O}_2$. The structure consists of alternating Na layers and mixed (Li/Mg/Al/Mn) TM layers, within an oxygen framework, forming an ABBA-type hexagonal close-packed structure.

Na^+ ions occupy trigonal prismatic sites Na_f and Na_e coordinated by oxygen. The absence of superstructure reflections in both laboratory X-ray diffraction and neutron diffraction patterns confirms the lack of long-range transition-metal ordering. Honey-comb or related superstructure ordering of the TM-layer is known to give rise to reflections at $d \sim 4.02$ and 4.32 Å in the NPD pattern (highlighted in pale green colour in the inset for Figure 1). Minor reflections observed at around $3.6\text{--}3.9$ Å (marked with asterisks) can be attributed to trace amounts of Na_2CO_3

impurity, possibly due the short exposure of the samples to atmosphere before.

Reference: A. Ghoshal, V. S. Thakur, S. D. Kaushik, U. Maitra et. al., *EES Batteries*, **1**, 1255 (2025).

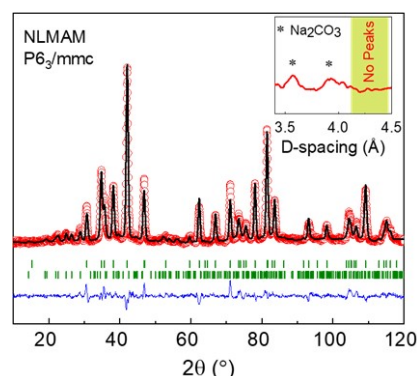


Figure 2: Room temperature - Neutron Powder diffraction and its Rietveld refinement of NLMAM

Other Information

Sponsored Projects

- “Microscopic origin of spatial inversion symmetry breaking and ferroelectricity in R_2MnMO_6 (R: Y, Lu, Tb, M:Co, Ni) double perovskites”, SERB/ANRF, Total Cost: 31,62,628/-, Duration: 2023-26.

Invited Talks

- “Crystal Structure: Crystallography and Characterizing tools” in National level series of conference, Vigyan Yatra2.0-2025 organized by Department of Physics, Saurashtra University, Rajkot on 12 July 2025 (Online).
- “Structure Characterizations: Why and How?” Invited talk in 2nd refresher course on Recent Advancements in Materials Physics and Chemistry at MMTTC, IITE, Gandhinagar on 09 September 2025 (online).
- “Neutron Scattering facilities at Dhruva and In-house facilities at Mumbai centre” AWARENESS MEETING OF UGC-DAE CSR on 19 September, 2025.
- “Neutrons as a characterizing tool in condensed matter physics” invited talk in Advanced Characterization Techniques in Materials Science (ACTMS-2025), NIT Rourkela, 17 November 2025 (online).
- “Neutrons as a Characterizing Tool in Condensed Matter Physics” invited talk in 2nd International Conference on Advances in Condensed and Nano Materials (ICACNM-2025) scheduled during 28 - 30 October 2025 at Punjab University, Chandigarh.

- “Intriguing Physical and Magnetic Properties in Tb_2MMnO_6 ($M = \text{Co, Ni}$) Double Perovskites” Invited talk during Workshop on Quantum Materials organized by Dr. B. R. Ambedkar National Institute of Technology Jalandhar during 18 - 22 March 2026.
- “Tunability in Double Perovskites by Comparing Structural, Magnetic and Dielectric Properties on $\text{Tb}_2\text{CoMnO}_6$, $\text{Tb}_2\text{NiMnO}_6$ ” invited talk in International Conference on Light Matter Interactions: Fundamentals to Frontiers at GITAM University-Bengaluru during 04 - 06 February, 2026.
- “Magnetic and physical properties in Rare earth based double perovskites” invited talk in National Conference on Advances in Condensed Matter Physics 2026 (ACMP 2026), held at Guru Ghasidas Vishwavidyalaya, Bilaspur during 20 - 21 February 2026.

Awards, Honours and Recognitions

- R. Athira (PhD student) received CSIR-SRF (direct) fellowship from CSIR.

Foreign Visits by Faculty and Students

- Shubham A. Patil (PhD student) visited UC San Diego, USA to attend IEEE Magnetics Society Summer School 2025, during 22 - 26 June 2025.
- R. Athira (PhD student) attended 2nd School on Neutron Diffraction Data Treatment using the FullProf Suite, held during 27 - 31 October 2025 at Institut Laue-Langevin (ILL), Grenoble, France.

DR. SUDIP MUKHERJEE

Scientist - F

Email: sudipm@csr.res.in



Research Interests: Surface Nanomagnet/Molecular magnetism; Strongly correlated systems; Effects of spin fluctuations and magnetic ordering on the dielectric properties of materials at nano scale and disordered systems; Magnetic resonance spectroscopy

Group members: ((1) Mr. Manoj Kumar Verma (JE -F), (2) Mr. P. Deshmukh (PhD student), (3) Ms. S. Kashyap (PhD student), (4) Ms. Swastika Mukherjee (PhD student)

Total Ph.Ds ongoing: 3

Facilities: (1) Broadband dielectric spectroscopy, (2) Laser assisted electrical transport and dielectric spectroscopy, (3) P-E ferroelectric loop tracer with high voltage amplifier, (4) UV-VIS spectrophotometer

»»» In-house Research Highlights

The major focus of our work is the experimental Condensed Matter Physics of novel magnetic properties and field/temperature dependent dielectric spectroscopy of transition and rare-earth-based compounds (bulk/nano) with various experimental techniques such as magnetization study, transport measurement, neutron powder diffraction, magnetic resonance spectroscopy etc. Recently, we are focusing our research on Photo-excitation (optically assisted charge transfer) where cross coupling of multiple functionalities like ferroelectric, ferromagnetic, and ferroelastic interplay between magnetoelectric and photovoltaic properties (magnetophotovoltaic effect) are present.

» **Probing the effect of Cu^{1+} in quasi-1D $\text{Cu}_{1-x}\text{Li}_x\text{O}$ ($x = 0.025$)**

Hole doping in cupric oxide induces localization of charge carriers and brings about modifications in the crystal structure as well as in the magnetic and transport properties. The crystallographic structure and phase purity of the well-sintered sample were examined by us via temperature-dependent neutron diffraction (ND), which identified the composition as $\text{Cu}_{0.975}\text{Li}_{0.025}\text{O}$ (CLO). Notably, X-ray photoelectron spectroscopy (XPS) on CLO confirmed the co-existence of Cu^{1+} and Cu^{3+} valence states in addition to Cu^{2+} . Magnetization data reveal shifts in the commensurate and incommensurate magnetic transition temperatures, $T_{N1} \sim 82$ K and $T_{N2} \sim 204$ K, respectively, underscoring the strong sensitivity of the antiferromagnetically ordered quasi-1D spin arrangement to structural parameters.

The temperature-dependent ordered magnetic moment (ground state) of Cu in CLO, extracted by us from ND measurements using a mean-field model, is found to track the incommensurate antiferromag-

netic transition at T_{N2} . A crossover from p-type to n-type conduction is inferred to occur across this antiferromagnetic ordering temperature. The presence of Cu^{1+} ions in CLO helps sustain a large dielectric constant ($\sim 10^3$) even at low temperatures. Meanwhile, Cu^{3+} species and associated charge-order domains play a crucial role in the unusual transport characteristics of CLO specifically, hole hopping between Cu^{3+} and Cu^{2+} with their influence being strongly governed by the underlying antiferromagnetically ordered spin structures.

[Reference: Prathamesh Deshmukh et al., Journal of Alloys and Compounds **1036**, 181833 (2025).]

» **Presence of negative capacitance and magnetodielectric effect in the ceramic composition $\text{Cu}_2\text{O-CuO}$**

In this experimental study, we investigated the impact of strong spin-charge-lattice correlations in $\text{Cu}_2\text{O-CuO}$ ceramics. We observed charge carrier localization alongside significant modifications in crystal structure, transport properties, and magnetic transitions. In the low-frequency regime, a hopping mechanism between Cu^{2+} and Cu^{1+} species induces negative capacitance, inductive loops, and phase angle transitions. High-frequency analysis reveals spin-hole coupling, evidenced by a dielectric anomaly near the incommensurate magnetic transition ($T_{N2} \sim 230$ K). Additionally, a non-dispersive ferroelectric-like anomaly occurs at $T_m \sim 320$ K, driven by asymmetric charge hopping and the formation of large dipole moments across $\text{Cu}^{2+\delta}\text{-O-Cu}^{1+\delta}$ bridges. Under an external 9 T magnetic field, a substantial negative magneto-dielectric (MD) effect is observed above 200 K, characterized by the suppression of the T_m anomaly. This behavior is attributed to field-enhanced double-exchange interactions that

reduce dipole moments and dielectric permittivity, establishing charge-hopping as the primary mediator of the MD effect in this system.

[Reference: Swastika Mukherjee et al., *Ceramics International* **51**, 30716 (2025).]

Collaborative Research Activities

Observation of skyrmion phase in GdRu_2Si_2

This study investigates the emergence of topologically protected, nontrivial chiral spin textures in centrosymmetric polycrystalline GdRu_2Si_2 . Utilizing a suite of characterization techniques, we examined the magnetic and transport properties near the antiferromagnetic transition ($T_N = 47$ K) and the spin reorientation transition. Below T_N , the system displays multiple metamagnetic transitions that lead to complex magnetotransport behavior. Through DC/AC magnetic susceptibility and DC resistivity, we mapped a detailed magnetic phase diagram revealing a Topological Hall Effect (THE) characterized by sign reversals above 20 K. Notably, we identified a novel topological spin pattern adjacent to the known skyrmion lattice phase, tentatively assigned to a multiple Q -spin structure. Furthermore, the observation of Shubnikov-de Haas (S-dH) quantum oscillations—marked by frequency shifts and deviations from Lifshitz-Kosevich theory—indicates a significant rebuilding of the Fermi surface driven by the interaction between localized Gd spins and conduction electrons. These results, supported by angular magnetoresistance (AMR) data and the identification of a Griffiths phase above T_N , demonstrate that polycrystalline centrosymmetric materials can host diverse topological states. This work provides a critical framework for stabilizing and controlling skyrmionic textures in non-single-crystal systems, of-

fering a scalable pathway for future spintronic applications.

Reference: Surbhi Gupta et al., *Physical Review B* **111**, 144405 (2025).

Thermodynamic investigation on van der Waals FePS_3

In this collaborative study, we investigated the thermodynamic properties and spin-lattice dynamics of the single-crystalline van der Waals antiferromagnet FePS_3 . This material undergoes a second-order antiferromagnetic-to-paramagnetic phase transition at a Néel temperature $T_N \sim 119$ K, confirmed by a sharp λ -type anomaly in the heat capacity. Due to strong uniaxial anisotropy, the magnetic entropy change (ΔS_M) is highly orientation-dependent, reaching $4.2 \text{ J kg}^{-1} \text{ K}^{-1}$ at 6 T for fields applied along the c axis, compared to $\sim 2.32 \text{ J kg}^{-1} \text{ K}^{-1}$ at 5 T within the ab plane. Our universal scaling analysis further corroborates the second-order nature of the transition. Complementary Raman spectroscopic studies reveal significant spin-phonon coupling, evidenced by phonon softening in the magnetically ordered phase. These results establish the magnetocaloric effect as a sensitive thermodynamic probe of entropy-driven lattice dynamics and spin-lattice interactions in two-dimensional Ising-type antiferromagnets.

Reference: Madhusmita Jena et al., *Physical Review B* **113**, 064429 (2026).

Other Information

Sponsored Projects

- “Flexomagnetolectric response in self-assembled nanocomposite system”, Funding Organization: SERB/ANRF, Total Cost: 21,33,360/-, Duration: 2023-26.

Invited Talks

- “Complementary characterization techniques” 21st School on Neutrons as Probes of Con-

densed Matter (NPCM-2025), BARC, Mumbai, 29 November 2025.

- “Neutron Scattering Facilities at Dhruva Reactor, BARC and In-House Facilities at Mumbai Centre”, Awareness workshop organised by UGC-DAE CSR on 23 September 2025 (online).

DR. SUDHINDRA RAYAPROL

Scientist - G

Email: sudhindra@csr.res.in



Research Interests: Magnetism; Neutron Diffraction; Magnetic Structures, Synthesis and Characterization of Novel Magnetic Materials exhibiting Exotic and Multifunctional Properties

Group members: Mr. M. Venugopal, Dr. J. V. Joshi, Mrs. Nilofar G Kurawle, Mrs. Smita B Borole, and Mr. Rohan Kamble

Total Ph.Ds ongoing: 3

Facilities: (1) Mini-Arc Melter (MAM-I), (2) High Energy Planetary Ball Mill (dual station, milling media available: ZrO₂, WC, Agate), (3) Powder X-ray Diffractometer (Bruker D2 Phaser), (4) Spin-coater (thin films), (5) LN₂ cryostat for various physical property measurements (80–700 K)

»»» In-house Research Highlights

Our group is actively involved in the development of materials for thermoelectric applications, high-entropy spinel oxides, and strongly correlated electron systems. We are also exploring quantum magnetic materials, which offer fascinating insights into low-dimensional magnetism, spin-liquid behavior, and quantum critical phenomena. Another emerging focus is the design and synthesis of advanced materials for energy harvesting, including electrocaloric materials, which hold promise for solid-state cooling technologies and sustainable energy solutions.

» Low-dimensional Magnetic Materials

We have active interest in understanding the correlation between structural, magnetic and thermal properties of different classes of low dimensional magnetic materials, such as the Haldane spin-chain compounds, quasi-1D spin chain compounds etc.

» Strongly correlated electron systems

A new compound of the type Ce₂FeAl₃ intermetallics is explored through structural and physical property studies. The compound exhibits complex magnetism with exotic features of heavy fermion, Kondo behavior and magnetic frustration. Light rare earth (LRE) intermetallics like cerium-based compounds have larger ionic radii, more delocalized 4*f* electrons, weaker magnetism, and lower anisotropy, often showing variable oxidation states. Heavy rare earth (HRE) intermetallics like holmium-based ones have smaller ions, strongly localized 4*f* electrons, strong magnetic moments with high anisotropy, and greater chemical stability. Hence to explore further the series of heavier rare earth intermetallics have been prepared. Three (HoCoSi, HoCoSi₂ and

HoCo₂Si₂) single phase compounds are under study. The samples are prepared by Arc Melting. The structural and magnetization studies are carried out on these samples and resistivity, heat capacity and neutron diffraction studies will help to explore the strongly correlated properties.

» Magnetically frustrated double perovskite oxides

The work is focused on synthesizing two series of samples, namely Ca_{2-x}Pr_xMnTiO₆ (*x* = 0.25, 0.50, 0.75, 1.00) and Sr_{2-x}Ca_xMnTiO₆ (*x* = 0.25, 0.50, 0.75), using the solid-state reaction method. Detailed structural characterization was carried out using laboratory-based powder X-ray diffraction, followed by high-intensity synchrotron X-ray diffraction measurements for the SCMTO series at Photon Factory, KEK, to access higher *Q* values for pair distribution function (PDF) analysis. These series of samples were designed to investigate magnetocaloric properties and relative cooling efficiency as a function of doping concentration. Magnetic susceptibility enhances as a function of temperature exhibiting *A*-site driven exchange interactions, while isothermal magnetizations curves exhibit the crystal-field effect or Jahn-Teller effects. Overall, these results demonstrate that *A*-site doping effectively tunes both the magnitude and temperature span of the magnetocaloric response, enabling optimized cooling performance through a balance between entropy change and transition width.

» High entropy spinel-oxides

We study how configurational entropy affects magnetism in high-entropy spinel oxides with magnetic and non-magnetic ions on *A* and *B* sites of the AB₂O₄ structure. Along with 3*d* transition met-

als, selected post-transition (*p*-block) elements, like Al and Ga, together with the alkaline earth metal Mg, are incorporated to tune the structural and magnetic landscape. Recently developed, non-traditional high-entropy compositions incorporating more than five elements (like 7 and 10 cation system) are of particular interest due to their potential to exhibit spin glass-like behavior. Competition between *A* and

B-site sublattices creates diverse magnetic phenomena. Using neutron diffraction and magnetic measurements, we probe magnetic ordering and structures. Concurrently, efforts have been initiated to determine the magnetic space group, enabling a more comprehensive understanding of the magnetic ordering in these systems.

Collaborative Research Activities

About CRS Experiments

At present 9 CRS projects are accepted and are at various stages of activities. I am handling three experimental facilities and these three facilities are available for university / institute users from across the country. For example, the D2 phaser (XRD) has been utilized by more than 50 users for measur-

ing 616 samples between April 2025 – March 2026. Similarly high energy planetary ball mill and mini-arc melter have been used by few users for sample preparations. In addition to these facilities, neutron diffraction experiments and data analysis have been carried out for few users. The works are in advanced stages of analysis and preparations for publishing these works are currently under progress.

Other Information

Sponsored Projects

- “Synergizing Thermoelectric and Caloric Effects in Materials for Efficient Cooling Technology”, Funding Organization: Anusandhan National Research Foundation (ANRF) CRG, Total Cost: 31,46,428/-, Duration: 3 years.

Invited Talks

- “Rietveld Refinement Method Using FullProf for Crystallographic Structures using Powder Diffraction data” Lecture and tutorial (2 online lectures) during Online Rietveld Refinement Course organized by SIAS Research Forum on 10th and 11th April 2025.
- “Insight into exotic multiferroic properties of $\text{Tb}_2\text{BaNiO}_5$: Neutron Diffraction Studies Across Metamagnetic transition; Tutorial on Magnetic Structure Determination using Neutron Diffraction Data (2 lectures)” Workshop on Experimental Techniques for Magnetic and Ferroelectric Materials (Faculty Development Program) GITAM University, Vizag during 30th April – 2nd May 2025.
- “Chemical Structure Refinement by Neutron Diffraction” Lecture during 21st School on Neutrons as Probes of Condensed Matter (NPCM-2025) held at TSH, Anushaktinagar during November 25 – 29, 2025.
- “Illuminating Structure and Function: Neutron diffraction and scattering techniques in advanced materials research and industrial applications” Invited talk during 3rd International Conference on Recent Advancement

in Materials Science and Nanotechnology (RAMAN-2026) organized by NIRMA University, Ahmedabad during January 30-31, 2026.

- “Scope for Advanced Research on Magnetic and Functional Materials” Invited talk during IAPT Maharashtra State Convention 2026 held at MGM University, Chhatrapati Sambhajinagar during 13-14 February 2026.
- “Neutron Scattering as a Window into Quantum Materials” Invited talk during Workshop on Quantum Materials organized by Dr. B. R. Ambedkar National Institute of Technology Jalandhar during 18 – 22 March 2026.

Awards, Honours and Recognitions

- Consultant on the International Union of Crystallography (IUCr)-Commission on Magnetic Structure (CMS) since 2021.
- Contributed to a book chapter: “Physics of some selected Non-Perovskite ABO_3 compounds” by Sudhindra Rayaprol and Shovit Bhattacharya, Chapter 2, C A Taft and Sergio R de Lazaro (Eds.) Innovative Materials for Energy and Sustainability, Springer (2026) Pgs. 56 – 71.

Foreign Visits by Faculty and Students

- Dr. Sudhindra Rayaprol visited Photon Factory (KEK), Tsukuba Campus (Japan) with Mrs. Smita Borole, for carrying out scientific experiments on the Indian Beam line (BL18B) during November 12 – 18, 2025.

»»» Highlights of CRS Projects

» Study of percolation pathways in alkali silicate glasses to understand and enhance the electrical conduction properties

Manjunath Timappa Nayak, Carmel College of Arts, Science and Commerce for Women, South Goa

The main objectives of this project include: tailoring the composition of iron-based alkali silicates, gaining a better understanding of their structure and dynamics, and exploring percolation channels. This research aims to develop a new class of electrode materials with enhanced conductivity. In the first year, twelve pelletized glass samples comprising four each of lithium iron silicate, sodium iron silicate, and potassium iron silicate were successfully synthesized.

These samples were dispatched to the Department of Atomic Energy (DAE) in Mumbai for dielectric measurements, and the results are currently under evaluation. In addition, ferrite samples containing indium and copper were prepared and sent for Vibrating Sample Magnetometry (VSM) studies at the Mumbai Centre, as well as Mössbauer spectroscopy at the Indore Centre. The experimental data from these studies are being analyzed to establish correlations between the structural properties and the

electrical and magnetic behaviors. The current work focuses on evaluating the dielectric properties of materials, investigating the role of iron ions in percolation pathways, and optimizing material compositions to enhance electrical conduction.

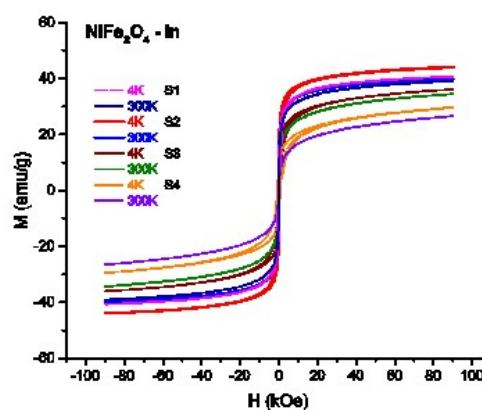


Figure 1: M-H plot of nickel ferrite samples.

» Neutron diffraction studies on Ru-doped NiFe LDH Marigolds

Suvankar Deka and Biswajit Choudhury, Institute of Advanced Study in Science and Technology (IASST), Paschim Boragaon, Assam

Ultra-low Ru-doped NiFe LDH samples were synthesized hydrothermally to explore its water oxidation activity in alkaline and simulated seawater conditions. As the concentration of Ru was exquisitely low, unveiling its interplay on the structural properties of NiFe LDH was of utmost importance. That being so, neutron diffraction experiments were carried out to determine the crystal structure and phase purity of the catalyst. Studies were carried out for three samples - Pristine NiFe LDH, and two Ru-loaded NiFe LDH samples containing 9 μmol and 27 μmol of $\text{RuCl}_3 \cdot x\text{H}_2\text{O}$, respectively. The diffraction data were analyzed using Le Bail refinement, which demonstrates that all samples crystallize in a hexagonal phase with the $R\bar{3}m$ space group. Fur-

ther, the refined patterns confirm high phase purity and structural integrity, without any presence of secondary or impurity peaks. Notably, lattice parameter analysis indicates a systematic trend upon Ru doping. The lattice parameter a was found to decrease in the order NiFe LDH < RuNiFe LDH (27 μmol) < RuNiFe LDH (9 μmol). This suggests a likelihood of contraction of metal-hydroxide layers. Contrarily, the lattice constant c was found to increase for both the doped samples. This suggests Ru incorporation steers a modification into the interlayer structure of LDH. Taken all into consideration, it manifests that Ru doping induces a significant change in the crystal structure of NiFe LDH.

► Investigation of the structure-property relationship in lead free relaxor ferroelectric to optimize recoverable energy storage density

Saket Asthana, Advanced functional Materials Lab, Department of Physics, IIT Hyderabad

In response to environmental and regulatory demands, researchers at the Advanced Functional Materials Laboratory, IIT Hyderabad, have pursued lead-free ferroelectric materials with improved electromechanical and dielectric properties for energy storage, actuator, and biomedical applications. A major focus has been on enhancing the performance of $K_{0.5}Bi_{0.5}TiO_3$ (KBT) ceramics through Eu^{3+} substitution, which induces an ergodic relaxor state and results in a slim P-E loop, boosting recoverable energy density (W_{rec}) to 1.3 J/cm^3 and efficiency (η) to 72%. Similarly, Eu^{3+} -doped $Na_{0.2}K_{0.3}Bi_{0.5}TiO_3$ (NKBT) achieved a W_{rec} of 1.7 J/cm^3 , with a breakdown strength of 188 kV/cm and excellent thermal stability, indicating its promise for capacitors. Rb substitution in NKBT further enhanced dielectric and ferroelectric properties, mechanical hardness ($\sim 8 \text{ GPa}$), and biocompatibility. Poling studies on NKBT-based solid solutions revealed electric field-driven tuning of relaxor and anti-ferroelectric phases, achieving d_{33} values up to 132 pC/N and $W_{rec} \sim 0.512 \text{ J/cm}^3$. Structural and optical analysis of $Na_{0.5}Bi_{0.5}ZrO_3$ (NBZ) confirmed its orthorhombic perovskite structure, diffuse

phase transitions, and excellent photocatalytic activity. B-site substitution in $Na_{0.5}Bi_{0.5}TiO_3$ using complex ions like $(Mg_{1/3}Nb_{2/3})^{4+}$ suppressed grain growth, improved relaxor behavior, and increased energy density (1.24 J/cm^3). Additionally, Ca-substituted $Ba_{0.8}Sr_{0.2}TiO_3$ (BSCT) in PVDF composites yielded flexible, lead-free films with high dielectric strength (698 kV/cm), W_{rec} of 0.31 J/cm^3 , and energy harvesting capability ($\sim 2.86 \text{ } \mu\text{W/cm}^2$), showcasing the potential for multifunctional, eco-friendly applications.

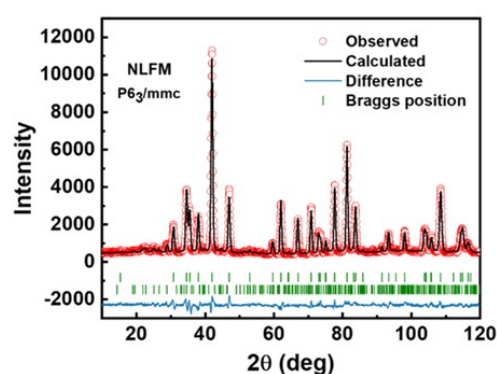


Figure 2: Neutron diffraction patterns and its Rietveld refinement of NLFM.

► Exploring the Magnetic Ordering Induced Ferromagnetism in Spinel Ferrite Nanoparticles

Ayyappan S., SASTRA Deemed to be University, Thanjavur.

Tunable magnetic properties of spinel ferrites nanoparticles with chemical formula MFe_2O_4 , ($M = \text{Zn, Mn, Co, Ni}$) were synthesized by co-precipitation and hydrothermal methods. The MFe_2O_4 nanoparticles with $M = \text{Zn, (ZFO), Mn, (MFO), Co, (CFO), and Ni, (NFO)}$ were annealed at 1273K in air as well as vacuum ($<10^{-4} \text{ mbar}$) atmospheres. XRD results show that the spinel structure retained after annealing under both in air and vacuum for ZFO, CFO, NFO without any trace of secondary phases. However, in the case of air annealed MFO, converted in to a nonmagnetic hematite due to structural changes, whereas under vacuum annealing, MFO retains the spinel structure.

Magnetic measurements were carried out for all the samples and the observed magnetic saturation (M_s) and coercivity (H_c) show that upon vacuum annealing, the magnetic property of spinel ferrite nanoparticles enhanced compared with air annealed ones. We presume that the overall improvement in magnetism under vacuum annealing may be due to the cation redistribution and oxygen vacancies within the spinel structure. Thus, for the last one year, we optimized the synthesis conditions to get phase pure spinel structure and studied its structural magnetic properties under different annealing conditions. To confirm the cation redistribution, Neutron diffraction and XAS analysis needs to be done in coming days.

► Magnetic behaviour in nanocrystalline $\text{La}_{0.7}\text{Sr}_{1.3}\text{MnO}_4$

Yugandhar Bitla, Dept. Physics, Central University of Rajasthan, Ajmer.

The structural, magnetic and magnetocaloric properties of the nanocrystalline $\text{La}_{0.7}\text{Sr}_{1.3}\text{MnO}_4$ compound, an monolayer analog of colossal magnetoresistive $\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$ manganite, are investigated. The compound retains the tetragonal crystal structure ($I4/mmm$) of the bulk confirming a quasi-two-dimensional structure with reduced inter- MnO_2 layer separation. Magnetization measurements reveals competing ferromagnetic and antiferromagnetic interactions, and FM to PM transition at $T_C \approx 329$ K as opposed to spin-glass behavior in the bulk. Short-range antiferromagnetic correlations in the paramagnetic region are observed. This work indicates that the reduced crystallite size can be used to tune the

magnetic ground state in the monolayer manganites.
Publication: J. Alloys Compd. **1053** 186196 (2026).

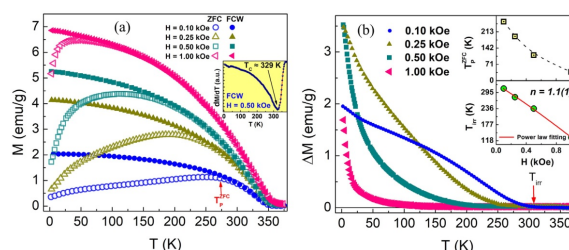


Figure 3: ZFC-FCW curves for several H values (a) $\Delta T = M_{FCW}(T) - M_{ZFC}(T)$ for different fields.

► Compensated ferrimagnetism in $\text{Mn}_2\text{V}_{1-x}\text{Co}_x\text{Al}$: Neutron Diffraction Study

N. Harish Kumar, I.I.T. Madras, Chennai.

Neutron diffraction and ab initio investigations were carried out on the interesting Heusler alloys $\text{Mn}_2\text{V}_{1-x}\text{Co}_x\text{Al}$ ($x = 0, 0.25, 0.5, 0.75, 1$), which exhibit fully compensated ferrimagnetism with high Curie temperature for $x = 0.5$. Calculations were performed by incorporating various atomic anti-site disorders, and the minimum energy structure causing the fully compensated ferrimagnetic state with high Curie temperature for $x = 0.5$ composition was identified to be $L2_1$ with Mn-Co disorder. This $L2_1$ phase, along with the ferrimagnetic interaction among the parallelly coupled (Mn(A)-Mn(C)) and (V-Co) pairs, gives rise to the fully

compensated ferrimagnetism in the half-metallic $\text{Mn}_2\text{V}_{0.5}\text{Co}_{0.5}\text{Al}$ Heusler alloy. Increasing Co concentration in Mn_2VAl induces a change in structure from the $L2_1$ phase to the X_d phase. The peculiar spin gapless semiconducting behavior of Mn_2CoAl was evident from the ab initio results. Ab initio results have explained the previously reported anomalies in the electrical resistivity of $\text{Mn}_2\text{V}_{1-x}\text{Co}_x\text{Al}$. Neutron diffraction analysis has confirmed, for the first time, that $\text{Mn}_2\text{V}_{0.5}\text{Co}_{0.5}\text{Al}$ has a disordered $L2_1$ structure, which agrees with the ab initio results.

Publication: J. Magn. Magn. Mater **638** 173715 (2026).

► Magnetic and transport properties of $(\text{Sr}_{1-x}\text{La}_x)_2\text{Ir}_{1-x}\text{Ru}_x\text{O}_4$

I. Panner Muthuselvam, B.H.U., Varanasi

Structural, magnetic and electrical properties of La and Ru doped $(\text{Sr}_{1-x}\text{La}_x)_2\text{Ir}_{1-x}\text{Ru}_x\text{O}_4$ ($x = 0.05, 0.15$) compounds crystallize in tetragonal $I4_1/acd$ structure are investigated. X-ray photoelectron spectroscopy (XPS) results show that Ir in Ir^{3+} ($5d^6$) and Ir^{4+} ($5d^5$) charge states, and Ir^{4+} charge state decreases with increasing x . Magnetization data indicates the compounds with $x = 0.05$ shows a transition from PM to paramagnetic to weak FM state at $T_C \approx 229$ K, arising from the canted antiferromagnetic (AFM) spin arrangement. Ac susceptibility measurements reveal presence of reentrant spin-

glass behavior (RSG), i.e. the coexistence of weak FM and spin glass phases for $x = 0.05$ concentration. On the other hand, for higher conc. of $x = 0.15$, the RSG phase vanishes, leaving only the weak FM phase. This suggests the higher doping of La and Ru does not affect the magnetic order, but removes the disorder between FM and AFM phases. The electrical resistivity (ρ) measurement analysis reveals that both the samples show semiconducting/insulating behavior across the temperature range. The conduction mechanism of both samples is described by the 2D Mott's variable-range hopping model. Our re-

sults demonstrate that co-doping of two cation sites generates intriguing, competing hopping and magnetic processes.

Publication: J. Phys.:Condens. Mater **37** 115807 (2026).

► Spin-Phonon coupling, MCE and Critical behaviour of $\text{Ga}_{1-x}\text{Al}_x\text{FeO}_3$

S. Srinath, University of Hyderabad.

Detailed magnetization and Raman Spectroscopy measurements were carried out on Al doped orthorhombic perovskite $\text{Ga}_{1-x}\text{Al}_x\text{FeO}_3$ ($0 \leq x \leq 0.3$) to probe the interplay between the spin degrees of freedom, lattice dynamics and electric polarization in these compounds. The thermally induced shifts in the wavenumbers corresponding to the positions of the Raman-active peaks, the magnetocaloric effect and critical phenomena near the ferromagnetic (FM)paramagnetic (PM) phase transition in these orthoferrites have been extensively investigated. Several unambiguously identified Raman active modes are shown to provide clear evidence for

spin-phonon coupling. The isothermal magnetic entropy change, $-\Delta\text{SM}(T)$, peaks at T_{pk} , which is close to the Néel temperature (T_N). Like T_N , T_{pk} increases linearly with the Al concentration (x). In this work, the existence of a universal $\Delta\text{SM}/\Delta\text{SM}_{pk}$ curve and the validity of the Banerjee criterion assert that the ferrimagnetic-PM and the FM-PM phase transitions occurring at T_N and curie temperature (T_C), respectively, in the present case, are of second order. These transitions are characterized by the mean-field critical exponents.

Publication: J. Magn. Magn. Mater **634**, 173578 (2025).

► Role of lattice structure in altering magnetism of $\text{Fe}_{2-x}\text{Sc}_x\text{FeO}_3$

R. N. Bhowmik, Pondicherry University.

In order to break antiferromagnetic (AFM) ground state in $\alpha\text{-Fe}_2\text{O}_3$ non-magnetic Sc^{3+} ($3d^0$) was doped at the Fe^{3+} ($3d^5$) site in $\text{Fe}_{2-x}\text{Sc}_x\text{FeO}_3$ system ($x = 0.2 - 1.0$). The compound has been stabilized in single-phase (rhombohedral $\alpha\text{-Fe}_2\text{O}_3$) or mixed phase (rhombohedral $\alpha\text{-Fe}_2\text{O}_3$ and cubic Sc_2O_3) structure by altering Sc concentration and heat treatments. Neutron diffraction confirmed perturbed AFM ground state down to low temperature with magnetic moment $\sim 2.75 - 4.68 \mu_B/\text{Fe}$ site and Morin transition ~ 260 K. Coercivity was found to be in the range of 0.2 to 6 kOe. The material showed transformation from insulating state (conductivity $10^{-14} - 10^{-10}$ S/cm and polarization 0.5

$- 2 \mu\text{C}/\text{cm}^2$) to high conductive state (conductivity $10^{-10} - 10^{-7}$ S/cm and polarization $> 2 \mu\text{C}/\text{cm}^2$) above the Morin transition. The room temperature measurements showed maximum current density $35186 \mu\text{A}/\text{cm}^2$, electric polarization $2.715.6 \mu\text{C}/\text{cm}^2$, magneto-electric voltage up to 5 mV with coupling constant $\alpha\text{ME} \sim 0.6210.11 \text{ mV}/\text{Oe.cm}$ and magnetoconductance up to 90%. The results will open the door for suitably modifying the lattice-structure, magnetic spin order, and charge-spin coupling in hematite based material and their application in low power spintronic devices.

Publication: J. Solid State Chem. **357**, 125842 (2026).

► Magnetic Weyl Semimetallic State in SrRuO_3 (111) Ultra-Thin Films O_3

P. S. Anil Kumar, I.I.Sc. Bangalore.

Realizing the intrinsic magnetic Weyl semimetal (MWSM) phase in ultra-thin SrRuO_3 (SRO) films poses a substantial experimental challenge due to difficulties in controlling Ru stoichiometry. Pulsed laser deposition technique was used to stabilize the intrinsic MWSM phase in SRO films down to

4 nm. Optimized growth conditions yield near-stoichiometric, high-quality films exhibiting a Curie temperature $T_C \sim 158$ K and a large residual resistivity ratio ($\text{RRR} \sim 31.4$). By tuning the Ru content, a transition from the MWSM to a conventional magnetic semimetal was observed. The

MWSM phase is evidenced in films as thin as 4 nm by key signatures: large, non-saturating positive magnetoresistance (95% in 18 nm and 30.6% in 4 nm films at 2 K) and Shubnikov-de Haas oscillations. Analysis of these oscillations reveals high-mobility Weyl fermions ($\sim 104 \text{ cm}^2 \text{ V}^{-1} \text{ s}^{-1}$) with small effective masses of $m^* = 0.077 \pm 0.013 m_0$ and $0.125 \pm 0.012 m_0$ for the 4 nm and 18 nm films, respectively. Density functional theory corroborates these findings, showing Weyl nodes near the Fermi level with similar effective masses ($0.012 m_0$). This work demonstrates the stoichiometry-controlled realization of the intrinsic MWSM state in nanoscale

SRO.

Publication: Adv. Funct. Mater. e30805 (2026).

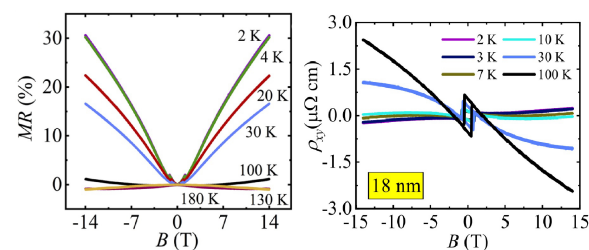


Figure 4: MR as magnetic field (B) for 4 nm film (left) and Hall resistivity vs B for different temperatures for 18 nm film.

► Study of magnetic exchange paths leading to magnetic frustration in $\text{GeM}_x\text{Co}_{2-x}\text{O}_4$ ($M = \text{Ni/Mg}$) spinel compounds and exploring their energy bandgap

Davuluri Srikala, Hansraj College, University of Delhi

$\text{GeNi}_x\text{Co}_{2-x}\text{O}_4$ ($x = 0, 0.4, 0.8, 1.2, 1.6, 2.0$) compositions were synthesized by solid state reaction. Rietveld Analysis of X-ray diffraction by employing Fullprof program show formation of single-phase compound. The as-synthesized samples showed cubic crystal structure with space group $Fd\bar{3}m$. Temperature dependent Raman, Photoluminescence and dielectric studies were performed on $\text{GeCo}_{2-x}\text{Ni}_x\text{O}_4$. Four Raman-active modes A_{1g} , $T_{2g}(1)$, $T_{2g}(2)$ and E_g were observed both at room temperature and at 77 K. Noticeable changes were observed in peak position (Raman shift) towards higher wavenumbers at both the temperatures. The size of the Ni^{2+} ion will affect the nearest neighbouring metal-O bonds vibrational amplitude as it effects the force constants and hence vibrational amplitudes of the nearest neighbouring bonds. The difference in the ionic radii of the metal dopants will cause metal-oxygen bond length change substantially which affects the local structure. When lighter Ni replaces heavier Co, the frequency of A_{1g} mode is increased by about 1% only. However, the frequency of the $T_{2g}(1)$ mode is increased by about 4%. A significant enhancement of 12% is observed in E_g mode. The observed changes in FWHM do not show a systematic pattern.

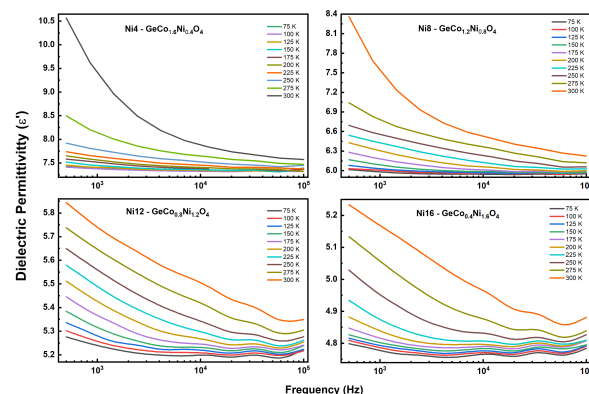


Figure 5: Dielectric constant as a function of frequency.

Dielectric constant (ϵ') and dielectric losses (ϵ'') are measured at various temperatures from 75 K to 300 K as a function of frequency and is shown in Fig. 5. It is observed that in all the samples the overall dielectric constant decreased with both increasing frequency and temperature because of decrease in polarization of dipoles. A prominent behaviour is observed in Ni12 and Ni16 with a wavy pattern at higher frequencies. And also the value of dielectric constant of Ni16 reduced to half of the value when compared to Ni4 with increasing the Ni content.

► Structural and magnetic investigation of LiZn-Ni ferrite nanoparticles using neutron diffraction

Sudip Tiwari, ML Sukhadia University, Udaipur

In this work, we focused on correlating cation distribution with magnetic and terahertz properties in spinel ferrite nanomaterials. Where we aim to understand the relationship between crystal structure, cation distribution, and functional properties in spinel ferrite nanoparticles. Neutron powder diffraction (NPD) measurements were carried out on $\text{Li}_{0.5}\text{Zn}_{0.25}\text{Ni}_{0.25}\text{Fe}_2\text{O}_4$ (LZNFO) nanoparticles as part of a collaborative study investigating their structural and magnetic properties. The results contributed to the publication titled “Low temperature magnetism and terahertz driven optical response of $\text{Li}_{0.5}\text{Zn}_{0.25}\text{Ni}_{0.25}\text{Fe}_2\text{O}_4$ nanoparticles” [1].

While X-ray diffraction confirmed the formation of a single-phase cubic spinel structure (space group $Fd\bar{3}m$), it remains inherently limited in resolving low atomic number elements such as Li due to weak scattering contrast. In this context, neutron powder diffraction played a crucial complementary role, as neutron scattering lengths are sensitive to light elements, enabling a more reliable assessment of cation distribution. The NPD data were analyzed using Rietveld refinement (FullProf), confirming phase

purity and providing insight into the distribution of cations across tetrahedral (*A*) and octahedral (*B*) sites. The refinement indicated Fe occupancy at both *A* and *B* sites, with Ni preferentially occupying octahedral positions. Although the precise Li occupancy cannot be unambiguously determined from X-ray diffraction, neutron diffraction significantly improves sensitivity to such light elements.

Additionally, magnetic Bragg contributions observed in the diffraction pattern confirmed long-range magnetic ordering. Analysis using representation theory (Basireps) with propagation vector $\mathbf{k} = (0\ 0\ 0)$ enabled determination of the magnetic structure. The refined site-specific magnetic moments ($\sim 4.16\ \mu_B$ at tetrahedral sites and $\sim 3.12\ \mu_B$ at octahedral sites) provided key insight into the magnetic interactions and cation distribution within the spinel lattice. These results highlight that neutron diffraction, combined with magnetization studies, provides critical understanding of structure–property correlations in spinel ferrites, where magnetism is strongly governed by cation occupancy.

[Physica B **721**, 418055 (2026).]

► Exploring magnetic ordering in Cr and Fe co-doped MnCo_2O_4 by Neutron diffraction studies

S. Thota, Indian Institute of Technology Guwahati

We have investigated crystal structure and nature of magnetic ordering in the spinel oxide $\text{Cr}_{0.1}\text{Mn}_{0.9}\text{Fe}_{0.2}\text{Co}_{1.8}\text{O}_4$ (Cr1Fe2) polycrystalline sample. The primary objective is to understand the influence of such cation substitution on the structural framework and the resulting magnetic interactions within the spinel lattice. To this end, neutron powder diffraction measurements were carried out over a wide temperature range (3–150 K). Which enabled the determination of the arrangement of magnetic moments as well as the site-specific sublattice magnetization associated with the tetrahedral (*A*) and octahedral (*B*) sites of the cubic spinel structure. Neutron diffraction was carried out by employing PD-III diffractometer at a wavelength of 1.48 Å. The neutron powder pattern measured at 290 K is shown in figure 3.

By analysing temperature-dependent neutron diffraction data using Rietveld refinement, with particular emphasis on the 3 K dataset, we establish a ferrimagnetic ground state characterized

by sublattice moments of $\mu(T_A) = 3.52(4)\mu_B$ and $\mu(T_B) = 2.51(4)\mu_B$, yielding a net moment of $1.50(11)\mu_B/\text{f.u.}$ in good agreement with bulk magnetization measurements. The absence of any significant additional antiferromagnetic contribution is confirmed by the negligible intensity of symmetry-forbidden reflections such as (200). Temperature-dependent measurements over the range 3–150 K further reveal that the magnitudes of the sublattice moments remain essentially unchanged across the spin-reorientation transition at $T_{SR} \sim 150$ K. This observation indicates that the transition T_{SR} which is observed in magnetization measurement is driven by anisotropy- and field-induced spin rotation rather than by a modification of the long-range ferrimagnetic order.

Publications

Journal of Alloys and Compounds **1062**, 187534 (2026); J. Phys.: Condens. Matter **37**, 225802 (2025).

► Investigation of the Magnetic Structure and Properties of Fe_2SnS_4 Related Inverse Thiospinels and MxNbSe_2 ($\text{M} = \text{Cr}, \text{Fe}, \text{Ni}$) layered dichalcogenides

Saroj L. Samal, NIT Rourkela

A high-temperature sealed tube method was used to synthesize the pure phase of FeTi_2S_4 . The PXRD data confirms the phase purity for compositions as no extra peaks corresponding to any impurity peaks is observed. All the peaks of the PXRD pattern were satisfactorily indexed in a monoclinic unit cell with space group $I2/m$. To get a clear idea of the magnetic nature and the interrelationship between structural and magnetic nature of the system, neutron diffraction (ND) study in the room temperature is done as shown in figure 6.

A high-temperature sealed tube method was also used to synthesize the pure phase of pristine NbS_2 and intercalated Fe_xNbS_2 polycrystalline samples. The phase purity was confirmed from PXRD. The pristine NbS_2 was synthesized at 1000 °C, while the intercalated compounds Fe_xNbSe_2 ($x = 0 - 0.5$)

were synthesized at 1000 °C. Further for $\text{Fe}_{0.33}\text{NbS}_2$ compound RT and 3 K neutron diffraction study has been done.

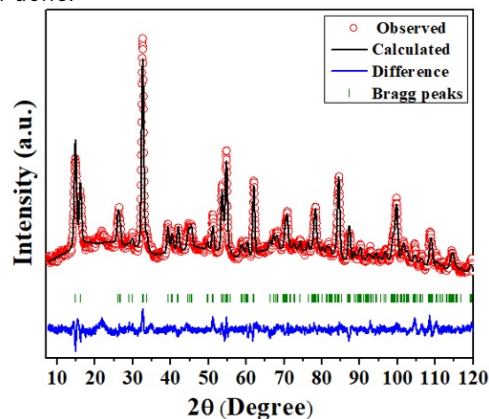


Figure 6: Neutron diffraction data of FeTi_2S_4 at room temperature.

► Control of B-site disorder using different synthesis conditions in a novel double perovskite $\text{Eu}_2\text{CoRuO}_6$

Chanchal Sow, IIT Kanpur

Anti-site disorder between B and B' transition metal cations in double perovskites can be controlled by using different cooling protocols during synthesis. We synthesised three sets of $\text{Eu}_2\text{CoRuO}_6$ (ECRO) double perovskites. The samples were synthesized at high temperature of 1350 °C using the high temperature furnace facility (max. temperature 1700 °C) at UGC DAE CSR Mumbai. Three different cooling protocols were used namely slow cooling (@ 1 °C/min), fast cooling (@ 14 °C/min down to 1200 °C, ~9 °C/min to 1100 °C, ~5 °C/min down to 900 °C, ~3 °C/min down to 700 °C, and 2 °C/min down to 400 °C), and normal cooling (@ 5 °C/min).

Subsequent X-ray diffraction done using table-top Bruker X-ray diffractometer at UGC DAE CSR Mumbai Centre confirmed the monoclinic ($P2_1/n$) crystal structure of ECRO. Rietveld refinement of the XRD pattern for all three samples are displayed in figure 7. The lattice parameters for the fast cooled sample are $a = 5.3483 \text{ \AA}$, $b = 5.7365 \text{ \AA}$, $c = 7.6394 \text{ \AA}$, $\alpha = \gamma = 90.000^\circ$, $\beta = 90.014^\circ$, Unit cell volume = $234.3813 \text{ \AA}^3$. The relative in-

tensities between difference peaks are nearly similar for all three samples. Magnetic measurements ($M-H$ hysteresis) indicated significant difference in anti-site disorder between the fast and slow cooled samples.

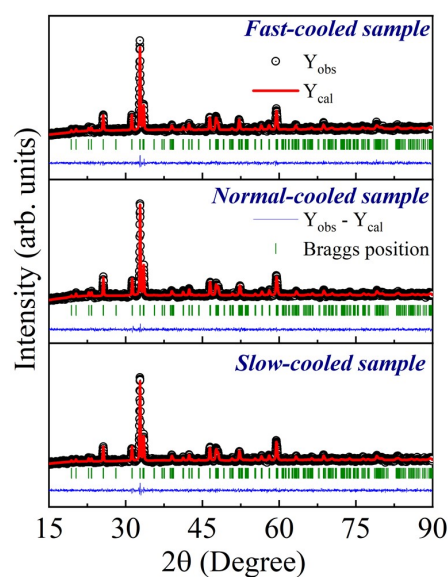


Figure 7: XRD study of synthesised samples.

► Magnetic investigation on sawtooth chain compound $\text{CaFe}_2\text{O}(\text{PO}_4)_2$

Tanmoy Chakrabarty, Krea University, Sri City, Andhra Pradesh

Combining geometrical frustration and one-dimensional magnetism boosts quantum fluctuations leading to unusual states of quantum matter. We investigated the magnetic behavior of a well-separated $S = \frac{5}{2}$ sawtooth spin chain compound $\text{CaFe}_2\text{O}(\text{PO}_4)_2$ (CFPO). Magnetic susceptibility, heat capacity (Figure 8), and ^{31}P nuclear magnetic resonance measurements show evidence of strong magnetic frustration in the compound. Despite a relatively large antiferromagnetic Curie-Weiss temperature of about -1073 K, the compound exhibits multiple magnetic transitions at 15.5 , 10.4 , and 7.8 K, respectively, with a frustration parameter of about 70 . The Knight shift shows a broad maximum around 70 K for P1 and P2 sites. The spin-lattice relaxation rate $1/T_1$ follows temperature-independent behavior well above the long-range order (LRO). First-principles calculations capture the strong antiferromagnetic interactions in this quasi-one-dimensional sawtooth lattice, providing a microscopic explanation for the experimentally observed frustration, low dimensionality, and the onset of LRO at low temperatures. Our results indicate that CFPO exhibits the presence of short-range correlations and persistent spin dynam-

ics characteristics above the LRO, which probably stem from the $S = \frac{5}{2}$ sawtooth spin chain model.

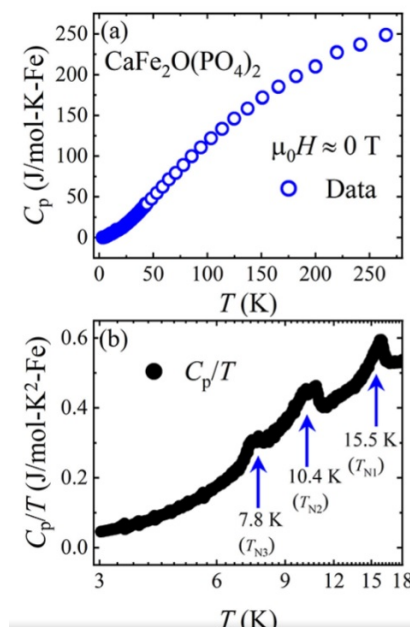


Figure 8: Specific-heat data of CFPO.

[Phys. Rev. B **113**, 115137 (2026).]

► Unconventional magnetism in frustrated triangular-lattice magnet $\text{Ba}_3\text{MnTa}_2\text{O}_9$

T. Dey, IIT (ISM) Dhanbad

We synthesized the triple perovskite oxide $\text{Ba}_3\text{MnTa}_2\text{O}_9$. Mn^{2+} ($S = \frac{5}{2}$) ions are the only magnetic entity present in this material. These Mn^{2+} ions form a quasi-two-dimensional triangular magnetic network in the crystallographic ab plane.

Our magnetization (Figure 9) and specific heat measurements show absence of any long-range magnetic order down to 0.5 K despite the presence of antiferromagnetic correlations between the magnetic ions. This fact is suggesting the presence of geometric frustration in the material. The entropy release is lower than the expected theoretical value of $R \ln(6)$, further suggesting the presence of frustration. First-principles calculations using DFT and atomistic spin dynamics simulations further support this lack of static magnetic order even at low temperatures and identify the competing magnetic interactions along

with the quasi-two-dimensional magnetic dimensionality as the underlying origin of this unconventional magnetic behavior.

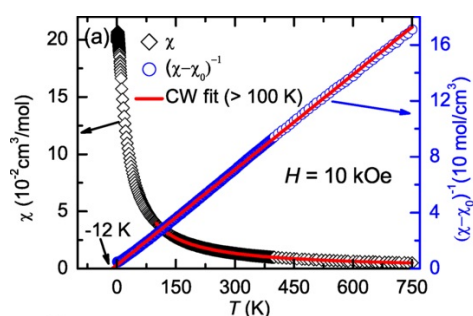


Figure 9: Magnetic susceptibility and Curie-Weiss fit to the measured data.

Publication Phys. Rev. B **112**, 155153 (2025).

► Unlocking the potential of $\text{Pb}(\text{Fe}_{0.67}\text{W}_{0.33})\text{O}_3$: A multifunctional multiferroic for next-gen magnetocaloric, memory, and supercapacitor technologies

Shidaling Mattepannavar, KLE Society's Basavaprabhu Kore Arts Science and Commerce College, Chikodi

A comprehensive study on $\text{Pb}(\text{Fe}_{0.67}\text{W}_{0.33})\text{O}_3$ (PFWO) through structural, magnetic, and electrochemical properties has been carried out to establish the multifunctional properties of PFWO. The compound PFWO exhibits pseudo-cubic perovskite structure (space group $Pm\bar{3}m$) as studied through structural analysis via X-ray diffraction (XRD) and Rietveld refinement analysis, which is supported by Raman spectroscopy as well. Raman studies reveals characteristic A_{1g} , E_g , and $2F_{2g}$ modes due to local lattice distortions. Magnetic susceptibility measurements demonstrate T_N at ~ 344 K, with another, weak ferromagnetic, ordering below 7 K. The study highlights room-temperature magnetocaloric, memory, and energy storage applications. The PFWO exhibits a notable magnetocaloric effect, with significant magnetic entropy changes under 1–6 T. Electrochemical performance, evaluated through cyclic voltammetry (CV), galvanostatic charge–discharge (GCD), and electrochemical

impedance spectroscopy (EIS), shows a substantial increase (80–110%) in specific capacitance under a low magnetic field (30 mT), attributed to enhanced charge storage and reduced charge transfer resistance (from 35.47 to 31.59 Ω). Excellent cycling stability is observed over 10,000 cycles. Density functional theory (DFT) calculations were performed and corroborated well with the structural, electronic, vibrational, and magnetic properties of PFWO. The increased specific capacitance is well supported by DFT calculations, attributed to structural disorder or instability. All the studies shows that PFWO is a promising multifunctional multiferroic material with potential applications in room-temperature refrigeration, magnetic memory, and supercapacitors.

Publication: J. Energy Storage **134**, 118145 (2025).

► Structural, microstructural, and magnetoelectric coupling in La/Nb-substituted Aurivillius Nb-BLTNFC Ceramics: Implications for energy storage and charge transport

Patri Tirupathi, Tilka Manjhi Bhagalpur University (TMBU), Bhagalpur, Bihar

La and Nb substituted Aurivillius $\text{Bi}_{4.0}\text{La}_{1.0}\text{Ti}_{3-2x}\text{Nb}_x(\text{Fe}_{0.5}\text{Co}_{0.5})\text{O}_{15}$ ($x = 0.00, 0.20, \& 0.50$) ceramics have been studied for their magnetoelectric and energy density properties through structural, microstructural, and lattice spin–phonon studies. Structural analysis have been analyzed using Rietveld analysis of XRD Data. The analysis confirms a dual-phase structure within an orthorhombic crystal system comprising the $A2_1am$ and $B2ca$ space groups. In addition to this, the surface morphology analysis reveals granular structures with plate-like grains, reduced porosity, and an increase in spherical-shaped grains as Nb concentration rises. Raman spectroscopy indicates spin–phonon interactions and a mixed-layered structure influenced by dopant effects. Elemental oxidation state analysis confirms compositional homogeneity. Slim ferroelectric (P – E) hysteresis loops and stable M – H loops at room temperature suggest a strong multiferroic charac-

ter in Nb-BLTNFC ceramics. The intrinsic energy storage properties of the ceramics range from 75 to 50 mJ/cm^3 . Temperature-dependent dielectric studies reveal a ferroelectric-to-paraelectric transition at the Curie temperature (T_c), decreasing from 483 °C ($x = 0.00$) to 464 °C ($x = 0.20$) and 453 °C ($x = 0.50$) with Nb doping, as supported by the DC-conductivity studies. Impedance analysis show that Nb doping enhances grain boundary resistance across various temperature segments. Conductivity studies indicate a transition from extrinsic to intrinsic conduction mechanisms, improving charge carrier mobility. AC-conductivity analysis demonstrates that Nb-doped ceramics exhibit higher conductivity in the low-frequency region, emphasizing the role of Nb in charge transport dynamics.

Publication: Ceram. Int. **51**, 44433 (2025).

» Exploring dielectric, magnetodielectric and magnetophotocatalytic properties of $\text{BaFe}_{12}\text{O}_{19}$ for multifunctional applications

Kiran Singh, Dr. B. R. Ambedkar National Institute of Technology, Jalandhar, Punjab

Multiferroic $\text{BaFe}_{12}\text{O}_{19}$ (BFO) hexaferrite, synthesized by a conventional solid-state reaction route has been explored for its multifunctional properties. The temperature dependent dielectric results show two relaxations: one around 200 K and another around 90 K. The observed relaxations exhibit a strong correlation with the change in magnetic interactions and the dynamics of spin–phonon coupling. The isothermal magnetodielectric (MD) results at room temperature illustrate that MD increases with increasing magnetic field till 11 kOe and then starts decreasing with further increasing the magnetic field. The maximum MD ($\sim 1.58\%$) is observed around 11 kOe, which is consistent with the isothermal magnetization data. The conduction mechanism of BFO is explored by analyzing the AC conductivity. The magnetophotocatalytic activity of magnetized (8 kOe) and unmagnetized (0 kOe) BFO is per-

formed on methylene green (MG) dye in sunlight. A significant enhancement ($\sim 14\%$) of dye degradation is observed in the presence of magnetized BFO. These findings illustrate that the magnetized BFO significantly enhanced the dye degradation capabilities, making it a promising material for wastewater treatment. Notably, the use of such magnetic catalysts eliminates the need of complex filtration and easily recoverable, further streamlining the process. Our results demonstrate the correlations of magnetic dynamics with dipolar interactions in BFO. The approach adopted in this study to enhance the photocatalytic activity in the magnetic catalyst provides a promising avenue in diverse magnetic photocatalysts.

Publication: J. Alloys Compd. **1038**, 182669 (2025).

Kalpakkam Centre



**DR. AWADHESH MANI**

Scientist In-Charge

Kalpakkam Centre

Email : mani@igcar.gov.in**Address** : UGC-DAE Consortium for Scientific Research
Kalpakkam, Via Kokilamedu Gate,
Kokilamedu - 603104 T.N. India.**Phone** : +91-44-27480500 (Ext.: 21919)**»»» Scientist In-Charge's Report**

Kalpakkam Centre of the UGC-DAE CSR houses a great deal of state of the art synthesis and characterization facilities for material research under a single roof. It is situated on the Coromandal Coast almost midway, near Mahabalipuram. Proximal to the IGCAR, this centre is instrumental to facilitate access to the designated high-end facilities of IG-CAR to the academic user base from not only the southern peninsula but from throughout the nation. A myriad of experimental techniques like electron microscopy, optical/electron/x-ray spectroscopy, a multitude of physical property measurement systems, ion-accelerator based materials modification and measurement systems etc., to name a few - position this centre as a significant hub for materials science research. In addition to catering to the needs of external users, the faculty of the centre also supervise the in-house research work by engaging doctoral students. At present, the centre has four scientists - Dr. G. M. Bhalerao, Dr. Sujay Chakravarty, Dr. Shamima Hussain and Dr. K. Saravanan, along with three doctoral students.

The scientific output of the centre has been consistent as reflected in the number of publications emerging in peer reviewed journals. All the faculty members have been actively engaged in promoting the awareness of facilities by delivering talks and invited lectures at various national and international conferences and symposia. In addition to that, the Kalpakkam Centre has co-ordinated for the southern region in the annual users awareness event organized

online by the Consortium.

Our centre significantly contributes to the Consortiums mandate of supporting academia with its facilities to elevate the quality of research. Due to the awareness of our programs among the universities, overwhelming number of project proposals were received for the centre this year, of which 15 projects were awarded under the collaborative research scheme (CRS), the flagship program of the consortium to support the university researchers. A total of 71 CRS projects are running at the centre and more than 90 users from academia, both short term user as well as CRS, have made use of our facilities this year. On the front of in-house work, 2 PhD have been awarded and three students are working for their doctoral thesis. A few undergraduate students from universities are also being mentored by our faculties.

This year witnessed a notable milestone in the journey of the Kalpakkam Centre. For more than last fifteen years, it has operated as an extension node of the Indore Centre. On 12th Sep. 2025, a memorandum of understanding to elevate its status from a Node to a Centre was signed between the UGC-DAE CSR and IG-CAR by their respective Directors Prof. Kaustubh R. S. Priolkar and Shri C. G. Karhadkar. The centre is well placed in the region surrounded by premier educational institutes, colleges, universities, and industrial activities. This, in synergy with IG-CAR is expected to invigorate the Kalpakkam Centres contribution manifold in future.



DR. G M BHALERAO

Scientist-G

Email: gmbhalerao@csr.res.in

Research Interests: nanomaterials, crystal growth, oxides, carbon nanomaterials

Group members: Aiswarya S M

Total Ph.Ds awarded: 2

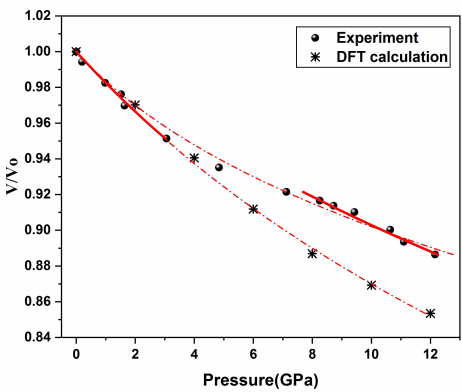
Facilities: (1) Transmission Electron Microscope (2) IR optical float zone furnace (3) Ball Indentation/Small Punch Creep (4) Micro Hardness Tester

»»» In-house Research Highlights

» High pressure Structural Investigation of CaCu_2O_3

Pseudo spin ladder compound CaCu_2O_3 was synthesized using the conventional solid-state reaction method with CaCO_3 and CuO as precursors. Ambient XRD analysis indicates that CaCu_2O_3 forms a polycrystalline, non-stoichiometric phase, exhibiting cationic anti-site defects along with oxygen vacancies. The structural behavior of CaCu_2O_3 under elevated pressures were carried out using synchrotron x-ray diffraction, supported by first-principle calculations. The measurements confirm that the orthorhombic structure is stable up to 12 GPa and exhibits an elastic anisotropic compression behavior without any structural phase transition. Also, it is observed that the c-axis is more compressible than the other two axes. The pressure-volume ($P - V$) curves were fitted using the third-order BirchMurnaghan equation of state, yielding a bulk modulus of 54 GPa and 79 GPa in the low-pressure and higher pressure regime, respectively, suggesting a pressure induced lattice stiffening. This behavior is attributed

to the gradual regularization of distorted Ca-O octahedra and the possible reorganization of anti-site defects under compression. These results provide important insights into the relationship between structural anisotropy, defect chemistry, and mechanical properties in low-dimensional copper based spin ladder systems. [Submitted to J. Phys. Cond. Matter]

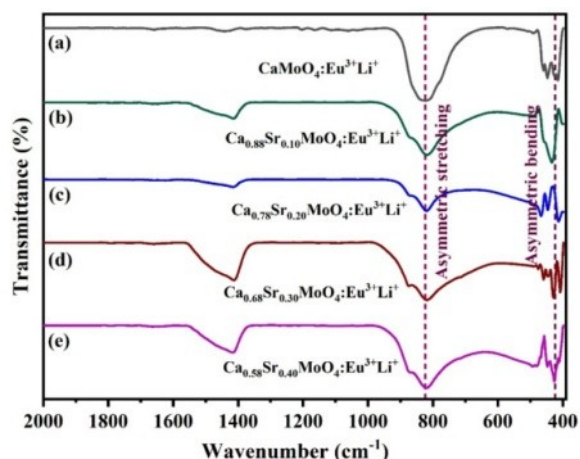


»»» Collaborative Research Activities

» Structural and luminescence studies red emitting phosphors for solid state lighting applications

(Dr. S. Dinakaran, Dept. of Physics, St. Joseph's College, Thiruchirappally)
Red emitting phosphors, $\text{CaMoO}_4:\text{Eu}^{3+}\text{Li}^+$ and $\text{Ca}_{1-x-2y}\text{Sr}_x\text{MoO}_4:y\text{Eu}^{3+}y\text{Li}^+$ were synthesized using the high temperature solid state reaction technique. The effect of Sr^{2+} ion substitution in $\text{CaMoO}_4:\text{Eu}^{3+}\text{Li}^+$ on the structural changes have been investigated using powder x-ray diffraction analysis and the Rietveld refinement method. The

results confirmed the formation of monophasic phosphors with a tetragonal scheelite type structure. The unit cell dimensions and volume were enlarged due to the increase of Sr^{2+} incorporation. The presence of tetrahedral molybdate functional groups were confirmed by FTIR analysis. The optical bandgap was examined using diffusion reflectance measurement and was found to be 3.16 and 4.00 eV for $\text{CaMoO}_4:\text{Eu}^{3+}\text{Li}^+$ and $\text{CaSrMoO}_4:\text{Eu}^{3+}\text{Li}^+$ phosphors, respectively and indicating an increase in bandgap with Sr^{2+} substitution. [Mater. Sci. and Eng. B 324 Part A (2026) 118885]



Other Information

Invited Talks

- Plenary talk entitled "Room-Temperature Ferromagnetism, Rashba SOC-Driven Anomalous Hall Effect and Negative Magneto resistance in Vertical Graphene Nanowalls: a Route to Sustainable Carbon-Based Spintronics Platform" at International Conference IAMSSG-2025 organized by JECRC University, Jaipur from 29 to 31 October 2025.
- Invited talk entitled "Vertical Graphene

Nanowalls: a Novel Route to Sustainable Carbon-Based Spintronics Platform" at A meeting on advances in condensed matter physics organized at UGC DAE CSR, Indore on 26-28 December 2025.

- invited talk entitled "Vertical Graphene Nanowalls: A Sustainable Carbon Platform for Berry-CurvatureDriven Transport and Room-Temperature Spintronics" at Nation Conference ACMP-2026 organized by Guru Ghasidas University Bilaspur on 20 February 2026.

DR. SUJAY CHAKRAVARTY
Scientist-G

Email: scha@csr.res.in



Research Interests: Tailoring microstructure, magnetic, and transport properties of 2D & quasi 2D materials; Exploration of d^0 magnetism in conventionally nonmagnetic oxides and nitrides by Defect and strain engineering; Morphology and Size dependent properties of magnetic nanoparticles, nanopatterns & 2D magnets; Polymer coated magnetic materials for biomedical application; Design and synthesis of magnetic semiconductors for spintronics applications; Atomic transport study at the nanoscale and its impact on micro structural stability & evolution of functional nanomaterials.

Group members: (1) Hari Singh, SRF

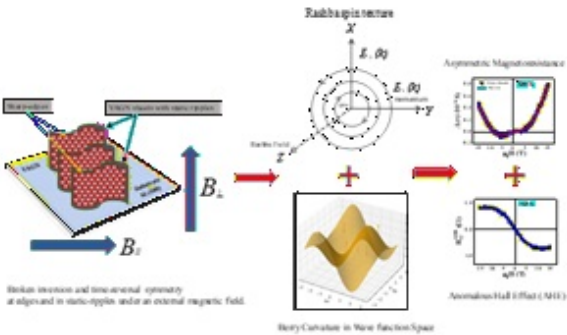
Total Ph.Ds awarded: 2

Facilities: (1) GIXRD, (2) SQUID-VSM magnetometer, (3) 15 Tesla cryogen free system with Resistivity and Hall measurement options, (4) Scanning probe microscope, (5) Magnetron Sputtering system, (6) Hot Isostatic Press, (7) High Vacuum annealing system for thin films. (8) Computational Facility with Material Studio Code.

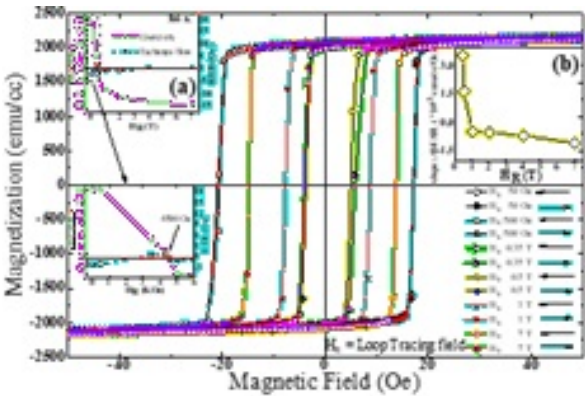
»»» In-house Research Highlights

» Giant Rashba SpinOrbit CouplingDriven Room-Temperature Anomalous Hall Effect in Vertical Graphene Nanowalls

We report a giant Rashba spinorbit couplingdriven room-temperature anomalous Hall effect in vertically aligned graphene nanowalls (VGNs), a disordered yet crystalline graphene network operating in the diffusive transport regime. The Hall resistivity exhibits a pronounced nonlinear component at 300 K and 250 K beyond the ordinary Hall contribution and shows weak correlation with bulk magnetization, indicating a Berry-curvaturemediated mechanism. Magneto conductance measurements reveal weak antilocalization, yielding a giant Rashba coupling strength of 300 meVÅ, comparable to topological insulators and among the strongest reported in graphene-based systems. The strong Rashba interaction originates from structural disorder, high density of edge defects, vertical graphene morphology, and substrate-induced inversion symmetry breaking that generate strong interfacial electric fields. These effects produce room-temperature anomalous Hall response and asymmetric magnetoresistance in the diffusive regime. Below 200 K, transport crosses to variable-range hopping with suppression of weak antilocalization and disappearance of the anomalous Hall signal, confirming the Rashba-driven origin of the room-temperature AHE. The coexistence of ferromagnetism, giant Rashba spinorbit coupling, and Berry-curvaturedriven transport in VGNs establishes a carbon-based platform for room-temperature quantum transport functionalities.



» Hysteresis and Spontaneous Magnetization Reversal in Textured Nanocrystalline Fe Films from Anisotropy-Driven HardSoft Magnetic Coupling



Inverted hysteresis loops (IHL) and spontaneous magnetization reversal (SMR) represent unusual magnetic states typically observed in multilayers, exchange-biased systems or engineered interfaces.

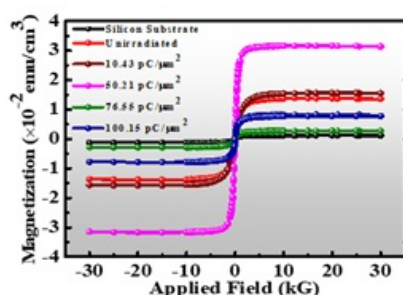
Here, we demonstrate both phenomena in a single-layer textured nanocrystalline Fe thin film. The film consists of textured grains where antiferromagnetic coupling between hard ferromagnetic regions and surrounding soft magnetic regions stabilizes antiparallel moments. This anisotropy-driven hardsoft magnetic coupling induces a crossover from conventional

to inverted hysteresis and enables robust SMR over a wide temperature range. These results reveal a new route to emergent magnetic states in elemental ferromagnets and establish textured nanocrystalline Fe films as a platform for interface-free spintronics and memory applications.

Collaborative Research Activities

Local structural distortions drive magnetic molecular field in compositionally complex spinel oxide

(Dr. Srimanta Middey, Department of Physics, Indian Institute of Science, Bengaluru)



The compositionally complex spinel oxide ($\text{Mn}_{0.2}\text{Co}_{0.2}\text{Ni}_{0.2}\text{Cu}_{0.2}\text{Zn}_{0.2}\text{Cr}_2\text{O}_4$) was investigated using extended X-ray absorption fine structure measurements and density functional theory, compared with parent ACr_2O_4 compounds. Element-specific distortions extend beyond nearest neighbors, and the strong JahnTeller distortion of CuCr_2O_4 is fully suppressed. Instead, CuO and CuCr bonds show broad distributions, while other AO distances adopt distinct values. The cationic sublattice thus accommodates disorder while preserving long-range

structure. Mean-field magnetic interactions resemble NiCr_2O_4 due to comparable Cr-centered bond lengths, highlighting the role of local distortions in determining properties. [Nature Communications, Vol. 16, Page 7038, 2025]

Strain modulated rise, reduction, and resurrection of ferromagnetic ordering and structural properties in ZnO nanostructures due to 1.2 MeV proton implantation

(Dr. Neeraj Shukla, Dept. of Physics, NIT Patna)

In the present work, the impact of 1.2 MeV proton implantation on the structural and magnetic properties of ZnO nanostructures was investigated. X-ray diffraction confirmed the wurtzite hexagonal structure and revealed a secondary phase through splitting of the (201) peak with increasing fluency. SQUID-VSM measurements showed strengthened room-temperature ferromagnetism, most pronounced at $50.21 \text{ pC}/\mu\text{m}^2$, with a resurgence at $100.15 \text{ pC}/\mu\text{m}^2$. Raman spectra displayed intensified defect-related modes, while XPS ruled out magnetic impurities and confirmed Zn^{2+} with hydroxyl formation. The enhanced ferromagnetism is attributed primarily to strain- and defect-induced modifications following proton implantation. [Journal of Alloys and Compounds, **1039**, 183152 (2025)]

Other Information

Invited Talks

- Plenary talk entitled "Room-Temperature Ferromagnetism, Rashba SOC-Driven Anomalous Hall Effect and Negative Magnetoresistance in Vertical Graphene Nanowalls: a Route to Sustainable Carbon-Based Spintronics Platform" at International Conference IAMSSG-2025 organized by JECRC University, Jaipur from 29 to 31 October 2025.
- Invited talk entitled "Vertical Graphene Nanowalls: a Novel Route to Sustainable Carbon-Based Spintronics Platform" at A meeting on advances in condensed matter physics organized at UGC DAE CSR, Indore

on 26-28 December 2025.

- invited talk entitled "Vertical Graphene Nanowalls: A Sustainable Carbon Platform for Berry-CurvatureDriven Transport and Room-Temperature Spintronics" at Nation Conference ACMP-2026 organized by Guru Ghasidas University Bilaspur on 20 February 2026.

Foreign Visits by Faculty and Students

- Dr. Sujay Chakravarty and his student Mr. Hari Singh (SRF). Beamtime in Photon Factory at KEK, Tsukuba, Japan (13-17 December, 2025)



DR. SHAMIMA HUSSAIN
Scientist-G

Email: sh@csr.res.in

Research Interests: Fundamental studies by band engineering and device physics of semiconducting thin films, heterostructures, polymers, novel and advanced materials for various device-based applications.

Group members: Mr. Rohith J, JRF

Total Ph.Ds awarded: 3

Facilities: (1) FESEM, (2) FIBSEM, (3) Raman Spectrophotometer, (3) XPS, (4) NMR, (5) Furnace, (6) eBeam evaporation, (7) sample preparation facilities

»»» In-house Research Highlights

» Dielectric relaxation dynamics in PVDF nanocomposites

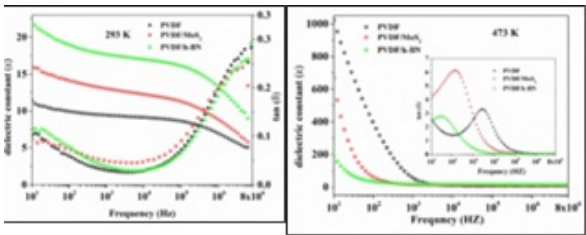


Figure 1: Frequency vs. dielectric constant and $\tan \delta$ plotted at a 293 K and b 473 K frequency vs. $\tan \delta$ (inset)

Investigative studies on microstructural, phases, morphological and dielectric behavior of polyvinylidene fluoride (PVDF) and its nanocomposites filled with 2D nanofillers has been carried out. Modifications in surface morphology with reduced spherulitic crystals size and lower crystallinity have been observed with the addition of nanofiller. Non-polar to

polar phase conversion and excellent dielectric properties with the addition of nanofillers were experimentally measured over a temperature (80-473 K) and frequency range (10 Hz to 8 MHz). Strong interfacial polarization and interaction between PVDF dipoles and filler nanoparticles were found to delay the relaxation process, typically showing a non-Debye behavior. [A.Thakur, M.Jangra et al., J Mater Sci: Mater Electron (2026) 37:209].

» Dual-Mode Chemosensor for Trivalent Cations and Arsenate

This study introduces a novel chemosensor (RbT) for the selective and highly sensitive detection of Al^{3+} , Fe^{3+} , Cr^{3+} (M^{3+}) ions and arsenate anion (AsO_4^{3-}). The sensor was synthesized through the strategic integration of Rhodamine B, phosphorus oxychloride, and Tryptamine, and operates via CHEF mechanism in an HO/ACN (3:7, pH 7) system. Upon coordination with M^{3+} ions, RbT exhibits a strong fluorescence enhancement and a visible deep-pink color change, enabling dual spectroscopic and visual detection.

»»» Collaborative Research Activities

» Dual-Mode Chemosensor for Trivalent Cations and Arsenate

(Dr. Subhenjit Hazra, Sathyabama Institute of Science and Technology)

This study introduces a novel chemosensor (RbT) for the selective and highly sensitive detection of Al^{3+} , Fe^{3+} , Cr^{3+} (M^{3+}) ions and arsenate anion (AsO_4^{3-}). The sensor was synthesized through the strategic integration of Rhodamine B, phosphorus oxychloride, and Tryptamine, and operates via CHEF mechanism in an H_2O/ACN (3:7, pH 7) system.

Upon coordination with M^{3+} ions, RbT exhibits a strong fluorescence enhancement and a visible deep-pink color change, enabling dual spectroscopic and visual detection. The sensor exhibits remarkable sensitivity with detection limits of 3.2 nM for Al^{3+} , 5.6 nM for Fe^{3+} , and 15.4 nM for Cr^{3+} . Jobs plot and mass spectrometry confirm a 1: 1 metal-ligand binding stoichiometry. The $RbT - Al^{3+}$ complex further detects AsO_4^{3-} via a fluorescence quenching mechanism, achieving a detection limit of 2.8 nM. The reversible Off-On-Off fluorescence response enabled the construction of an INHIBIT molecular logic gate. The interaction between RbT and M^{3+} was

reversible upon the addition of EDTA. Cytotoxicity and cell imaging studies using SHSY5Y and HeLa cell lines demonstrate low toxicity and efficient intracellular sensing. These results highlight RbT as a promising candidate for environmental analysis and bioanalytical applications. [Journal of Fluorescence (2026) 36:22312249]

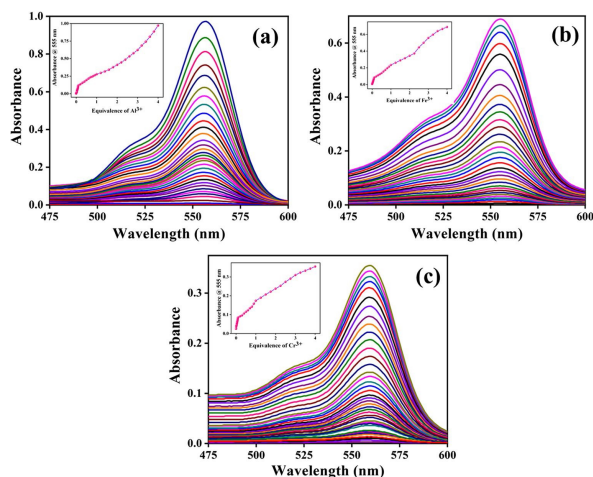


Figure 2: Absorption spectra of RbT upon incremental addition of Al^{3+} , Fe^{3+} , and Cr^{3+} . (Inset: (a)-(c) absorbance intensity at 555 nm as a function of Al^{3+} , Fe^{3+} , and Cr^{3+} concentration).

► Investigative Studies on Ce-MOF/PPy composites

(Dr.S. Gowri,Cauvery College for women, Tiruchira-

pally,TN)

Metal-organic frameworks (MOFs) are porous crystalline materials explored for diverse applications including photocatalytic activities and innovative energy storage and conversion devices. However, their low charge conductivity restricts the practical use of pristine MOFs. In this study, Cerium Metal-Organic Framework (Ce-MOF), polypyrrole (PPy), and Ce-MOF/PPy were prepared using a simple wet chemical method, followed by in-situ chemical polymerization and ultrasonication method and their physicochemical properties were analysed. The electron and proton conductivity in MOFs were enhanced by incorporation of PPy with polymerization increasing interlayer distance. [Materials Letters, Vol. 394 (2025) 138622]

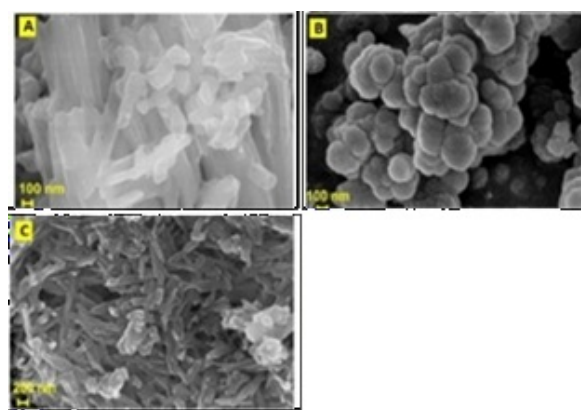


Figure 3: FESEM images of A) Ce-MOF, B) PPy and C) Ce-MOF/PPy.

►►► Other Information

► Invited Talks

- "Applications of XPS and XAS on Polymer films" at International Conference ICMRM-2026, 26-27 Mar. 2026, SSN Group of institutions, Chennai
- "XPS instrumentation- importance of Vacuum", Mar. 2026, Jadavpur University
- "Analysing XPS spectra- defects in devices" PSG College, Feb. 2025
- 'Role of X-ray Photoelectron Spectroscopy in device-making' in ANRF sponsored workshop on Advances in Quantum Mechanics and Spectroscopy Techniques for Versatile Applications on 24th Feb. 2026 and 25th Feb. 2026 at SRMV CAS. Ramkrishna Mission
- "XPS for understanding biological samples for biomedical applications", Feb. 2026, VIT Vellore
- "Polymer composites for flexible device applications" Dec 5, 2025, SNSVMNS College,

Madurai

- "WS₂ thin films for photodetection", Nov. 2025, Kongu Engineering College, Erode
- "Facilities at UGC-DAE CSR, Kalpakkam" Awareness workshop of UGC-DAE CSR, Sep. 2025
- "Spectral Identification of Materials" August 28, 2025 Madras Christian College, Chennai
- "Materials- Management, engineering and Research" Rajlakhmi Group of Institutes Innovation Council and Dept of Humanities and sciences 12 Aug, 2025
- "Flexible materials for device applications" Jul. 2025, Rajalakhsmi College of Engineering, Chennai

► Awards, Honours and Recognitions

- Elected as the Fellow of the Academy of Sciences, Chennai



DR. K SARAVANAN

Scientist-D

Email: sara@csr.res.in

Research Interests: Ion-solid interaction, surface modification

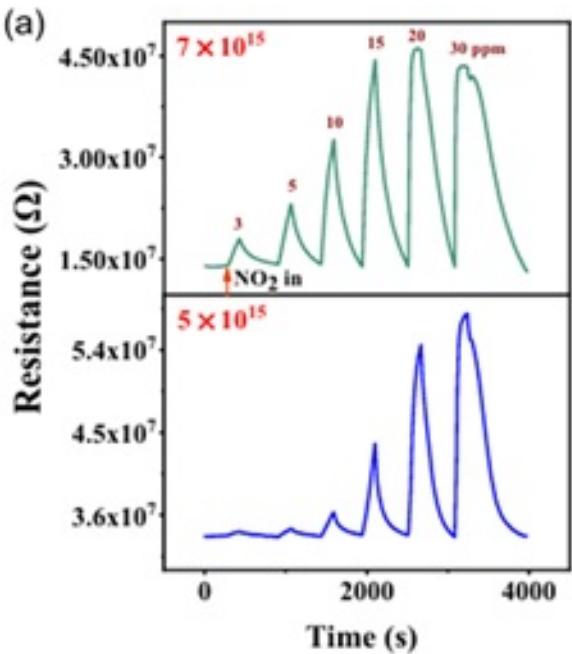
Group members:

Total Ph.Ds awarded:

Facilities: (1) 200 kV ion Accelerator, (2) Solar cell/photodetector characterization setup, (3) chemical depth profiler, (4) arc melt and melt spinning set up.

»»» In-house Research Highlights

» Ion beam induced surface modification



Ion beam irradiation is an effective technique that tailors the nano structured materials for wide-range of potential applications. The low energy ion irradiation on thin-film materials, drastically modifies the surface and results in novel nanostructures, which is highly desirable for the fabrication of sensors. In our lab we do low energy ion irradiation at extreme conditions and study their electrical and optical properties. Recently, we have studied the impact of Xe^+ ion irradiation at glancing angle on the gas-sensing properties of ZnO nanorods. The ion-irradiated samples exhibited superior response to the gas molecules with shorter response times compared to pristine ZnO. This is attributed to the point defects produced by the irradiation.

»»» Collaborative Research Activities

» Ion irradiation and photodetection analysis

We have carried out many ion irradiations and photodetection analysis to our short term and long term CRS users. Recently, we carried out a 600 keV Ar^{3+} ion irradiation, using our 200 kV accelerator, on PdGO samples upto the fluence of 110^{11} , 110^{12} , and 110^{13} ions/cm². We carried out Ar^+ ion irradiation on CuI, CuI-Sn, AgI, and Ag-doped ZnS films. This utilisation of heavy-ion irradiation to engineer the

metal surface is innovative and holds potential for enhancing the propulsion efficiency of the dielectric-Ag Janus particles. We studied the photoresponse characteristics of ion beam irradiate ZnO and NiO NFs architecture. The current-voltage (I-V) characteristics and time-dependent photoresponse measurements on these films shows interesting light sensitivity. We also carried out nitrogen ion irradiation on Ag films onto PET substrates to tailor their surface and electrical properties.

»»» Highlights of CRS Projects

» Fabrication of microscope porous 3D turbostratic graphene film by Joule heating method and study of electric/ionic transport properties for compact capacitive energy storage

Dr. R. Ramesh, Periyar University, Salem [CRS/2022-23/04/897]

Three-dimensional turbostratic graphene-based electrodes were synthesized from citric-acid-derived carbon nanoparticles using the flash Joule heating (FJH) method at varying currents (50, 75, 100, and 125 A), and their structural characteristics analyzed using X-ray diffraction (XRD), Raman spectroscopy, and cyclic voltammetry techniques. Increasing flash current enhanced the sharpness and intensity of the (002) peak, indicating improved crystallinity and development of sp^2 -rich graphitic domains; notably, the F100 sample exhibited a larger interlayer spacing ($d_{002} = 3.42 \text{ \AA}$) than graphite ($3.33 \text{ \AA}$), confirming its turbostratic nature. Raman spectroscopy revealed broad D and G bands at 1346 and 1580 cm^{-1} without a 2D band in unflashed carbon nanopar-

ticles, confirming a disordered structure, whereas flash-treated samples showed reduced defect density with increasing current, and the F100 electrode displayed distinct D, G, and 2D bands at 1334 , 1566 , and 2668 cm^{-1} additionally, the presence of TS-1 and TS-2 peaks (1875 and 2035 cm^{-1}) and absence of the M peak (1750 cm^{-1}) further confirmed its turbostratic structure. CV curves show minimal area for unflashed samples indicating poor charge storage capability but broader and more symmetric electric double-layer capacitance profiles for flash-treated samples, F100 sample demonstrated the largest CV area whereas F125 sample showed reduced response due to restricted ion access from increased layer stacking.

» Electron beam irradiation and its effect on anti-nutritional factors, digestibility, and mycotoxin levels of aquafeed ingredients

Dr. Amit Ranjan (Institute of Fisheries Post Graduate Studies, Tamil Nadu Dr. J. Jayalalithaa Fisheries University, Vaniyanchavadi, Chennai). Experiment Facilitated Courtesy : Agricultural Radiation Processing Facility (ARPF), RRCAT, Indore) [CRS/2023-24/04/1304]

The feed ingredients namely Groundnut oil cake, Soybean meal, Cotton seed cake, Rice bran, De-oiled rice bran, and Mustard oil cake were purchased and processed at the University department for further irradiation at the ARPF. The aim is to study the effect of the electron irradiation on the quality and the nutrient profile of the fish feed. All the ingredients were irradiated with specified radiation doses 5, 10, 15, 25, and 50 kGy with an e-beam energy of 9.3 MeV with Alanine dosimeters (Batch No. T020604). The recorded dosimetry results corresponding to the intended doses were 5.27, 10.66, 15.08, 27.08, and 56.33 kGy. Rice bran sample was analyzed for optimization of nutritional profile by measuring the constituent markers of crude protein, crude lipid, and total ash content. The applied

radiation treatment did not significantly affect the ($p > 0.05$) crude protein and crude lipid content of the rice bran even at highest dose of radiation i.e., at 50 kGy, suggesting that irradiation has no adverse impact on the nutritional quality of the rice bran. In another experiment rice bran (RB) and de-oiled rice bran (DORB) were evaluated to determine the effect of radiation on mycotoxin level (Aflatoxin B1, Aflatoxin B2, Aflatoxin G1, Aflatoxin G2, Ochratoxin, T-2 Toxin, Citrinin and Zearalenone). Among RB and DORB, the presence of Aflatoxin B1 was reported in all the sample suggesting that radiation dose even at higher dose is ineffective in degrading or reducing Aflatoxin B1 in the de-oiled rice bran samples.

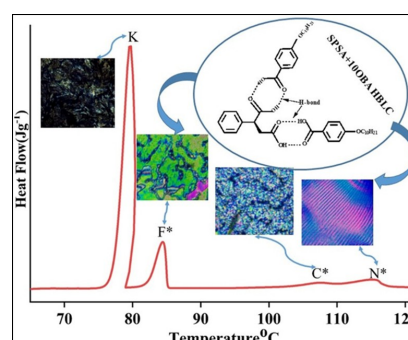
► Impact of hydrogen bonds on mesophase behaviours: Thermal and optical properties of chiral hydrogen bond liquid crystals

Dr V. N. Vijayakumar, Associate Professor & Head, Department of Physics, Centre for research - Condensed Matter Research Laboratory (CFR CMRL), Bannari Amman Institute of Technology Sathyamangalam [CRS/2022-23/04/887]

Chiral hydrogen-bond liquid crystal complexes (HBLCs) are assembled via hydrogen bonding between (S)-(+)-Phenylsuccinic acid (SPSA) and 4-n-(Alkyloxy)benzoic acids (nOBA, n=10 & 11). The thermal behaviour of the mesogenic phases, along with their corresponding textural variations has been assessed using polarizing optical microscopy (POM) and differential scanning calorimetry (DSC). Significant decrease in the melting point of the HBLC complexes relative to their individual components justifies the formation of hydrogen bonding between SPSA and nOBA. The bathochromic shift is observed in the FT-IR spectra of HBLC complexes provides clear evidence of H-bond formation. The UVVis analysis confirms a band gap energy of around 3.5 eV for the present HBLC mixtures. The presence of various interactions in the HBLC complex

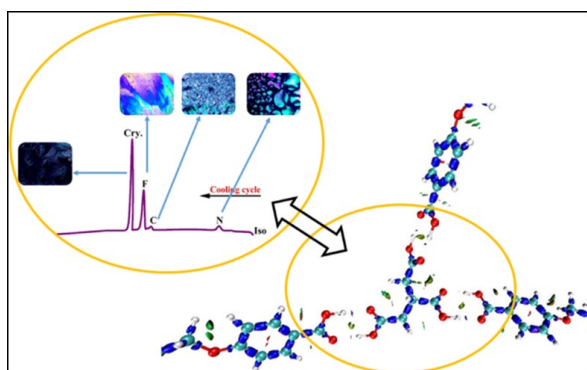
has been reported using density functional theory calculations (DFT-optimized geometry, Interaction region indicator, and Non-linear optical studies). Experimentally observed values are justified with theoretical calculations.

[Ref: Kavitha S. et al. MRS Advances **2026**]



► Phase behaviours, spectroscopic, and DFT analysis of a complementary hydrogen bond liquid crystal complex with enhanced NLO properties

Dr V. N. Vijayakumar, Associate Professor & Head, Department of Physics, Centre for research - Condensed Matter Research Laboratory (CFR CMRL), Bannari Amman Institute of Technology Sathyamangalam [CRS/2022-23/04/887]



Hydrogen bond liquid crystal (HBLC) complex is obtained from 1,2,3-Propanetricarboxylic acid (PTA; non-mesogen) and 4-(Heptyloxy)benzoic acid (7OBA; mesogen) through a complementary hydrogen bond (H-bond) interaction method. Differential scanning calorimetric analysis is performed to examine the thermal behaviour of PTA+7OBA (1:3 molar ratio) HBLC complex, and the polarized optical microscopic technique is employed to investigate the induced mesogenic textures. The sequence of phase transitions observed during the endother-

mic and exothermic cycles are *crystal*(Cry.) $\leftrightarrow$ *SmecticF*(SmF) $\leftrightarrow$ *SmecticC*(SmC) $\leftrightarrow$ *Nematic*(N) $\leftrightarrow$ *Isotropic*(I), exhibiting weakly first-order transitions. The complementary H-bond interaction is validated via FTIR analysis, as evidenced by the observation of bathochromic shift in the hydroxyl (OH) and carbonyl (C=O) functional groups. UVvisible spectroscopic analysis reveals the complex optical transparency throughout the visible region, along with an optical band gap energy of 4.22 eV. In addition, theoretical calculations (based on density functional theory) are used to establish the framework of the PTA+7OBA complex based on its energy-minimized molecular geometry, quantum theory of atoms in molecules, and molecular electrostatic potential studies. Subsequently, the different molecular interactions such as H-bonding, van der Waals and steric effect are analysed using interaction region indicator analysis. Further, the independent gradient model based on Hirshfeld partition (IGMH) analysis is used to examine the weak noncovalent interactions (δg^{inter}) in the HBLC com-

plex. Observed NLO properties of the HBLC are higher than those of the standard reference urea, signifying its potential efficacy in NLO-based photonic applications.

[Ref: The European Physical Journal Special Topics, **2026** <https://doi.org/10.1140/epjs/s11734-026-02176-3>]

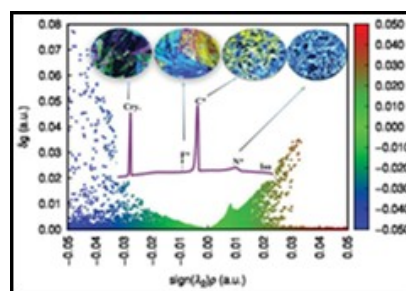
► **Design, synthesis and characterisation of complementary hydrogen bond ferroelectric liquid crystals for non-linear applications: combined experimental and density functional theory approach**

Dr V. N. Vijayakumar, Associate Professor & Head, Department of Physics, Centre for research - Condensed Matter Research Laboratory (CFR CMRL), Bannari Amman Institute of Technology Sathyamangalam [CRS/2022-23/04/887]

Nowadays, hydrogen bond ferroelectric liquid crystals (HBFLCs) play a pivotal role in diverse applications due to their response to the external field. A supramolecular HBFLC is derived from the non-mesogenic (S)-(+)-Phenylsuccinic acid (SPSA) and mesogenic 4-(Octyloxy)benzoic acid (8OBA). The prepared HBFLC (SPSA + 8OBA, 1:2 ratio) is characterised via experimental and density functional theory (DFT). Textural investigation via polarising optical microscope reveals the presence of chiral mesophases, whereas differential scanning calorimetry studies confirm the chiral mesophase transition temperatures and their corresponding entropy and enthalpy values. Further, complementary hydrogen bonding (H-bond) is analysed via FT-IR spectrum and the same has been authenticated using various DFT calculations such as, MEP, Mulliken, IRI,

QTAIM, and IGMH. Furthermore, the molecular parameters of the HBFLC are studied using global reactive descriptors, FMO analysis, interaction sites, and interaction energies. Non-linear optical properties and their possible applications in the field of photonic devices of HBFLC complex are reported in the present communication.

[Ref: Liquid Crystals **52**, 1174, (2025)]



► **High-throughput CH activation in a bead-beater homogenizer: fast and regioselective access to 2-arylindoles**

Prof Mainak Banerjee, BITS, Goa Campus [CRS/2021-22/04/631]

High-throughput mechanochemical synthesis is rarely attempted. A bead-beater homogenizer with 2464 slots offers a unique opportunity for high-throughput mechanosynthesis (HTMS). In this study, CH bond activation is achieved by homogenizing multiple samples in one go in simple polypropylene (PP) vials with stainless steel balls via liquid-assisted grinding (LAG), with enough frictional force being employed to achieve this challenging transformation. The method demonstrates the preparation of synthetically useful 2-arylindoles through a regioselective reaction between N-alkylated indoles and aryl iodides, catalyzed by Pd(II) and facilitated by C2H activation in the absence of phosphine ligands, using a bead-beater homogenizer. 5 mol% of

Pd(OAc)₂ was sufficient to catalyze C2-activation of indoles in the presence of a small volume of EtOAc as the LAG agent, affording 2-arylindoles in high to excellent yields within 9 min. The method demonstrated excellent tolerance to structural variations, including electron-rich and electron-deficient substituents in both indoles and iodoarenes. However, unprotected indoles or indoles with deactivated five-membered rings could not participate well in the reaction. This simple, high-yielding, ambient-temperature high-throughput mechanochemical protocol is devoid of a formal workup step, and with a low E-factor (4.5) and a high Eco-scale score (73.5), it augments well with sustainability matrices.

[Ref: Liquid Crystals **52**, 1174, (2025)]

► **Designing NiHCF-Ti₃C₂ MXene Bifunctional Nano-Heterostructure Toward the Fabrication of Supercapacitor and Electrochemical Catechol Sensor**

Dr. Senthil Selvanappan , VIT Vellore [CRS/2021-22/04/611]

Nickel hexacyanoferrate (NiHCF) has gained great attention as a proficient electroactive material due to its superior redox behavior and tunable characteristics. Likewise, 2D MXenes with high electrical conductivity, excellent biocompatibility, and a hydrophilic surface are employed in various electrochemical applications. Herein, we intended to design a novel nano-heterostructure through in situ growth of NiHCF nanoparticles on the titanium carbide MXene (Ti₃C₂ MXene) nanosheets using a simple hydrothermal process. Thus obtained NiHCF-Ti₃C₂ MXene nano-heterostructure has been applied toward the electrochemical detection of catechol (CA) and also as electrode material for supercapacitor fabrication. NiHCF-Ti₃C₂ MXene-based electrochemi-

cal sensor exhibited impressive electrocatalytic activity toward CA and revealed a broad linear range for the determination of CA from 10 μ M to 1.85 mM with a detection limit of 3.21 μ M, with good stability and reproducibility. Meanwhile, NiHCF-Ti₃C₂ MXene-based supercapacitor has resulted in a specific capacitance of 545 Fg⁻¹ at a current density of 1 Ag⁻¹, and not much decrease in capacitance after 2000 cycles at 15 Ag⁻¹ is noticed. The improved analytical characteristics and energy storage efficacy attained with the prepared heterostructure could be due to the synergistic effect between the redox-active NiHCF NPs and the highly conductive MXenes.

»»» Annual Day Celebrations 2025

UGC-DAE Consortium for Scientific Research, Indore celebrated its 36th Annual Day on 12th December, 2025. On this occasion, Prof. Umesh V. Waghmare, President, Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bengaluru was the Chief Guest and Prof. Rakesh Singhai, Vice Chancellor, Devi Ahilya Vishwavidyalay, Indore was the Guest of Honour. The function started with Dr. V. Sathe, Centre-Director, UGC-DAE CSR, Indore Centre, welcoming the guests. This was followed by the annual report presentation by Dr. Prof. Kaustubh R. S. Priolkar, Director, UGC-DAE CSR, Indore. He informed the major achievements of the Consortium such as utilization and development of various facilities and its research activities, specifically the role of Consortium in providing the access to the big science facilities of the country to the University researchers. Prof. Rakesh Singhai, Vice Chancellor, Devi Ahilya Vishwavidyalay, Indore addressed the gathering and emphasized the role of the Consortium in helping the researchers of various Universities, colleges and other educational institutes from different parts of the Country in their experiments. He also highlighted the continued cooperation and collaboration between the Consortium and DAVV and assured that it would continue in future as well.

Dr. S.S. Ghugre, Centre-Director, UGC-DAE CSR, Kolkata Centre, introduced the Chief Guest Prof. Umesh V. Waghmare, to the gathering, highlighting his scientific achievements and recognitions. Prof. Waghmare is a world renowned researcher and has received several prestigious awards all over the world for contributions to the physical sciences. Prof. Umesh V. Waghmare on this occasion delivered an Annual Science Day Lecture on Sensing vibrations using quantum geometry of electrons. In his lecture he gave an overview of the fundamentals of exotic properties related to electron vibration couplings in materials science. After the Chief Guest's address, Dr. P.D. Babu, Center Director, UGC DAE CSR, Mumbai Centre, proposed vote of thanks. The function was attended by members scientists and academicians from RRCAT, DAVV and other institutions and scientists and students of CSR. Prof. Waghmare also visited different laboratories of the CSR Indore Centre and interacted with the research scholars. Research scholars of the Consortium made poster presentations of their research work, during which the chief guest and other faculty interacted with the students. The day ended with a musical program.

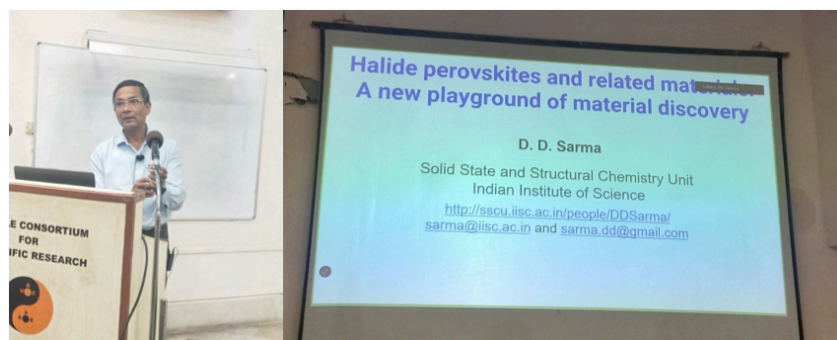


Prof. Kaustubh R. S. Priolkar, Director, UGC-DAE CSR, Indore presenting the Annual Report at the Bhide Auditorium of the Consortium.

Indore Centre

»»» Prof. V.G. Bhide memorial lecture organised at the Indore Centre

In commemoration of the birth centenary of our Founder Director, Prof. V. G. Bhide, the Consortium has instituted the Prof. V. G. Bhide Memorial Lecture Series. The inaugural lecture in this series was delivered by Prof. D. D. Sarma, National Science Chair Professor, IISc Bengaluru. Prof. Sarma delivered a lecture on November 10, 2025 titled "Halide perovskites and related materials: A new playground of material discovery". He also visited the laboratories of the consortium and interacted with the faculty and students.



»»» A Meeting on Advances in Condensed Matter Physics (ACMP-2025)



Some snapshots from ACMP 2025 conference.

The UGC-DAE Consortium for Scientific Research (UGC-DAE CSR), Indore Center, organized a Meeting on Advances in Condensed Matter Physics (ACMP-2025) from December 26-28, 2025.

The event was held at the Indore center and brought together leading international researchers and experts in the field. It featured invited talks by eminent condensed-matter physicists. The primary objective of ACMP-2025 was to explore and discuss recent trends, breakthroughs, and emerging directions in this area. Approximately 100 delegates, including students, participated in this event.

The meeting covered a wide range of topics in materials science, including ceramics, energy materials, superconducting, magnetic, optical, organic, quantum, and electronic materials. Additionally, synthesis and characterization tools, thin films, surfaces, and interfaces will also be key themes of discussion.

»»» Dr. Alok Banerjee Memorial Meeting

In the fond memory of Late Dr. Alok Banerjee, former Centre-Director, UGC-DAE CSR Indore Centre, a commemorative event was organized on 29th December, 2025 to honor his remarkable contributions to

science and research. The program brought together faculty members, students, and distinguished guests including Prof. A.K. Nigam, Prof. S.B. Roy, Prof. Sunil Nair, Prof. Ashna Bajpai and many others who joined online from within India and abroad. Through lectures and discussions, participants celebrated his achievements and the values he upheld throughout his career. The event served as a meaningful tribute and inspired the younger generation to pursue knowledge and innovation with the same passion.



»»» Rashtriya Karmayogi Large Scale Jan Seva Programme (RK-LSJSP)



Group photographs taken during the RK-LSJSP workshop held on 15th and 23rd September 2025 at UGC-DAE CSR, Indore.

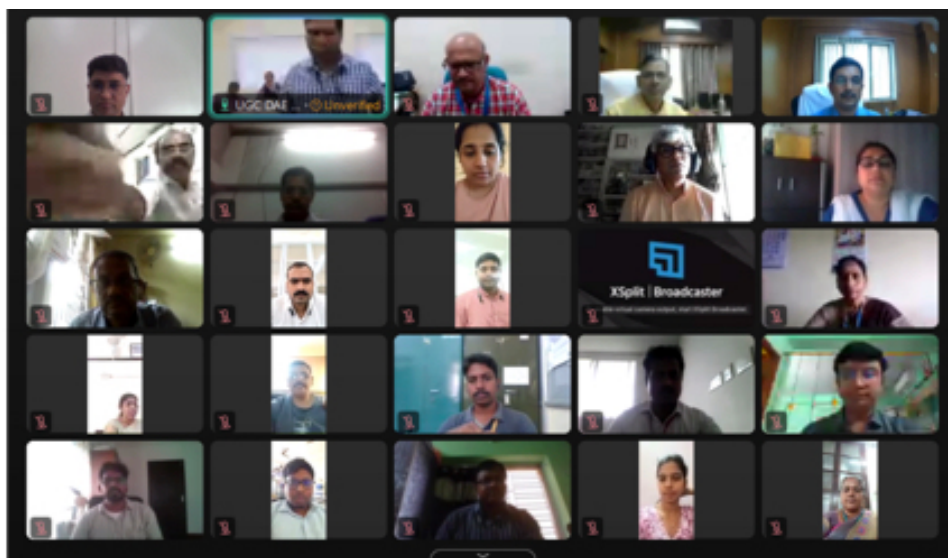
UGC-DAE CSR, Indore initiated action in compliance with UGCs letter D.O. No. F.1-1/2024(CBC) Part(1) dated 18.08.2025 regarding the Next Steps and Timelines for Cascading Training under the Rashtriya Karmayogi Large Scale Jan Seva Programme (RK-LSJSP). Accordingly, Shri Rajeev Bhagwat, Administrative Officer-II, and Shri Narian Kumar Lengay, Administrative Officer-I, attended the Master Training Programme held at Central University of Rajasthan from 01.09.2025 to 03.09.2025, conducted by Col. Vipin Kaushal, SM, Joint Secretary, UGC, and Dr. Diksha Rajput, Joint Secretary, UGC. Subsequently, Shri Narian Kumar Lengay was nominated as the Mission Designated Officer (MDO) on 03.09.2025 and registered on the iGOT Karmayogi portal on 11.09.2025. Thereafter, employees of the UGC-DAE CSR, Indore were onboarded on the iGOT Karmayogi platform and successfully undergone the mandatory cascading training sessions under RK-LSJSP in two batches on 15.09.2025 and 23.09.2025 in the Conference room of UGC-DAE CSR, Indore by Shri Rajeev Bhagwat and Shri Lengay. The Institute also places on record its sincere gratitude to Col. Vipin Kaushal, SM, Joint Secretary, UGC; Dr. Diksha Rajput, Joint Secretary, UGC; Shri Muddu Krishna, iGOT; and Shri Ashok Kumar, Pedgog, for their valuable guidance and support in successful implementation of the programme.

»»» Awareness Workshops 2025 (Online mode)

UGC-DAE CSR regularly organizes Awareness Workshops to increase awareness of research facilities available at the four centres to University, College and Institutional researchers across the country. This year the workshops were organized on 18, 19, 22, & 23 September 2025 in the online mode. The workshops were coordinated by different Centres in collaboration with the local coordinators, such that each workshop specifically catering to different geographical regions of the country. Thus all workshops together ensured pan India coverage.

The details of local coordinator and respective Centres are given below:

Date/Organising Centre		Local host/coordinators
September 18, 2025	Kolkata Centre/ Bhubaneswar Node	Dr. Goutam Biswas , Department of Chemistry, C.B.P.B.U, Cooch Behar, West Bengal Prof. Hui Tag , Dean Faculty of Life Sciences, R.G.U, Rono Hills, Doimukh, Arunachal Pradesh
September 19, 2025	Indore Centre	Dr. Sumalay Roy , Department of Physics and Astrophysics, DU, Delhi Prof. Prashant S. Alegaonkar , Central University of Punjab, Bathinda
September 22, 2025	Mumbai Centre	Dr. Oruganti Anjaneyulu , Department of Chemistry, Central University of Karnataka. Dr. Megha Vagadia , Department of Physics, Saurashtra University, Rajkot
September 23, 2025	Kalpakkam Centre	Dr. Anupam Sharma & Dr. Nilanjan Halder , Department of Nanoscience & Technology, Alagappa University, Karaikudi. Dr. R. Daniel , Department of Physics, Madras Christian College, East Tambaram, Chennai.



The program commenced with a welcome address by the local hosts/coordinators and Director/Centre Directors from UGC-DAE CSR followed by presentations on Synchrotron beamline facilities and in-house facilities by the Indore Centre, Neutron scattering, other BARC facilities and in-house facilities by the Mumbai Centre, Facilities at Variable Energy Cyclotron Centre and in-house facilities by the Kolkata Centre and facilities such as the ion-beam accelerator and in-house facilities at the Kalpakkam Centre. On this occasion, Prof. Kaustubh R.S. Priolkar, Director, UGC-DAE CSR, Indore, during his address, stressed the synergistic role of the consortium in the research of Indian universities. The facilities at Indore Centre were introduced by Dr. V.R. Reddy, Dr. Mukul Gupta, Dr. Ramjanay Choudhary, Dr. Archana Lakhani, Dr. Devendra Kumar and Dr. Dinesh Kumar Shukla. The Facilities at Mumbai Centre were introduced by Dr. P.D. Babu, Dr. S. Rayaprol, Dr. S.D. Kaushik, Dr. and Sumanta Chattopadhyay. BARC facilities were introduced by Dr. R. Acharya, BARC. The Facilities at Kolkata Centre were introduced by Dr. S. Ghugre, Dr. Rajashri Raut, Dr. A. Chakraborty, Dr. Goutam Ghosh, Dr. Goutam Pramanik and Dr. Rajib Mondal. The Facilities at Kalpakkam Centre were introduced by Dr. Awadhesh Mani, Dr. G.M. Bhalerao, Dr. Shamima Hussain, Dr. Sujoy Chakravarty and Dr. K Saravanan. The presentations were followed by an interactive discussion session on each day wherein a large number of participants discussed their queries essentially pertaining to the methodology towards the utilization of the facilities and CRS projects. Universities, colleges and institutes from different regions of the country participated on different days. The five workshops accommodated participants from northern region, eastern region, southern region, west and

central region and north east regions of the country respectively. The participants expressed their gratitude for this workshop and noted that these workshops made them aware of such state-of-the-art facilities within the country, which is conveniently accessible without any financial obligations to the users. The total number of participants in workshops put together is about 600. The response from the participants was encouraging and is expected to results in a pan India increase in the footprint of the Consortium.

»»» स्वच्छंद



राजभाषा कार्यान्वयन समिति, यूजीसी-डीएई वैज्ञानिक अनुसंधान संकुल, इंदौर की ओर से यू जी सी – डी ए ई वैज्ञानिक अनुसंधान संकुल के भिड़े सभागार में 12-08-2025 को "स्वच्छंद" कार्यक्रम का आयोजन किया गया। कार्यक्रम का प्रारंभ संकुल की कर्मचारी सुश्री मीनाक्षी गुप्ता जी के सरस्वती वंदना से हुआ। इस कार्यक्रम में संकुल के कर्मचारी, छात्र व उपयोगकर्ता हिंदी / क्षेत्रीय भाषा में विचार, व्याख्यान, भाषण, कविता पाठ आदि में भाग लिया। इस कार्यक्रम के अंतर्गत वाद-विवाद प्रतियोगिता का भी आयोजन किया गया। प्रतियोगिता में चयनित सफल प्रतिभागियों को पुरस्कार प्रदान किया गया। कार्यक्रम का संचालन संकुल के छात्र श्री योगेश कुमार व कुमारी प्रगति शर्मा ने किया। वाद विवाद कार्यक्रम का संचालन संकुल के वैज्ञानिक व समिति के सदस्य डॉ देबालया सरकार ने किया।

»»» हिंदी पखवाड़ा

राजभाषा कार्यान्वयन समिति, यूजीसी-डीएई वैज्ञानिक अनुसंधान संकुल, इंदौर की ओर से हिंदी पखवाड़ा के अवसर पर दिनांक 25 सितम्बर 2025 को यूजीसी-डीएई वैज्ञानिक अनुसंधान संकुल के भिड़े सभागार में 'विज्ञान वाणी' कार्यक्रम का आयोजन किया गया। इस अवसर पर डॉ. हेम चंद्र झा,, प्राध्यापक, भारतीय प्रौद्योगिकी संस्थान इंदौर और डॉ. संजय कुमार महाथा, वैज्ञानिक- डी, यू जी सी – डीएई सी एस आर, इंदौर ने व्याख्यान दिए। डॉ हेम चंद्र झा ने अपने व्याख्यान में "सूक्ष्मजीवी सह-संक्रमणों का विभिन्न रोगों पर प्रभाव" विषय पर चर्चा किया। उन्होंने विस्तार से समझाया कि कैसे मानव शरीर की एक प्रणाली का संक्रमण जैसे की पेट किसी अन्य प्रणाली जैसे की तंत्रिका अथवा फेफड़ों के संक्रमण को प्रभावित करता है। उन्होंने यह भी बताया कि किस प्रकार सह-संक्रमण एवं अन्य रोग, जैसे उच्च रक्तचाप, हृदय रोग, मधुमेह और कैंसर, COVID-19 जैसी महामारी की गंभीरता को बढ़ा देते

हैं। इस अवसर पर दूसरे वक्ता डॉ संजय कुमार महाथा ने “द्वि-आयामी पदार्थ और उनकी इलेक्ट्रॉनिक संरचनाएँ” विषय पर विस्तार से समझाया। उन्होंने स्फटिकीय ठोसों में अधिकांश भौतिक गुणों को निर्धारित करने में ऊर्जा पट्टी संरचना की भूमिका पर चर्चा करते हुए बताया कि कोण-विश्लेषित प्रकाश उत्सर्जन स्पेक्ट्रोस्कोपी (ARPES) एक अत्यंत शक्तिशाली एवं महत्वपूर्ण प्रायोगिक तकनीक है, जिसके माध्यम से संपूर्ण ऊर्जा - संवेग आरेख का अत्यधिक ऊर्जा एवं संवेग विभेदन के साथ मानचित्रण किया जा सकता है। उदाहरणस्वरूप कुछ नवीन द्वि-आयामी पदार्थों के प्रायोगिक परिणाम पर भी चर्चा किया। दोनों वक्ताओं ने व्याख्यान के बाद उपस्थित छात्रों, उपयोगकर्ताओं व वैज्ञानिकों के प्रश्नों के उत्तर दिए।



डॉ संजय कुमार महाथा (बाएं) व डॉ. हेम चंद्र झा (दाएं) हिंदी पखवाड़ा के अवसर पर “विज्ञान वाणी” कार्यक्रम में व्याख्यान देते हुए।

»»» Vigilance Awareness Week (2025)



On the directives of the Central Vigilance Commission, and in accordance with Circular No. 025/VGL/047 dated 23.10.2025, UGC-DAE CSR observed Vigilance Awareness Week 2025 during October/November 2025 on the theme सतर्कता: हमारी साझा जिम्मेदारी / Vigilance: Our Shared Responsibility. The observance commenced with the Integrity Pledge, administered on 07.11.2025 (Friday) at 11:00 a.m. across the UGC-DAE CSR centers.

“The UGC-DAE CSR Vigilance Cell plays a crucial role in upholding ethical and legal standards within our organization, ensuring that it operates with transparency, integrity, and accountability. Our continued efforts are directed toward maintaining a corruption-free environment to safeguard our reputation and retain public trust.”

Chief Vigilance Officer:

Dr. Dileep Kumar

Scientist-G

UGC-DAE Consortium for Scientific Research,

Khandwa Road, Indore - 452 001.

Phone: 0731-2463913, 2762267 (Ext:176)

»» राष्ट्रीय विज्ञान दिवस - 2026



27 फरवरी 2026 को यूजीसी-डीएई वैज्ञानिक अनुसंधान संकुल, इंदौर में राष्ट्रीय विज्ञान दिवस -2026 मनाया गया। इस अवसर पर डी.ए.वी.वी. और श्री वैष्णव विद्यापीठ, इंदौर के भौतिकी विभाग से लगभग 30 बी.एससी. और एम.एससी. छात्रों को आमंत्रित किया गया था। इस कार्यक्रम में संकुल के इंदौर केंद्र के सभी संकाय सदस्यों, छात्रों और कर्मचारियों ने भी भाग लिया।

समारोह सुबह 10:00 बजे प्रारम्भ हुआ। यूजीसी-डीएई सीएसआर, इंदौर केंद्र के केंद्र निदेशक डॉ. राजीव रावत ने उद्घाटन भाषण दिया, जिसमें उन्होंने विश्वविद्यालय अनुसंधान में महिलाओं को बढ़ावा देने में यूजीसी-डीएई सीएसआर की महत्वपूर्ण भूमिका पर जोर दिया। उन्होंने कहा कि कैलेंडर वर्ष 2025 में यूजीसी-डीएई सीएसआर, इंदौर के लगभग एक-तिहाई उपयोगकर्ता महिलाएं थीं। इस अवसर पर यूजीसी-डीएई सीएसआर, इंदौर के पूर्व केंद्र निदेशक डॉ. वी.जी. साठे ने रमन प्रभाव पर विशेष व्याख्यान दिया। उन्होंने रमन प्रभाव की खोज के महत्व पर प्रकाश डाला और प्रो. सी. वी. रमन के व्यक्तित्व के विभिन्न पहलुओं पर चर्चा की।

उद्घाटन सत्र के बाद, छात्रों को भौतिकी के मौलिक सिद्धांतों को समझाने के लिए सरल प्रयोगों का प्रदर्शन किया गया। इंदौर केंद्र के वैज्ञानिक और तकनीकी कर्मचारियों की सहायता से शोध छात्रों द्वारा पंद्रह प्रायोगिक प्रदर्शन किए गए। इन प्रयोगों में अंतर्निहित

भौतिकी के सिद्धांतों को पावरपॉइंट प्रस्तुतियों और मौखिक चर्चाओं के माध्यम से समझाया गया। वैज्ञानिक प्रदर्शनों की सूची इस प्रकार है।

क्र.सं.	विषय	दल
1	अतिचालक उत्थोलन	श्रेयांश चौहान, शिवांग चौधरी और मोहन गंगराडे
2	कागज का गर्म / ठंडा लगता है	
3	आकार स्मृति प्रभाव	
4	कमरे के तापमान पर पानी का उबलना	सृष्टि सरकार, भारती, समराज और काव्य धर्नजय, श्रेय वहिआ, नसीर, और हेमंत सिंह
5	दाबविद्युत प्रभाव और अनुप्रयोग	
6	प्रकाश की तरंग प्रकृति	
7	LiFi: प्रकाश के माध्यम से संचार	कोमल, अमित
8	गैर-न्यूटोनियन द्रव	सौरव मुखर्जी
9	इलेक्ट्रॉन विक्षेपण	
10	पेप्पर घोट	
11	ऊर्जा अंतराल की तापमान निर्भरता	विश्वेश्वर निगम, मीनल धनेतवाल और प्रियांशु चंद्राकर
12	टेस्ला कुंडल	मनीष नेगी, धीरज गुप्ता
13	प्रकाश का विकृति प्रेरित ध्रुवीकरण	
14	गैड/गुब्बारों के साथ तरल नाइट्रोजन का प्रदर्शन	
15	लेजर आधारित सुरक्षा प्रणाली	कपिल, मनीष नेगी, धीरज गुप्ता, शिवानी अंबरीश द्विवेदी और सौरभ शर्मा वरुण और मो. युनिस.

कार्यक्रम के बाद आने वाले छात्रों और संकायों के लिए प्रयोगशाला दौरे की भी व्यवस्था की गई थी, ताकि उन्हें संघनित पदार्थ भौतिकी के क्षेत्र में संकुल में उपलब्ध अनुसंधान उपकरणों की सूचना दिया जा सके, ताकि उन्हें अनुसंधान क्षेत्र के लिए प्रेरित किया जा सके। राष्ट्रीय विज्ञान दिवस -2026 कार्यक्रम यूजीसी-डीई सीएसआर, इंदौर की ओर से राष्ट्रीय विज्ञान दिवस समिति और हिंदी राजभाषा समिति द्वारा संयुक्त रूप से आयोजित किया गया था।

Outreach programs at the Indore Centre



Indore centre of the consortium hosted a bunch of outreach programmes in the form of field visits by the postgraduate and undergraduate students from colleges within and outside Indore. Such visits have been very instrumental in providing a holistic approach to connect classroom learning to realistic research methodology. This year there were visits by students from the following institutions.

- SAGE University Indore on 25 July 2025.
- Shri Vaishnav Institute of Management, Indore on 29 August 2025.
- IPS Academy, Indore on 12 November 2025.
- IPS Academy, Indore on 4 February 2026.
- VIT Bhopal University, Bhopal on 27 March 2026.

The students were provided an overview of the various high end facilities of the Center and then were taken around various laboratories. The students were introduced to the research activities of these laboratories

and also the technical details of these instruments. The students were also shown live research experiments, wherever possible in order to motivate them to pursue a career in scientific research. The laboratory visits were coordinated by one or more scientists which also gives an opportunity for the students to interact with the experts in the field.

»»» CSR Colloquia and Seminars Organised at the Indore Centre

S.No.	Date	Title	Speaker and Affiliation
1	13/03/2025	New organizational principle for Electronic Phases in Quantum Materials	Prof. Yogesh Singh , Department of Physical Sciences, Indian Institute of Science Education and Research, Sector 81, SAS Nagar, Mohali-140306.

»»» Sports and Recreation activities at Indore Centre



Incorporating sport into research students' schedules is essential for their well-being. In line with this goal, the Sports and Recreation Committee (SRC) of the Indore Centre hosted the Annual Tournaments 2025-2026 for four sports: Cricket, Volleyball, Badminton, and Table Tennis, bringing students and staff from different labs and sections together. This fostered a strong sense of unity, as diverse teams were formed comprising students from various labs, scientists, engineers, junior engineers, and administrative staff. These sporting events successfully brought members of the Consortium together while also boosting their physical health and fitness.

The Table Tennis Tournament took place from July 15th to 21st, 2025, at the UGC-DAE CSR indoor TT hall, featuring both Singles and Doubles categories for Men and Women. The event showcased high-

intensity rallies and remarkable precision in gameplay. In the Men's Singles, Mr. Bhushan Jain clinched the first position with exceptional skill, while Mr. Sanjay Singh Thakur achieved a commendable second place. On the Women's Singles side, Ms. Manisha Priyadarshini emerged victorious, securing the first position, followed closely by Ms. Satabdi Sahu in second place. In Men's Doubles, the duo of Dr. Dileep Kumar and Mr. Bhushan Jain demonstrated remarkable synergy to take first place, with Mr. Pramod Bhakuni partnering with Mr. Satish Yadav to finish as runners-up. The Women's Doubles category saw Ms. Manisha Priyadarshini and Ms. Satabdi Sahu dominate the competition, earning first place, while Ms. Aditi Agarwal and Ms. Jyoti Sharma secured the second position.

The Volleyball Tournament was held from 4 to 5 August 2025 at the DAVV ground, with men's and women's categories. The event showcased coordination and sportsmanship. In the men's category, six teams competed; Mr. Yogesh Yadav's team won 1st place, and Mr. Sushil Sharma's team came 2nd. In the women's category, Ms. Isha Lallar's team secured 1st place, highlighting strategic gameplay and athletic skill.

The Badminton Tournament took place from 1 to 11 August 2025 at the DAVV Indoor Stadium, featuring Singles and Doubles competitions in both Men's and Women's divisions. The event showcased remarkable athletic talent, with players demonstrating impressive agility and stamina. In the Men's Singles, Mr Md Balal won first place, with Dr Dileep Kumar finishing second. In the Women's Singles, Ms Pragati Sharma claimed first place, while Ms Manisha Priyadarshini was the runner-up. The Men's Doubles saw Mr Md Balal and Mr Koushik Chakraborty take first place, with Mr Dileep Kumar and Mr Satish Yadav as runners-up. In Women's Doubles, the team of Ms Pragati Sharma and Ms Manisha Priyadarshini secured first place, while Ms Jyoti Sharma and Ms Shivani Malvi finished second.

The awards for the winners were presented in a ceremony held on Independence Day, 15/08/2025.

The Cricket Tournament for the year 2026 was conducted at the University ground on February 14-15, 2026, featuring four competing teams in Mens category and two teams in women category. Team Kamala under the leadership of Ms Jyoti Sharma emerged as the winner of the Womens competition, while team Sarabhai captained by Mr. Bhushan Jain, emerged victorious, claiming the first position, while Team Bose, led by Mr. Koushik Chakraborty, secured the runner-up position. Awards for player of the match were presented to Ms Palthya Bharathi and Mr Prakash Shinde.

The diligent efforts of the committee members and dedicated volunteers were pivotal to the successful conduct of the tournaments. The sports committee is optimistic about cultivating a more dynamic and competitive athletic session in the forthcoming year, with plans to increase participation. -Team SRC (Jyoti Sharma, Manish Negi, Rakesh Sah, Layanta Behra, S. S. Thakur, A. Lakhani, D. Singh & V. R. Reddy)

»»» Sky Gazing Activities

UGC-DAE CSR Indore Centre has started to routinely organize sky gazing activity in the institute premises using Celestron Nexstar 8SE telescope. Such events were held on 09/04/2025, 07/11/25, 10/11/25 and 16/01/26. The events were attended by the staff and the students of the Indore Centre. Students of nearby institutes including DAVV and Holkar Science College as well as school children also participated and had a glimpse of various celestial objects. Lunar craters including Tycho, Kepler, Aristarchus, and Grimaldi, Venus, Mars, Saturns ring, Titan moon, Jupiters Galilean moons Europa, Ganymede, Callisto, Io etc. were observed.



Kolkata Centre

Hindi Pakhwada

हिंदी पखवाड़ा



हिंदी पखवाड़ा २०२५ (१ सितम्बर – १५ सितम्बर) के अंतर्गत दिनांक ०९ सितम्बर २०२५ को यु.जी.सी.-डी.ए.ई. सी.एस.आर., कोलकाता केंद्र के व्याख्यान कक्ष में एक शैक्षिक एवं साहित्यिक व्याख्यान का सफल आयोजन किया गया।

कार्यक्रम का शुभारंभ **केंद्र-निर्देशक, डॉ. संदीप एस. घुगरे** द्वारा किया गया। अपने उद्घाटन संबोधन में उन्होंने हिंदी भाषा के महत्व पर प्रकाश डालते हुए कहा कि हिंदी ने देश की एकता, अखंडता तथा विज्ञान के प्रति जागरूकता बढ़ाने में महत्वपूर्ण भूमिका निभाई है। उन्होंने यह भी रेखांकित किया कि हिंदी केवल सांस्कृतिक अभिव्यक्ति का माध्यम ही नहीं, बल्कि समाज में वैज्ञानिक दृष्टिकोण को सुदृढ़ करने का सशक्त साधन भी है।

इस क्रम में शैक्षिक प्रस्तुतियों की शुरुआत श्री अनिल शर्मा (सीनियर रिसर्च फेलो, न्यूक्लियर फिजिक्स समूह) द्वारा **"हिंदी साहित्य में विज्ञान"** विषय पर व्याख्यान से हुई। उन्होंने साहित्य और विज्ञान के परस्पर संबंधों को स्पष्ट करते हुए बताया कि साहित्य समाज का दर्पण है, जो मानवीय संवेदनाओं और जीवन की वास्तविकताओं को प्रस्तुत करता है, जबकि विज्ञान आधुनिक जीवन को दिशा देने वाला आधार है। उन्होंने अपने विचारों के माध्यम से हिंदी साहित्य में वैज्ञानिक चेतना और उसके प्रेरणादायी स्वरूप को प्रभावी ढंग से प्रस्तुत किया।

इसके पश्चात श्री शुभम पाल (क्लर्क-टाइपिस्ट) ने **"हिंदी में प्रशासन – सुगम संप्रेषण, सशक्त क्रियान्वयन"** विषय पर अपनी प्रस्तुति दी, जिसमें उन्होंने कार्यालयीन कार्यों में हिंदी के प्रयोग को बढ़ावा देने की आवश्यकता पर बल देते हुए प्रशासनिक एवं तकनीकी कार्यों को सरल, प्रभावी और अधिक सुगम बनाने के व्यावहारिक उपाय साझा किए।

कार्यक्रम के अंत में हिंदी समिति के अध्यक्ष श्री सौरव सरकार (प्र.अ.-१) तथा समिति सदस्य श्रीमती अपर्णा दत्ता (एस.ए.-एफ), श्री मुकेश कुमार (एस.ए.-एफ) एवं श्री अभय कुमार सेठ (नि.सा.(के.नि.)) ने विज्ञान और भाषा की परंपरा पर अपने विचार व्यक्त किए। सभी वक्ताओं ने एक स्वर में इस बात पर जोर दिया कि हिंदी भाषा को वैज्ञानिक एवं प्रशासनिक कार्यों में और अधिक सशक्त बनाने की दिशा में निरंतर प्रयास किए जाने चाहिए। कार्यक्रम ज्ञानवर्धक, प्रेरणादायी एवं सफल रहा।

Vigilance Awareness Week (2025)

The Kolkata Centre of UGC-DAE Consortium for Scientific Research proudly observed the Vigilance Awareness Week 2025 from 27th October to 02nd November 2025,



in accordance with the directives issued by the Central Vigilance Commission (CVC).

The program was inaugurated at 11:00 a.m. on 27th October 2025 by Dr. Sandeep S. Ghugre, Centre Director, Kolkata Centre, in the Lecture Hall and commenced with the Integrity Pledge, by members of the staff and research scholars, both as individual citizens as well as collectively as an Organization. The oath was administered by the Shri. Sourav Sarkar, Administrative Officer-I, Kolkata Centre. Through this pledge the Kolkata Centre reaffirms its unwavering dedication to fostering integrity, transparency, and ethical conduct in all the endeavours.

As a part of the VAW 2025, a lecture on the designated theme "Vigilance: Our shared responsibility" was delivered by the Deputy Chief Vigilance Officer Shri Nishant Pilania, Syama Prasad Mookerjee Port, Kolkata (formerly Kolkata Port Trust), on 31st October 2025. The staff and students of the Kolkata Centre, attended this presentation, and actively participated in the interactive discussions with the resource person. The lecture highlighted the significance of awareness of vigilance practises and provided important insights on the different forms of vigilance, such as preventive vigilance, surveillance, punitive vigilance etc.

The event concluded with a vote of thanks delivered by the Centre-Director. It is envisaged that the programme will inspire and further the commitment to integrity and ethical conduct among all the stakeholders.

Outreach programs

As part of the academic curriculum, groups of undergraduate students from the Department of Physics, Presidency University (25 April 2025), the Department of Physiology, Harimohan Ghose College (11 November 2025), and Ramakrishna Mission Vidyamandira (24 February 2026) visited the Kolkata Centre of UGC-DAE CSR during the academic year 2025-2026.

The programme commenced with an introductory lecture by the Centre Director. Following this, the visiting students toured various sections of the Centre, including Nuclear Physics, Radiation Chemistry, Materials Science, and Radiation/Stress Biology. Demonstrations of ongoing research activities covering areas such as nuclear physics, molecular biology, cancer biology, cell biology, materials science, radiation chemistry, and trace element analysis were conducted under the guidance of faculty members of the Kolkata Centre, in alignment with the NEP curriculum.



One day Research Scholars' Training program

As part of the Scientific Social Responsibility (SSR) initiative under an ANRF (SERB)-funded project, a one-day training programme for research scholars was organized on 9 March 2026 at the Newtown Campus of the Centre. The programme commenced with an inaugural address by the Centre Director, followed by three technical lectures delivered by experts: Prof. Siddhartha Lal (IISER Kolkata), Prof. Arumugam Thamizhavel (TIFR, Mumbai), and Prof. Arnab Bhattacharya (HBCSE, TIFR).



The technical sessions were followed by interactive discussions and laboratory visits for the participating scholars. Research scholars from nearby universities and institutes including the University of Calcutta, Jadavpur University, the University of Kalyani, and IEST Shibpur participated in the programme. Additionally, faculty members from Dumdum Motijheel College and Kazi Nazrul University, Asansol, attended the expert lectures.

Colloquium lecture by Prof. Arup Kumar Raychaudhuri

Prof. Arup Kumar Raychaudhuri, INSA Senior Scientist at the UGC-DAE Consortium for Scientific Research, Kolkata Centre, delivered a colloquium titled "October Revolution 2018: SI Units, Calibration, Accreditation and World Trade" on 4th December 2025. The talk was also streamed live on the Centres YouTube channel.

In his lecture, Prof. Raychaudhuri explained the shift from traditional artifact-based definitions of units such as the kilogram and the meter which have now been replaced by definitions grounded in fundamental physical constants. Constants like the speed of light (c), Planck's constant (h), and the elementary charge (e), among others, are now used to define SI units. Notably, even the kilogram is currently defined in terms of Planck's constant.

He also discussed the scientific principles and methodologies involved in establishing and realizing these definitions. In addition, he highlighted the role of laboratory accreditation processes, such as those conducted by NABL in India, in ensuring that physical standards maintained at the National Physical Laboratory, New Delhi traceable to international benchmarks are reliably transferred to industrial products and services.



Colloquium lecture by Dr. Sudipta Roy Barman

Dr. Sudipta Roy Barman, Emeritus Scientist at the UGC-DAE Consortium for Scientific Research, Indore Centre, delivered a lecture titled Application of Photoelectron Spectroscopy in Basic Research on 20th February 2026. The talk provided detailed insights on the techniques of photoelectron spectroscopy, which is one of the principal methodologies for understanding the electronic structure of materials.

Dr. Barman then presented selected examples from his group's research using hard X-ray photoelectron spectroscopy (HAXPES), highlighting its effectiveness in probing the bulk electronic structure of materials. He concluded with an example demonstrating the use of angle-resolved photoemission spectroscopy (ARPES) to obtain direct insights into electronic band structures.

Colloquium lecture by Dr. Rajamani Raghunathan

Dr. Rajamani Raghunathan, Scientist at the UGC-DAE Consortium for Scientific Research, Indore Centre, delivered a talk titled Symmetry Breaking and the Spin-Splitting Paradox in Antiferromagnets on 2nd December 2025.

In his lecture, he explored the theoretical foundations of spatial symmetries such as translation, rotation, and reflection along with their spin analogue, time-reversal symmetry (TRS), and various combinations of these. He explained how these symmetries govern spin-splitting in the energy bands of antiferromagnets (AFMs). He also introduced a special class of AFMs called altermagnets, which display anisotropic spin-splitting between up- and down-spin energy bands. This behavior resembles Rashba-type spin splitting but occurs without the need for spin-orbit coupling.

Furthermore, he examined how both explicit and spontaneous symmetry breaking contribute to spin-splitting in AFMs. Such materials are capable of supporting spin currents, exhibiting the spin Hall effect, and demonstrating magnetoresistance, making them strong candidates for energy-efficient spintronic applications.

»»» Inauguration of “S. N. Chintalapudi Lecture Hall”



As part of the Centres expansion programme, the Lecture Hall at the New Campus of the Kolkata Centre, located within the VECC Rajarhat Campus, Newtown, has been named the S. N. Chintalapudi Lecture Hall in fond memory of the founder Centre-Director, Late Dr. S. N. Chintalapudi. The hall was inaugurated on 24th February 2026 by Prof. Kaustubh R. S. Priolkar, Director, UGC-DAE CSR, Indore. Apart from the present members of the Centre, the programme was attended by some of the former employees and students who had been associated with Dr. S. N. Chintalapudi.

Following the inauguration, the Director delivered a colloquium lecture to the Centres employees, research scholars, and visiting students from Ramakrishna Mission Vidyamandira.

»»» Summer Internship program and M.Sc. project

As part of the academic curriculum under the CCF framework of the University of Calcutta, aligned with NEP 2020, a group of undergraduate students from the Department of Physics, Bethune College, Kolkata, visited the Kolkata Centre to undertake a summer internship from 14 May 2025 to 2 June 2025. During this period, the students worked on two projects: (i) Design and Fabrication of a Screw Jack using CAD and Lathe Operations, and (ii) Arduino-based electronics experiments, including the design and implementation of a voltage regulator and an astable multivibrator using a 555 timer, which involved the fabrication and performance analysis of basic electrical equipment used in undergraduate laboratories.

Subsequently, another group of undergraduate students from the Department of Physics, Ramsaday College,

Amta, attended a summer internship at the Kolkata Centre from 2 June 2025 to 16 June 2025.

In addition, students from Presidency University completed their M.Sc. (Physics) projects under the guidance of faculty members from various sections of the Centre.

Upon successful completion of their respective projects, all students submitted their project reports for evaluation.

»» Meeting on Utilization of SCC at VECC for Nuclear Physics Experiments

The meeting was directed at deliberations on the possible nuclear physics programs using the Superconducting Cyclotron (SCC) Facility at VECC, Kolkata, with beam energies 20 MeV/u, SCC provides a unique energy domain to probe myriad and exotic phenomena in nuclear structure and dynamics. It attended by around 30 participants from universities and institutions across the country. Dr. Tilak Ghosh, VECC, welcomed the participants and briefly outlined the background of the meeting. Dr. Vaishali Naik, Head, Physics Group, RIBF Group and EHEP&A Group at VECC, further elucidated on the scope of the meeting and the plans for furthering the user based programme at the SCC. She clarified that the present meeting is primarily directed at the fraternity working in nuclear reactions, since the associated facilities are currently available at the SCC. Meetings on nuclear structure studies and/or applications are planned eventually. A physical meeting, is being planned at VECC and will pertain to the presentation of specific experimental proposals, which are expected to be formulated following the deliberations initiated through this meeting, for implementation at the SCC. Dr. Sumit Som, Director, VECC commended the efforts at SCC that have translated into the availability of different beams and expressed hope that the facility will make further progress following the developmental endeavours being undertaken towards increasing the choice of beams and/ or the associated energies. Prof. Kaustubh R. S. Priolkar, Director, UGC-DAE CSR, highlighted on the continuing mandate of the Consortium to support university research using both the mega-facilities of the DAE as well as the in-house facilities at the different Centres of the Consortium. He stated that the same support will be sustained for the use of the SCC Facility. The presentation by Dr. Kaushik Banerjee, Head, NR Section at VECC, outlined some of the details of the SCC and the different experimental facilities currently available therein. He highlighted some of the results that have been accomplished using the SCC, till day. Dr. Rajarshi Raut of UGC-DAE CSR, Kolkata Centre added that offline gamma-ray measurement facilities are also available at the Centre and may be used for activation based measurements, following irradiation at the SCC. This was followed by a session of interactions with the participants, and was coordinated by Dr. Sandeep S. Ghugre, Centre-Director, UGC-DAE CSR, Kolkata Centre. The queries spanned topics relevant to the experimental setups, possible beams, prospective measurements as well as resource and logistic support available for the university users for their experiments at the SCC. These queries were addressed by the resource persons in the meeting and are expected to facilitate the experimental proposals for subsequent submission. The meeting ended with a Vote of Thanks delivered by Dr. Rajarshi Raut of UGC-DAE CSR, Kolkata Centre.

Mumbai Centre

»»» 21st School on Neutrons as Probes of Condensed Matter (NPCM-2025)

21st School on Neutrons as Probes of Condensed Matter (NPCM-2025) was jointly organised by the UGC-DAE CSR, Mumbai Centre and the Solid State Physics Division (SSPD), BARC during November 25-29, 2025 at the Multipurpose Hall, Training School Hostel, Anushakti Nagar. This five-day long school covered theoretical lectures, tutorials, and also hands-on experiments on various aspects of neutron scattering based condensed matter research. During this school, fifteen lectures were delivered by experts from UGC-DAE CSR, Mumbai Centre and SSPD, BARC covering foundation of neutron scattering technique and various facets of it including neutron diffraction, inelastic neutron scattering, small angle neutron scattering, neutron imaging, neutron detectors etc. In addition, four tutorials on neutron diffraction, small angle neutron scattering, and polarized neutron reflectometry data analysis were conducted. On the third and fourth days of the NPCM-2025 school, participants took part in the hands-on experimental training sessions at the Dhruva reactor, BARC. Participants were divided into several small groups and each of these groups participated in two experiments. All neutron scattering instruments available under National Facility for Neutron Beam Research (NFNBR) were utilized for these hands-on training sessions. On the final day of the school, in the concluding session, a feedback session was arranged involving all the participants.

Participation in the NPCM-2025 school was entirely based on application basis. Around 200 applications were received against the call for application for this school. These applications were essentially from all different regions of our country including distant places like North-east region and Jammu & Kashmir pointing out the level of enthusiasm and awareness in the Indian material research community about the importance of neutron scattering based experimental techniques for their research work. After thorough review of the submitted applications, 93 participants were selected for attending NPCM-2025. Among them 19 were faculty/scientist/post-doc/Research Associate, 68 were students from various Indian universities, research institutions, and 6 were scientific officers from BARC and associated centres. Due to sustained demand from non-selected participants, lectures were also streamed online using Webex platform. More than 50 participants attended in online mode.

Awards, Honours and Recognitions

1. Dr. Sandeep S. Ghugre, Centre-Director, Kolkata Centre has been elected as a Fellow of the National Academy of Sciences, India (NASI), in 2025.
2. Dr. V.R. Reddy, Scientist-H, Indore Centre has been elected as a Fellow of the National Academy of Sciences, India (NASI), in 2025.
3. Dr. Rajarshi Raut has been invited to be a Member of the Board of Studies (UG & PG) of the Department of Physics, Panskura Banamali College, West Bengal, in 2025.
4. Dr. Shamima Hussain, Scientist-G, has been elected as the Fellow of the Academy of Sciences, Chennai.
5. Dr. Souvik Chatterjee, Scientist-F, invited to be a member of the Facility Access Panel (FAP1 Crystallography) of ISIS facility, Rutherford Appleton Laboratory, UK, during June 2022-December 2025.
6. Dr. Debalaya Sarker, Scientist-D, has received the Empowering Women in Science Award from Indian Institute of Chemical Engineers, on 12/04/2026.
7. Dr. Sanjoy Kr Mahatha, Scientist-D, was invited as an honorable member of the Discussion Panel of NCES 2025, IISER-Bhopal, Bhopal during 20-22 November 2025.
8. Mr. Sambit Choudhury, Research Scholar has won the best poster presentation award at MRSI-ICEM 2025 on 20/12/2025.
9. Ms. Priyanshi Tiwari, Research Scholar UGC-DAE CSR, Indore has received the prestigious Best Poster Presentation Award at 69th DAE-SSPS-2025, held at IIT Roorkee on 19-23/12/2025.
10. Smritiparna Ghosh, Research Scholar UGC-DAE CSR, Indore has received the prestigious Best Poster Presentation Award in HERCULES European School: Neutrons & Synchrotron Radiation for Science 2025–26, held at Grenoble on 29/03/2026.
11. Meenal Dhanetwal, Research Scholar UGC-DAE CSR, Indore has received the prestigious Best Poster Presentation Award in South Asia Ferroelectric Symposium (SAFS-2025), held at IISc, Bengaluru on 5-8/08/2025.

Ph.D thesis

Indore Centre

► In-House

1. Mr. Suman Karmakar, "Study of Electrical and Magnetic Transition in 3d Transition-Metal Dichalcogenides", UGC-DAE CSR, has been awarded PhD degree by DAVV, Indore, March 2026 under the supervision of Dr. R. Rawat.
2. Mr. Rakhul Raj, "Study of Magnetic Domains and Their Dynamics Using Pulsed Magnetic Fields", awarded Ph.D. in November 2025, DAVV university Indore, under the supervision of Dr.V. R. Reddy.
3. Ms. Megha Malasi, Awarded Ph.D degree on 26 May 2025, under the supervision of Dr.Devendra Kumar.
4. Ms. Najnin Bano, Thermal and electrical transport phenomena in magnetic materials on March 30, 2026 under the supervision of Dr. Dinesh Kumar Shukla.

5. Mr. Parveen Garg, "Electronic and Optical Properties of Transition Metal Compound Photoelectrodes for Water Splitting", 09/2025, DAVV University under the supervision of Dr. Uday P. Deshpande.

► Under CRS

2. Ms. Nidhi Pathak, 'Synthesis of Titanium-Tungsten Oxide Doped Borosilicate Glasses for Near Infrared Shielding Application', 15/01/2026, Central University of Gujarat, under the supervision of Dr. Charu Lata Dube.
3. Mr. Sanjay Kumar, "Exploring the Ground State of Geometrically Frustrated Magnetic System", 16/02/2026, Manipal University Jaipur, under the supervision of Dr. Rashi Nathawat, Dr. Satyapal Singh Rathore & Dr. Arvind Kumar Yogi.
4. Mr. Hardika Goswami, Saurashtra University, Rajkot
5. Mr. Sanand Kumar, Guru Ghasidas Vishwavidyalaya, Bilaspur
6. Mr. Yash Dhir, Department of Physics and Material Sciences, Thapar Institute of Engineering and Technology, Patiala during June-July 2025.
7. Ms. Akanksha, Department of Physics and Material Sciences, Thapar Institute of Engineering and Technology, Patiala during June-July 2025.

Kolkata Centre

► In-House

19. Mr. Sanat Kumar Adhikari, "Magnetic And Magneto-Functional Properties Of Some Novel Mn-Based Alloys", 11/2025, University of Calcutta under the supervision of Dr. Souvik Chatterjee.
20. Miss. Riya Roy, "Structural And Magnetic Investigation Of Some Mn-Based Smart Materials", 02/2026, University of Calcutta under the supervision of Dr. Souvik Chatterjee.
21. Mr. Suvronil Chatterjee, "Experimental Investigation Of Single Particle Configurations Across The Nuclear Chart.", 05/2025, University of Calcutta under the supervision of Dr. Sandeep S. Ghugre and Dr. Rajarshi Raut.

Mumbai Centre

► In-House

1. Mr. Nitin Kumar, "Investigations of Broadband Dielectric Response and Other Properties of some Complex Perovskite-Based Materials", 07/2025, Savitribai Phule Pune University under the supervision of Dr. S. K. Deshpande.

Kalpakkam Centre

► In-House

1. Mr. Mandeep Jangra, "Synthesis And Characterisation Of Freestanding Polymer Composite Films For Device Applications", 05/2025, The University of Madras under the supervision of Dr. Shamima Hussain.
2. Mr. Somesh Chandra, "Experimental and Computational Studies on the Structural, Vibrational, Magnetic, and Optical Properties of MgCu_2O_3 ", 11/2025, The University of Madras under the supervision of Dr. G. M. Bhalarao.

M.Sc. / M.Phil / B.E. / M.E. / M. Tech. / Summer trainees**Indore Centre**

1. Mr. Sangay Tenzin, the Royal University of Bhutan
2. Mr. Tshering Dorji, the Royal University of Bhutan
3. Mr. Krishna Tolumbia, School of Physics, Devi Ahilya VishwaVidyalya
4. Ms. Yash Dhir, Department of Physics and Material Sciences, Thapar Institute of Engineering and Technology, Patiala.
5. Ms. Akanksha, Department of Physics and Material Sciences, Thapar Institute of Engineering and Technology, Patiala.
6. Mr. Hritik Singh, School of Physics, Devi Ahilya VishwaVidyalya
7. Ms. Pragya Agrahari, School of Physics, Devi Ahilya VishwaVidyalya
8. Ms. Disha Patidar, Holkar Science College
9. Mr. Kuldeep Tiwari, Holkar Science College
10. Mr. Dheeraj Patel, DAVV, Indore
11. Ms. Vibha, DAVV, Indore
12. Ms. Akanksha, DAVV, Indore
13. Mr. Devansh Patel, DAVV, Indore
14. Ms. Grishika Parde, DAVV, Indore
15. Mr. Priyansh Kushwaha, DAVV, Indore
16. Ms. Kaavya, DAVV, Indore
17. Ms. Khushi Yadav, DAVV, Indore

Kolkata Centre

15. Mr. K Shivanand Thakur, Department of Physics, Nagaland University, Lumami, under the supervision of Dr. Souvik Chatterjee.
16. Mr. Krishanu Kumar, Department of Physics, Presidency University, Kolkata, under the supervision of Dr. Souvik Chatterjee.
17. Mr. Shoyeb Ali, Department of Physics, Presidency University, Kolkata, under the supervision of Dr. Rajib Mondal.
18. Mr. Aship Chettri, Department of Physics, Sri Sathya Sai Institute of Higher Learning, Prasanthi Nilayam, under the supervision of Dr. Rajarshi Raut.
19. Ms. Aratrika Sengupta, Department of Physics, Presidency University, Kolkata, under the supervision of Dr. Rajarshi Raut.
20. Mr. Rahul Das, Department of Physics, Presidency University, Kolkata, under the supervision of Dr. Rajarshi Raut.
21. Mr. Arya Lengade, Department of Physics, Cotton University, Guwahati, under the supervision of Dr. Sandeep S Ghugre and Dr. Rajarshi Raut.

22. Ms. Anjali Kumari, Department of Physics, Cotton University, Guwahati, under the supervision of Dr. Sandeep S Ghugre and Dr. Rajarshi Raut.
23. Ms. Garima Chetia, Department of Physics, Cotton University, Guwahati, under the supervision of Dr. Sandeep S Ghugre and Dr. Rajarshi Raut.
24. Ms. Sumedha Mallick, Department of Physics, Presidency University, Kolkata, under the supervision of Dr. Sandeep S. Ghugre.
25. Mr. Baibhab Kar, Department of Physics, Presidency University, Kolkata, under the supervision of Dr. Sandeep S. Ghugre.
26. Mr. Arka Basak, Department of Physics, Presidency University, Kolkata, under the supervision of Dr. Sandeep S. Ghugre.
27. Ms. Udit Barui, Food and Nutrition Department, Kalyani University, under the supervision of Dr. Ujjal Das.
28. Ms. Megha Roy, Food and Nutrition Department, Kalyani University, under the supervision of Dr. Ujjal Das.
29. Ms. Ms Ahana Pal, Sister Nivedita University, under the supervision of Dr. Ujjal Das.
30. Ms. Beas Bandyopadhyay, Health Science Department, Presidency University, under the supervision of Dr. Goutam Ghosh.
31. Mr. Ashik Mandal, Department of Chemistry, Presidency University, under the supervision of Dr. Goutam Pramanik.
32. Mr. Rounak Atha, Department of Chemistry, Presidency University, under the supervision of Dr. Goutam Pramanik.
33. Ms. Effat Raita, Department of Physics, Presidency University, under the supervision of Dr. Goutam Pramanik.
34. Mr. Debayan Panda, Department of Physics, Presidency University, under the supervision of Dr. Goutam Pramanik.
35. Ms. Divya Jain, Department of Biosciences, JIS University, under the supervision of Dr. Goutam Pramanik.

Mumbai Centre

1. Mr. Sarkate Om Kisan, Pillai HoC College of Arts, Science and Commerce, Rasayani.
2. Mr. Shinde Anuj Raju, Pillai HoC College of Arts, Science and Commerce, Rasayani.

Kalpakkam Centre

1. Mr. Debanujan Nath, St. Xaviers College Kolkata
2. Mr. Bevan Mathew, IISER , Berhampore

LIST OF PUBLICATIONS (As on 31/03/2026)**Indore Centre**

1. **Corrosion protection of mild steel substrates using silver nanoparticles synthesized from *Nicotiana tabacum* leaf extract**
Preeti Jain, Jeetendra Bhawsar, Archana Lakhani, Balram Patidar
INDIAN JOURNAL OF CHEMICAL TECHNOLOGY, **32** (2025).
2. **Revealing the role of Fe and Ti in the quest for different magnetic ordering in double perovskite $\text{Sr}_2\text{FeTiO}_6$**
Divya Kumari, Digvijay Narayan Singh, Sourav Chowdhury, R. J. Choudhary, Seema Sharma
MATERIALS CHEMISTRY AND PHYSICS, **334**, 130411 (2025).
3. **Effect of deposition pressure on the superconductivity of $\text{Ti}_{40}\text{V}_{60}$ alloy thin films**
Pandey, Shekhar Chandra, Shilpam Sharma, R. Venkatesh, Ashish Khandelwal, L. S. Sharath Chandra, and M. K. Chattopadhyay.
SUPERCONDUCTOR SCIENCE AND TECHNOLOGY, **39**, 025008 (2026)
4. **Eutectic microstructure and its effect on electrical and magnetic properties of V-Ti-Si alloy superconductors**
Khandelwal, Asi, L. S. Sharath Chandra, Archana Sagdeo, Rashmi Singh, Mohan Gangrade, R. Venkatesh, and M. K. Chattopadhyay.
MATERIALS SCIENCE AND ENGINEERING: B **317** (2025): 118158
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416. **Indication of room-temperature magnetodielectricity and weak spontaneous polarization in (Sr, Mn) co-doped $\text{La}_2\text{FeCrO}_6$**
Sumanta Mukherjee, Swapnil Shukla, Ranjan Das, Samyabrata Paria, Kazi Parvez Islam, Sharad Kumar Yadav, Sanjay Kumar Upadhyay, Debraj Choudhury, Akshay Singh, and D. D. Sarma
JOURNAL OF PHYSICS: CONDENSED MATTER **37**, 495802 (2025).
417. **Experimental and DFT analysis of antisite disorder and Griffiths phase in $\text{Dy}_2\text{CoMnO}_6$: structural, electronic, and magnetic insights**
Shubha Dubey, Marcus Einert, Vipin Kumar, Kumud Dubey, Kuldeep Singh, Dipti Gawande, R. K. Sharma, Gitanjali Pagare, and N. K. Gaura
JOURNAL OF MATERIALS CHEMISTRY C **13**, 10282 (2025).
418. **Comprehensive study on the synthesis, crystal structure, vibrational, and dielectric characteristics of $\text{Tb}_{0.5}\text{Ba}_{0.5}\text{CoO}_3$**
Shubha Dubey, Kumud Dubey, Nitin Kumar, Gitanjali Pagare, N. K. Gaur
MATERIALS LETTERS **389**, 138369 (2025).

419. **Evolution of Temperature-Dependent Electrical and Magnetic Behavior in a Series of Antimonate Triple Perovskite $\text{Sr}_3\text{CoSb}_{2-x}\text{Ti}_x\text{O}_9$**
Muntha Majeed and Mohd Ikram
LANGMUIR **41**, 31359 (2025).
420. **Non-equilibrium spin dynamics of the frustrated trication spinel ZnMnCoO_4 in the hierarchical free-energy framework**
Mouli Roy-Chowdhury, Tapati Sarkar, Bruno Weise, Eun Sang Choi, Zhenchao Wen, and Subhash Thota
JOURNAL OF PHYSICS: CONDENSED MATTER **37**, 135806 (2025).

LIST OF PRESENTATIONS IN CONFERENCE AND SYMPOSIUM (As on 31/03/2026)

Indore Centre

1. **Oxygen Vacancy Mediated local symmetry breaking driven intense Raman modes in BaZrO₃**, Ankita Agrawal, Poonam Mathur, Priti Roy, Rajashri R. Urkude, Isha, Pragati Sharma, Manvendra Narayan Singh, Aniket Chowdhury, Shovan K. Majumder, Arvind Kumar Yogi, V. G. Sathe, U. Deshpande, and Debalaya Sarker presented in 'Meeting on Advances in Condensed Matter Physics (ACMP-2025)' held during 26-28 December 2025 (Poster) at UGC-DAE CSR Indore.
2. **Single-atom doped 2D transition-metal dichalcogenide based SERS substrates for improved bio analyte sensing**, Nayan Guchhait; Ankita Agrawal; Dileep Kumar; Uday Deshpande; Aniket Chowdhury; Shovan K Majumder; Arvind Yogi; Debalaya Sarker presented in DAE Solid State Physics Symposium, held during 19-23 December 2025 at Indian Institute of Technology Roorkee.
3. **Sharp Quantum Phase Transition in the Frustrated Spin-1/2 Ising Chain Antiferromagnet: CaCoV₂O₇**, Isha; A.K. Bera; M. Isobe; N. P. Lalla; A. Thamizhavel; Arvind Kumar Yogi presented in Recent Advances in Material Science and Computational Techniques (RAMSACT) 2025, held during 18-20 December 2025 at Manipal University Jaipur.
4. **Crystal Growth and Lattice Expansion Behavior in Spin-1 2D Honeycomb Antiferromagnet: Ba₂Ni(PO₄)₂**, Aditi Agrawal; Koushik Chakraborty; Isha; Matthias Hepting; Arvind Kumar Yogi presented in Physics of Highly Correlated Electron Systems (PSCES), held during 12-14 September 2025 at IIT (BHU), Varanasi, India.
5. **Short-Range and Long-Range Antiferromagnetic Interaction in Cu²⁺ Spin- $\frac{1}{2}$ One-Dimensional Zigzag Chain: Cu₃P₂O₈**, Shalini Mishra; Isha; Aditi Agrawal; Koushik Chakraborty; C. Krellner; Arvind Kumar Yogi; Netram Kaurav presented in Recent Advances in Material Science and Computational Techniques (RAMSACT) 2025, held during 18-20 December 2025 at Manipal University Jaipur.
6. **Evaluation of Structural and Magnetic Phase Transition in Ta-Doped Zr_{1-x}Ta_xFe₂**, Vikas Singh; Priyanshi Tiwari; Rajeev Joshi; R. Rawat; Arvind Kumar Yogi presented in 69th DAE Solid State Physics Symposium 2025, held during 19-23 December 2025 at IIT Roorkee, Uttarakhand.
7. **International School on Fundamental Crystallography and Workshop on Rietveld Refinement Analysis (ISFC-2026)**, Vikas Singh; Priyanshi Tiwari; Rajeev Joshi; R. Rawat; Arvind Kumar Yogi, held during 23-28 February 2026 attended at NIT Rourkela, Odisha, .
8. **Field Induced Behavior of the Spin-1 Corrugated Skew-Chain Antiferromagnet: Ni₂V₂O₇**, Koushik Chakraborty; Hemant Singh Kunwar; Aditi Agrawal presented in 69th DAE Solid State Physics Symposium 2025, held during 19-23 December 2025 at IIT Roorkee, Uttarakhand.
9. **Investigation of the Magneto-Dielectric Response in the Triple Perovskite Ba₃CoSb₂O₉**, Sanjay Kumar; Arvind Kumar Yogi; Satyapal S. Rathore; Rashi Nathawat presented in Recent Advances in Material Science and Computational Techniques (RAMSACT) 2025, held during 18-20 December 2025 at Manipal University Jaipur.
10. **Swift Heavy Ion-Driven Magnetic Phase Transition in Fe/Gd Multilayers Probed by MOKE & PNR**, Smritiparna Ghosh et al. presented in HERCULES European School: Neutrons & Synchrotron Radiation for Science 2025–26, held at Grenoble.
11. **Temperature and Frequency-Dependent Field Effects in BaHf_{0.6}Ti_{0.4}O₃ Thin Films**, Meenal Dhanetwal et al. presented in South Asia Ferroelectric Symposium (SAFS-2025), held at IISc, Bengaluru.
12. Vigyan Yatra 2.0 organized by Saurashtra University, Rajkot, Gujarat during July 7–19, 2025.

13. International Conference on Smart Materials in Emerging Technologies (ICSMET 2025), Alliance University, Bangalore, July 24–26, 2025.
14. 5th National Conference on Physics of Strongly Correlated Electron Systems (PSCES 2025), IIT (BHU), Varanasi, September 12–14, 2025.
15. First International Conference on “Innovations, Advances in Material Science for Sustainable Goals - 2025”, JECRC University Jaipur, October 29–31, 2025.
16. Science Day 2026, Medicaps University, Theme: Women in Science: Catalysing Viksit Bharat.
17. SR University, Warangal, Telangana, March 5, 2026.
18. “Advances in Condensed Matter Physics 2026”, Samrat Vikramaditya University, Ujjain, April 10–11, 2026.
19. **Active Particles Knead Three Dimensional Gels into Porous Structures**, Chandana Mondal, presented in Physics Lecture Series, held during December 11, 2025 at IACS, Kolkata.
20. **Active Particles Knead Three Dimensional Gels into Porous Structures**, Sourav Mukherjee, Chandana Mondal, presented in Condensed Matter Days - 2025 (CMDays), held during 29-31 October, 2025 at Department of Physics, Visva-Bharati.
21. **Active Particles Knead Three Dimensional Gels into Porous Structures**, Sourav Mukherjee, Chandana Mondal, presented in MRSI-ICEM 2025, held during 17-20 December, 2025 at NISER Bhubaneswar, Odisha.
22. **Active Particles Knead Three Dimensional Gels into Porous Structures**, Sourav Mukherjee, Chandana Mondal, presented in a meeting on Advances in Condensed Matter Physics (ACMP), held during 26-28 December, 2025 at UGC-DAE Consortium for Scientific Research, Indore.
23. Synthesis of thin films using sputtering and protocols for deposition of transition metal nitride thin films (I) and (II), Faculty Development Program on Experimental Techniques for Magnetic and Ferroelectric Materials, April 30 -May 2, 2025, GITAM University, Visakhapatnam, AP.
24. Development of transition metal nitride thin films as emerging functional materials, EICT Academy sponsored faculty development programme (FDP) on Advanced Energy Materials for Sustainable Energies, May 26-31, 2025. IIITDM, Jabalpur (online).
25. Synthesis & study of Magnetic Antiperovskite Thin Films, Physics of Strongly Correlated Electron Systems (PSCES) 2025, September 12-14, 2025, IIT BHU Varanasi, UP.
26. Synchrotron Radiation Facilities at RRCATSoft XAS beamline at BL-01, Indus-2: An Introduction & Review of Recent Results, UGC-DAE CSR Online Awareness workshop, September 18-23, 2025.
27. Development of superhard and superconducting transition metal nitride coatings for emerging quantum technologies, National Conference on Advances In Condensed Matter Physics 2026 (ACMP-2026) Guru Ghasidas Vishwavidyalaya, Bilaspur, February 20-21, 2026.
28. A brief introduction to experimental facilities at UGC-DAE CSR with an emphasis on development and characterization of superhard coatings, Expert Lecture at IET DAVV, Indore, April 9, 2026.
29. **Role of Vacancies on Structure and Superconductivity of Epitaxial VN Thin Films**
Amit Kumar Verma, Rachana Gupta, Shashi Prakash, Andrei Gloskovskii, Rajeev Rawat, Mukul Gupta
NATIONAL CONFERENCE ON ADVANCES IN CONDENSED MATTER PHYSICS 2026 (ACMP-2026), Guru Ghasidas Vishwavidyalaya, Bilaspur, February 20-21, 2026.
30. **Study of Structural and Mechanical Properties of Re-N Thin Films**
Satabdi Sahu, P. Thenamudhan, R. Ramaseshan, Andrei Gloskovskii, Mukul Gupta
MRSI INTERNATIONAL CONFERENCE ON EMERGING MATERIALS (MRSI-ICEM-2025), NISER, Bhubaneswar, 17-20 December 2025.

31. **Tunable plasmonic response in Ag nanoparticle doped ZrN thin films**
Nikita Choudhary, Praveen Garg, Uday Deshpandey, R. Venkatesh, Mukul Gupta
MRSI INTERNATIONAL CONFERENCE ON EMERGING MATERIALS (MRSI-ICEM-2025), NISER, Bhubaneswar, 17-20 December 2025.
32. **Impact of Growth Conditions on the Structural and Magnetic properties of ϵ -Fe_{3-x}N Thin Films**
Nakshatra Ranjan Pal, Rohit Kumar Meena, Rajeev Rawat, Mukul Gupta
MRSI INTERNATIONAL CONFERENCE ON EMERGING MATERIALS (MRSI-ICEM-2025), NISER, Bhubaneswar, 17-20 December 2025.
33. **Thickness-dependent preferential magnetic alignment in thin film; Investigation based on in-situ magnetoresistance measurements**, Rahul Vishvkarma presented in "IEEE Around-the-Clock Around-the-Globe (AtC-AtG) Magnetism Conference 2025" (Poster Presentation, Online Mode).
34. **Temperature-induced spin-reorientation transition (SRT) in FeCoB/Pt multilayers with perpendicular magnetic anisotropy**, Rahul Vishvkarma presented in "36th AGM of MRSI & Indian Materials Conclave and International Conference on Emerging Materials 2025" (Poster Presentation) at NISER Bhubaneswar.
35. **GISAXS Insights into Interfacial Control of Magnetic anisotropy in Zigzag Nanostructured thin films**, Sharanjeet Singh presented in "International Workshop GISAXS2025" (Poster Presentation) held in Hamburg, Germany.
36. **Thickness-dependent evolution of Magnetic anisotropy of Co₂FeAl thin films deposited obliquely on a nano-rippled substrate**, Amruta A presented in "36th AGM of MRSI & Indian Materials Conclave and International Conference on Emerging Materials 2025" (Poster Presentation) at NISER Bhubaneswar.
37. Dr. Dileep Kumar and Mr. Rahul Vishwakarma visited the KEK, Photon Factory, Tsukuba, Japan, to conduct the experiments from 24th Nov to 1st Dec, 2025, for GISAXS and XRD experiments (proposal No-2025-IB-029, Study of biaxial internal stress, structural texture, and nanoscale morphology in nanopatterned oblique angle deposited Co₂FeAl and FeCoB films: GISAXS and XRD measurements).
38. Dr. Dileep Kumar, Mr. Sharanjeet Singh, and Amruta Visited P03 beamline, PETRA-III, DESY, Germany, 23rd- 30th Oct 2025, for GI-SAXS and GI-WAXS experiments (Proposal: I-20250528, Tailoring in-plane anisotropy strength by highly ordered nanopatterning to enhance Dzyaloshinskii-Moriya interaction in PMA multilayers).
39. Dr. Dileep Kumar, user review meeting, P03 beamline, PETRA III, DESY, Germany, during 7th - 9th Oct 2025,
40. **Field-induced transition in CePdGe**, Poster presentation by Priyanshi Tiwari in 69th DAE Solid State Physics Symposium 2025 (DAE-SSPS 2025), held during 19-23 December 2025 at IIT Roorkee, Uttarakhand.
41. **Chemical Pressure Tuning of Magnetism and Electronic Correlations in CePdSn_{1-x}Sb_x**, Oral presentation by Priyanshi Tiwari at MPCST, Bhopal, held during 26-28 February 2026.
42. Science awareness lab visit conducted by Dr. Gunjan Verma, Dr. Dileep Kumar, and Dr. Arvind Yogi for faculty members and PhD research scholars from SAGE University Indore on 25 July 2025.
43. Science awareness lab visit conducted by Dr. Gunjan Verma for students from Shri Vaishnav Institute of Management, Indore on 29 August 2025.
44. Science awareness lab visit conducted by Dr. Gunjan Verma for students from IPS Academy, Indore on 12 November 2025.
45. Science awareness lab visit conducted by Dr. Gunjan Verma for students from IPS Academy, Indore on 4 February 2026.

46. Science awareness lab visit conducted by Dr. Gunjan Verma and Dr. Sudip Pal for faculty members and students from VIT Bhopal University, Bhopal on 27 March 2026.
47. **Energy Tunable Anisotropic Light Matter Interaction in Ferroelectric In_2Se_3** , Divya Jangra, Pragati Sharma, Binoy Krishna De, Praveen Kumar Velpula, Vasant G. Sathe presented in 69th DAE Solid State Physics Symposium, held during December 19-23, 2025 at Indian Institute of Technology Roorkee, Uttarakhand 247667.
48. **Optical and Ultrafast Spectroscopy Studies of Bismuth-based Mixed Halide Perovskite**, Shivani Malvi, Salahuddin Khan, Saleem Khan, Kuntal Singh, Tarun Kumar Sharma, Vasant G. Sathe, K.D.M Rao and Praveen K. Velpula presented in 12th Theme meeting on Ultrafast Sciences (UFS-2025), held during 13 to 15th Nov 2025 at Indian Institute of Technology Hyderabad, Hyderabad.
49. **Optical and Ultrafast Spectroscopy Studies of Bismuth-based Mixed Halide Perovskite**, Shivani Malvi, Salahuddin Khan, Saleem Khan, Kuntal Singh, Tarun Kumar Sharma, Vasant G. Sathe, K.D.M Rao and Praveen K. Velpula presented in MEETING ON ADVANCES IN CONDENSED MATTER PHYSICS 2025, held during December 26-28, 2025 at UGC-DAE Consortium for Scientific Research, Indore.
50. **Macroscopic Quantum Tunnelling and Energy Quantisation From Josephson Junctions to Qubits**, Rajib Batabyal presented in Physics Lecture Series, held during November 11, 2025 at Laser Bhawan, DAVV.
51. **Escaping Atoms Rewrite Surface Universality**, Rajib Batabyal presented in Condensed Matter Days - 2025 (CMDays), held during 29-31 October, 2025 at Department of Physics, Visva-Bharati.
52. **Escaping Atoms Rewrite Universality**, Rajib Batabyal presented in 8th National Conference on Electronic Structure (NCES 2025), held during 20-22 November 2025 at IISER Bhopal.
53. **Sn Epitaxy: From Stanene to Coexisting α - and β -Sn Phases on a Magnetic Topological Insulator**, Mrinal Manna, Soumen Giri, Sourav Mukherjee, Pramod Bhakuni, Sajal Barman, Anil Gome, Arnab Pariari, Markus Hucker, V. R. Reddy, Chandana Mondal, Sudipta Roy Barman, Rajib Batabyal presented in Condensed Matter Days - 2025 (CMDays), held during 29-31 October, 2025 at Department of Physics, Visva-Bharati.
54. **Stanene-to-Allotrope Transition in Sn Epitaxy on a Magnetic Topological Insulator.**, Mrinal Manna, Soumen Giri, Sourav Mukherjee, Pramod Bhakuni, Sajal Barman, Anil Gome, Arnab Pariari, Markus Hucker, V. R. Reddy, Chandana Mondal, Sudipta Roy Barman, Rajib Batabyal presented in DAE SSPS 2025, held during December 19 - 23, 2025 at IIT Roorkee.
55. **Coincidental Lattice Epitaxy and Strain-Driven Growth of Rectangular β -Sn Islands on 1T-TaS₂ CDW Surfaces**, Soumen Giri, Mrinal Manna, Pramod Bhakuni, Koushik Chakraborty, Aditi Agrawal, Arvind Yogi, Sudipta Roy Barman, Rajib Batabyal presented in Condensed Matter Days - 2025 (CMDays), held during 29-31 October, 2025 at Department of Physics, Visva-Bharati.
56. **Real-Space Conductance Mapping of CCDW and NCCDW Charge Order in 1T-TaS₂**, Soumen Giri, Mrinal Manna, Pramod Bhakuni, Koushik Chakraborty, Aditi Agrawal, Arvind Yogi, Sudipta Roy Barman, Rajib Batabyal presented in 8th National Conference on Electronic Structure (NCES 2025), held during 20-22 November 2025 at IISER Bhopal.
57. **Lattice-Electronic Locking and Disorder-Driven Mott Gap Variations in 1T-TaS₂**, Soumen Giri, Mrinal Manna, Pramod Bhakuni, Sajal Barman, Koushik Chakraborty, Aditi Agrawal, Arvind Yogi, Rajamani Raghunathan, Sudipta Roy Barman, Rajib Batabyal presented in DAE SSPS 2025, held during December 19 - 23, 2025 at IIT Roorkee.
58. **Evolution of electronic structure in Weyl semimetal $\text{Mo}_x\text{W}_{1-x}\text{Te}_2$** , Sambit Choudhury, Jyoti Sharma, Amritpal, Shailesh Kalal, Raman Sankar and Sanjoy Kr Mahatha presented in National Conference on Electronic Structure (NCES 2025), held during 20-22 November 2025 at IISER Bhopal.
59. **Electronic structure investigation of ternary chalcogenide $\text{Ni}_3\text{Bi}_2\text{Se}_2$** , Amritpal, Mukesh Kr Dasoundhi, Kapildeb Dolui, Sanjoy Kr Mahatha presented in National Conference on Electronic Structure (NCES 2025), held during 20-22 November 2025 at IISER Bhopal.

60. **Persistence of Incommensurate Charge Ordering in Chalcogen-Disordered 1T-TaSeTe**, Jyoti Sharma, Sambit Choudhury, Meng-Jie Huang, Jens Buck, S. Blanco-Canosa, Kai Rossnagel, Sanjoy Kr Mahatha presented in International Conference on Emerging Materials (MRSI-ICEM 2025), held during 17-20 December 2025 at NISER Bhubaneswar.
61. **Interplay of Td and 1T phases influencing transport properties and electronic structure in Weyl semimetal $\text{MoxW}_{1-x}\text{Te}_2$** , Sambit Choudhury, Jyoti Sharma, Amritpal, Shailesh Kalal, Raman Sankar and Sanjoy Kr Mahatha presented in International Conference on Emerging Materials (MRSI-ICEM 2025), held during 17-20 December 2025 at NISER Bhubaneswar.
62. **Insights into the Electronic Structure of Parkerite $\text{Ni}_3\text{Bi}_2\text{Se}_2$** , Amritpal, Mukesh Kr Dasoundhi, Kapildeb Dolui, Sanjoy Kr Mahatha presented in International Conference on Emerging Materials (MRSI-ICEM 2025), held during 17-20 December 2025 at NISER Bhubaneswar.
63. **Anderson localization and pseudogap in quasicrystals**, Sudipta Roy Barman (Invited talk) at University of Liverpool, Liverpool UK, 29 April, 2026.
64. **Buckled Bilayer Stanene**, Sudipta Roy Barman (Invited talk) at Charotar University of Science and Technology (CHARUSAT), Anand, 13 February, 2026.
65. **Bulk electronic structure of quasicrystals and approximants**, Sudipta Roy Barman (Invited talk) at Advances in Quantum Material using Synchrotron Techniques (AQMUST2026), Saha Institute of Nuclear Physics, Kolkata 24-27 February, 2026.
66. **Photoelectron spectroscopy: a versatile surface science technique**, Sudipta Roy Barman (Invited talk) at SPU Research Scholars Meet 2025-26, Sardar Patel University, Anand, 13 February, 2026.
67. **Bilayer stanene on a magnetic topological insulator**, Sudipta Roy Barman (Invited talk) at National Conference on Electronic Structure, IISER, Bhopal, 20-22nd November, 2025.
68. **Kramers nodal line metal, a new topological material**, Sudipta Roy Barman (Oral presentation) at 38th European Conference on Surface Science, Braga, Portugal, 24-29 August, 2025.
69. **Unraveling the origin of ferromagnetism and antiferromagnetism in 2d hybrid halide perovskites**, Shivam Choudhary, Rajamani Raghunathan presented poster in Advances in Condensed matter Physics (ACMP)-2025 conference held during 26-28 Dec 2025 organized by UGC-DAE Consortium for Scientific Research, University Campus, Khandwa Road, Indore 452001.
70. **Symmetry Analysis of spin-split Antiferromagnet**, Sishir Jana, Rajamani Raghunathan, presented poster in Advances in Condensed matter Physics (ACMP)-2025 conference held during 26-28 Dec 2025 organized by UGC-DAE Consortium for Scientific Research, University Campus, Khandwa Road, Indore 452001.
71. **Electronic and magnetic phases of a bipartite square-lattice in an extended Hubbard model**, Gaurav Chouhan, Dayasindhu Dey, Rajamani Raghunathan, presented poster in Spins in Molecular Systems (SIMS) 2025 held during 29 Nov - 1 Dec 2025 organized by IIT Kharagpur and SNBNCBS Kolkata
72. **Quantum Phases and Altermagnetism of a Bipartite Square-lattice in an Extended Hubbard Model**, Gaurav Chouhan, Dayasindhu Dey, Rajamani Raghunathan, presented poster in the 36th AGM of MRSI & 7th Indian Material conclave and international Conference on emerging material 2025 held during 17-20 Dec -2025 organized by NISER Bhubaneswar.
73. **Electronic and magnetic phases of a bipartite square-lattice in an extended Hubbard model**, Gaurav Chouhan, Dayasindhu Dey, Rajamani Raghunathan, presented poster in Advance in Condensed matter Physics (ACMP)-2025 conference held during 26-28 Dec 2025 organized by UGC-DAE Consortium for Scientific Research, University Campus, Khandwa Road, Indore 452001.

Kolkata Centre

1. **Interplay of magnetism and magnetotransport properties of iron based single crystalline layered chalcogenide**, Rajib Mondal presented in Advances in Condensed Matter Physics 2026 (ACMP2026), held during 20-21 February 2026 at Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur, Chhattisgarh, India.
2. **Magnetic and Magneto-functional Properties of Pure and Doped DyGa₂ Alloys**, Anirban Saha presented in 69th DAE Solid State Physics Symposium, held during 19-23 December 2025 at Indian Institute of Technology Roorkee, Uttarakhand.
3. **Substantial enhancement of Magnetofunctional properties in dual-doped MnNiGe alloy**, Sanchita Ghosh presented in 69th DAE Solid State Physics Symposium, held during 19-23 December 2025 at Indian Institute of Technology Roorkee, Uttarakhand.
4. **Structural, Magnetic and magneto-Transport properties of single crystalline Fe_{3+x}GeTe₂**, Gourab Kanti Jana presented in 69th DAE Solid State Physics Symposium, held during 19-23 December 2025 at Indian Institute of Technology Roorkee, Uttarakhand.
5. **Unusual Magnetic and Large Magnetocaloric Behaviour of Pure and Doped DyGa₂ Alloys**, Anirban Saha presented in Young Scientist Colloquium 2025, MRSI, held on 17th February 2026 at Scottish Church College, Kolkata, West Bengal, India.
6. **Incomplete martensitic phase transition induces large magnetocaloric properties in the dual-doped MnNiGe alloy**, Sanchita Ghosh presented in the Young Scientist Colloquium 2025, MRSI, held on 17th February 2026 at Scottish Church College, Kolkata, West Bengal, India.
7. **Competing magnetic ground states through Mn-site substitution in the antiferromagnetic Mn₅Si₃ system**, Sanat Kumar Adhikari presented in the Young Scientist Colloquium 2025, MRSI, held on 17th February 2026 at Scottish Church College, Kolkata, West Bengal, India.
8. **Critical magnetic and structural investigation of doped and pure antiferromagnetic RGe₂ (R = Gd, Tb) alloy system**, Anirban Saha presented in Advances in Quantum Materials Using X-ray Synchrotron Techniques (AQMUST2026), held on 17th February 2026 at Saha Institute of Nuclear Physics (SINP), Kolkata.
9. **Enhanced Magnetocaloric Properties Driven by an Incomplete Martensitic Phase Transition in the Dual-Doped MnNiGe Alloy**, Sanchita Ghosh presented in Advances in Quantum Materials Using X-ray Synchrotron Techniques (AQMUST2026), held during 24-26 February 2026 at Saha Institute of Nuclear Physics (SINP), Kolkata.
10. **Role of Self-Doping in Shaping the Magneto-structural and Magnetocaloric Properties of Mn-NiGe Alloys**, Sanat Kumar Adhikari presented in Advances in Quantum Materials Using X-ray Synchrotron Techniques (AQMUST2026), held during 24-26 February 2026 at Saha Institute of Nuclear Physics (SINP), Kolkata.
11. **Strategic use of dual doping for the modification of structural and magnetic behaviors of MnNiGe alloys**, Riya Roy presented in Advances in Quantum Materials Using X-ray Synchrotron Techniques (AQMUST2026), held during 24-26 February 2026 at Saha Institute of Nuclear Physics (SINP), Kolkata.
12. **Structural Investigation and Anomalous Hall effect in Fe_{3-x}Co_xGaTe₂**, Rosni Roy presented in Advances in Quantum Materials Using X-ray Synchrotron Techniques (AQMUST2026), held during 24-26 February 2026 at Saha Institute of Nuclear Physics (SINP), Kolkata.
13. **Investigation of Quasi-Fission in ¹⁶O + ²⁰⁹Bi using gamma-Ray Spectroscopy**, Soumalya Kundu, Aditi Das, Anil Sharma, Pankaj K. Giri, A. Sen, T.K. Ghosh, Suchorita Paul, Snigdha Pal, A. Pal, S. Basak, S. Chakraborty, S.S. Nayak, Soumik Bhattacharya, G. Mukherjee, S. Bhattacharyya, S. S. Ghugre, R. Raut presented in DAE Symposium on Nuclear Physics, held during 8-12 December 2025 at Dr. B. R. Ambedkar National Institute of Technology, Jalandhar.

14. **A Universal Algorithm for Calculating the Probability of Photoelectric Absorption**, A. Chettri, A. Sharma, S. Kundu, A. Das, K. Vijay Sai, S. S. Ghugre, R. Raut presented in DAE Symposium on Nuclear Physics, held during 8-12 December 2025 at Dr. B. R. Ambedkar National Institute of Technology, Jalandhar.
15. **Optically Active Color Centres in Diamond**, Goutam Pramanik presented in International Conference and Exposition on Quantum Sensing and Metrology (ICEQSM) held during 10-13 September 2025 at Bose Institute, Kolkata, India.
16. **Synthesis, Characterisation and Understanding the Properties of Nano-Materials for Various Applications**, Goutam Pramanik presented in the Student Induction Programme 2025 held during 15th July 2025 at University of Engineering and Management (UEM), Kolkata, India.
17. **Nanoformulation of Chlorogenic acid-ZnO complex induced ferroptosis pathway in MCF7 Cells: An involvement of iron-mediated cellular apoptosis**, Swapnomoy Chakraborty presented in GCC EZOS 2026 Global Cancer Consortium & East Zonal Oncology Symposium, held during 8-10 January, 2026 at Eco Park, Kolkata, WB.
18. **CLIC-1 Dependent Chloride Nano-therapy for Cancer**, Saptideep Das presented in GCC EZOS 2026 Global Cancer Consortium & East Zonal Oncology Symposium, held during 8-10 January, 2026 at Eco Park, Kolkata, WB.
19. **Modulation of Cancer Cell Radiosensitivity by Chitosan-Coated Liposomal (-)-Epigallocatechin-3-Gallate (EGCG) Through the miR-139-5p β -Catenin Pathway**, Sulagna Dutta presented in GCC EZOS 2026 Global Cancer Consortium & East Zonal Oncology Symposium, held during 8-10 January, 2026 at Eco Park, Kolkata, WB.

Mumbai Centre

1. **Magnetic properties and magnetocaloric effect in hexagonal compound of NdNi₅**, Anu, Bhagyashree Pol, P.D. Babu presented in the 69th DAE Solid State Physics Symposium held at IIT Roorkee, Uttarakhand, India, during December 19-23, 2025.
2. **Magnetic Property of spin dimer CrFeTeO₆**, Mayuri S. Kamble, Rimpi Dawar, P.D. Babu presented in the 69th DAE Solid State Physics Symposium held at IIT Roorkee, Uttarakhand, India, during December 19-23, 2025.
3. **Magnetic Properties of Kagome Magnet DyCo₃**, Bhagyashree Pol, Anu, P.D. Babu presented in the 69th DAE Solid State Physics Symposium held at IIT Roorkee, Uttarakhand, India, during December 19-23, 2025.
4. **Magneto-thermoelectric correlation of Ca_{2-x}Pr_xMnTiO₆ (x = 0.0, 0.25, 0.5, 0.75, 1.0)**, Smita Borole and Sudhindra Rayaprol presented in International Conference on Recent Advancement in Materials Science and Nanotechnology (ICRAMAN-2026), held during 30-31 January 2026 at Nirma University, Ahmedabad.
5. **Experimental investigations of magnetic properties of Ce₂FeAl₃ : dependence on structure**, Nilofar Kurawle and Sudhindra Rayaprol presented in International Conference on Recent Advancement in Materials Science and Nanotechnology (ICRAMAN-2026), held during 30-31 January 2026 at Nirma University, Ahmedabad.
6. **Study of Structural and Magnetic Properties of Ca_{2-x}Pr_xMnTiO₆ (x = 0.0, 0.25, 0.5, 0.75, 1.0)**, Smita Borole, Nilofar Kurawale, Rohan Kamble and Sudhindra Rayaprol presented in 69th DAE-Solid State Physics Symposium, held during 19-23 December 2025 at IIT Roorkee.
7. **Emergent Magneto-Transport Phenomena in Ce₂FeAl₃: Influence of Structural and 4f Electron Correlations**, Nilofar Kurawale, Smita Borole, Rohan Kamble and Sudhindra Rayaprol presented in 69th DAE-Solid State Physics Symposium, held during 19-23 December 2025 at IIT Roorkee.

8. **Structural and Magnetic Study of High Entropy Spinel Oxide with Five Cations at Both Sub-lattice**, Rohan Kamble, Smita Borole, Nilofar Kurawale, and Sudhindra Rayaprol presented in 69th DAE-Solid State Physics Symposium, held during 19-23 December 2025 at IIT Roorkee.
9. **Tuning the Lattice to Harness Magnetism: Structural Magnetic Interplay in $A_2\text{CoMnO}_6$ ($A = \text{Ho, Lu}$)**, R. Athira presented in 69th DAE Solid State Physics Symposium, held during 19-23 December 2025 at IIT Roorkee, Uttarakhand.
10. **Poster Presentation**, Shubham Patil presented in IEEE Magnetics Society Summer School 2025, held during 21-26 June 2025 at Centre for Memory and Recording Research, University of California San Diego, USA.
11. **Poster Presentation**, Shubham Patil presented in 69th DAE Solid State Physics Symposium, held during 19-23 December 2025 at IIT Roorkee, Uttarakhand.
12. **Poster Presentation**, Srishti Kashyap presented in 69th DAE Solid State Physics Symposium, held during 19-23 December 2025 at IIT Roorkee, Uttarakhand.

Kalpakkam Centre

1. **Structural Inversion Asymmetry Driven Non-linear Hall Effect and Negative Magneto resistance observed at Room Temperature in Vertical Graphene Nanowalls grown on Si Substrate**, Hari Singh, Sujay Chakravarty, P. A. Manoj Kumar, R. Govindaraj Oral presentation in 23rd International Conference on Advanced Nanomaterials (ANM-2025), held during 23-25 July 2025 at the University of Aveiro, Portugal.
2. **Berry Curvature and Rashba SOC driven Room-Temperature Anomalous Hall Effect and Field-Dependent Asymmetric MR in Vertically aligned Graphene Nanowalls**, Hari Singh, Sujay Chakravarty, P. A. Manoj Kumar Oral presentation in Symposium on Magnetism and Spintronics (SMS-2026), held during 21-24 January 2026 at IIT Hyderabad.
3. **Applications of XPS and XAS on Polymer films**, Shamima Hussain presented in International Conference ICMMRM-2026, held during 26-27 March 2026 at SSN Group of institutions, Chennai.
4. **Effect of ZnO Nanoparticles on Microstructural and Neutron Attenuation Properties of Li₂O-CaO-B₂O₃: MnO₂ Glass Ceramics for Nuclear Energy Applications**, Linganaobina Srinivasa Rao, Shamima Hussain, B. Chennakesava Rao, K. Aruna Prabha, B. Sujith presented in International Conference on Advanced Materials & Manufacturing for Sustainability (ICAMMS-2026), held during 12-14 March 2026 at VNIT Nagpur.
5. **Role of X-ray Photoelectron Spectroscopy in device-making in ANRF sponsored workshop on Advances in Quantum Mechanics and Spectroscopy Techniques for Versatile Applications**, Shamima Hussain presented in ANRF sponsored workshop on Advances in Quantum Mechanics and Spectroscopy Techniques for Versatile Applications, held during 24-25 February 2026 at SRMV CAS. Ramkrishna Mission.
6. **Spectral Identification of Materials**, Shamima Hussain as chief guest, during 28 August 2025 at Physics Society, Madras Christian College, Chennai.
7. **Probing flexible device material using spectroscopic techniques**, Shamima Hussain presented Expert Talk in LMIN 2025, held during 15-17 July 2026 at IGCAR.

ONGOING COLLABORATIVE RESEARCH SCHEME PROJECTS

(As on 31/03/2026)

Indore Centre

1	CRS/2022-23/01/650	Bimal Kumar Sarma 9854079070 bimal@gauhati.ac.in Gauhati University	Ferromagnetism and tunable infrared plasmonics of transparent conducting oxide in the metallic regime
2	CRS/2022-23/01/651	JATIS KUMAR DASH 9440389975 jatis.d@srmap.edu.in SRM University-AP, Andhra Pradesh	Engineering and surface functionalization of Janus two-dimensional (2D) materials for efficient sensors and flexible energy devices
3	CRS/2022-23/01/652	Sanjeev Kumar 9286935563 skdubey@ddn.upes.ac.in UPES	Development of Ferrite nanomaterials for photocatalytic production of Hydrogen and conversion of Carbon dioxide into hydrocarbon
4	CRS/2022-23/01/653	Dr Babasaheb R Sankapal 09637532624 brsankapal@phy.vnit.ac.in Visvesvaraya National Institute of Technology (VNIT) Nagpur	Coin Cell Solid-State Supercapacitor from Dry Cell Battery Waste
5	CRS/2022-23/01/654	Dr. Haritha Lakkaraju 9959001510 haritha25feb@gmail.com Telangana University	Transparent conducting oxides for flexible optoelectronic devices
6	CRS/2022-23/01/655	Dr. Neelabh Srivastava 6392192675 neelabh@mgcub.ac.in Mahatma Gandhi Central University	Investigations on magnetism and spin-polarized magneto-transport behaviour in half-metallic oxide ferromagnets and Heusler alloys for spintronic applications
7	CRS/2022-23/01/656	AYAN MUKHERJEE 8372098447 ayanmukherjee88@gmail.com COLLEGE OF COMMERCE, ARTS & SCIENCE	Biomaterial template derived metal doped NiCo ₂ O ₄ nanostructure for improved supercapacitor electrode.
8	CRS/2022-23/01/657	Dhrubojyoti Roy 09470524289 dhrubojyoti.roy@cgu-odisha.ac.in C V Raman Global University	Study of semiconductor-ferroelectric interface and its application for the development of NC-FET device.
9	CRS/2022-23/01/733	Dr. Firoz Badesab 7745034168 firoz@nio.org CSIR-National Institute of Oceanography, Goa.	Multi-proxy characterization of biogenic magnetic particles at active marine cold-seep systems
10	CRS/2022-23/01/658	Dr. C. Karthik Kumar 9962878599 karthickumar.c.k@gmail.com Vinayaka Missions Research Foundation	Investigation of Structural Phase Transitions of Perovskite Single Crystals by Using Synchrotron based Single Crystal X-ray Diffraction Studies
11	CRS/2022-23/01/659	C. Ravikumar 7639461007 ravikumar@che.vnit.ac.in Department of Chemical Engineering, Visvesvaraya National Institute of Technology (VNIT) Nagpur	Morphology tuning of heterostructured palladium/magnetic nanoparticles for enhanced catalytic performance in electro-oxidation reactions

12	CRS/2022-23/01/660	Dr. Bharat Kataria 9428015023 brkataria22@rediffmail.com Department of Nanoscience and Advanced Materials, Saurashtra University, Rajkot	Exploring magneto-caloric and resistive switching properties of multifunctional GdMnO ₃ based nanostructured thin films.
13	CRS/2022-23/01/661	Dr. Gaurav Mahadev Lohar 9604695030 gauravlohar24@gmail.com Lal Bahadur Shastri College of Arts, Science and Commerce, Satara	Synthesis of MXene for energy storage devices
14	CRS/2022-23/01/662	Dr.M.Amalanathan 9940347178 nathan.amalphysics@gmail.com Nanjil Catholic College of Arts and Science	Synthesis of noble metal doped/transition metal oxide nanostructured composite for super capacitor electrode
15	CRS/2022-23/01/663	Dr K. RAVICHANDRAN 9444803218 ravi21068@unom.ac.in Department of Nuclear Physics, University of Madras,	Investigation on Magnetic and Magnetoresistance Properties of Co ₂ CrGe Heusler Alloy Thin Films for Spintronics Applications
16	CRS/2022-23/01/664	Dr Sesha Vempati 06303704768 sesha@iitbhlai.ac.in Indian Institute of Technology Bhilai	Addressing the origin of magnetism in monolayer Molybdenum disulfide
17	CRS/2022-23/01/665	Yugeswaran Subramaniam 9486803042 yugesh.phy@pondiuni.edu.in Pondicherry University	Facile synthesis of single-phase high entropy oxide nanoparticles in thermal plasma for radiation shielding application
18	CRS/2022-23/01/666	Y. Ashok Kumar Reddy 6302121030 akreddy@iiitdm.ac.in Indian Institute of Information Technology, Design and Manufacturing, Kancheepuram	Metal oxide-based heterostructures for gas sensor devices
19	CRS/2022-23/01/667	Sanjit Sarkar 09735233424 snjt-sarkar0@gmail.com Dept. of Physics, Surendranath Evening College	Natural Sunlight Assisted Magnetically Separable Core-Shell Photo-catalysts for Industrial Waste Water Treatment
20	CRS/2022-23/01/668	Prasun Banerjee 9113854549 pbanerje@gitam.edu GITAM University	Investigations on High Capacitance Behavior of 2D MXene materials for Energy Storage Applications
21	CRS/2022-23/01/669	Dr. Umesh Prakash Gawai 7219554819 upgawai.phys@gmail.com Department of Physics, DDSP Arts Commerce and Science College, Erandol	Investigating the Kondo Effect in Graphene-Incorporated Metal Oxides
22	CRS/2022-23/01/670	Jayita Nayak 09641894840 jayitanayak@gmail.com IIT Kanpur	Spectroscopic and magnetotransport investigation of magnetic topological materials
23	CRS/2022-23/01/671	Abhinav Pratap Singh 9915240730 jaiswarsinghap@nitj.ac.in Dr. B. R.Ambedkar National Institute of Technology, Jalandhar	Investigation of bipolar conductivity in strontium zincates

24	CRS/2022-23/01/672	Tarun Garg 7895016900 garg-phy1981@gmail.com VIT Vellore	Electric Field Modulated Magnetism in HfO ₂ /Co Ultrathin Films based Magnetoelectric Heterostructure
25	CRS/2022-23/01/673	Dr. Gunasekaran Venugopal 9894789648 pvsguna@gmail.com Central University of Tamil Nadu	Examining the Electronic Structure of Carbon Quantum Dots composited with Rare-earth materials using Synchrotron Radiation Toward Clean Green Energy Production
26	CRS/2022-23/01/674	Dr. P. Karuppasamy 9791552297 karuppasamyp@ssn.edu.in Sri Sivasubramaniya Nadar College of Engineering	Growth of High-Quality Alkali Metal Halide Perovskite Single Crystals for High Energy Radiation Detector Applications
27	CRS/2022-23/01/676	K.D. Mallikarjuna Rao 9632524294 saiskdm-rao@iacs.res.in Indian Association for the Cultivation of Science	Fabrication and development of Halide Perovskite/2D-MXene heterostructures for optoelectronic devices
28	CRS/2022-23/01/677	Dr. Khalid Sultan 7006185276 khalidsultan@cukashmir.ac.in Central University of Kashmir	Exploring the doping based enhancement in electrical and magnetic properties of R ₂ NiMnO ₆ (R=rare earth) system
29	CRS/2022-23/01/678	SHAHID ANWAR 9776968558 shahid@immt.res.in CSIR IMMT Bhubaneswar	Development of TiAlSiN based nanocomposite coating for hardness application.
30	CRS/2022-23/01/679	Debajit Deb 07005786066 debajitdeb12pec018@gmail.com Dept. of ECE, Koneru Lakshmaiah Education Foundation	Optimization of Organic Spin Valves for Room Temperature Magnetoresistance Applications
31	CRS/2022-23/01/680	SAIKAT DUTTA 7652906714 sdutta2@amity.edu Amity University Uttar Pradesh	X-ray absorption near edge structure (XANES) and extended X-ray absorption fine structure (EXAFS) spectroscopic analysis of electronically tuned flexible single-atom materials with maximized atomic efficiency
32	CRS/2022-23/01/681	Dr Jitumani Kalita 8638298471 jitu-mani.kalita@cottonuniversity.ac.in Cotton University	Synthesis of multilayer inorganic and organic semiconductor thin films for fabrication of selective UV sensing device
33	CRS/2022-23/01/682	Dr. Anjalu Ramchiary 8812871635 anjaluram-chiary88@gmail.com Bodoland University	Quantum dot-metal oxide (core-shell) heterojunction for photocatalytic applications
34	CRS/2022-23/01/683	Dr. Shrikant S Maktedar 7051217672 shrikant@nitsri.ac.in National Institute of Technology, Srinagar (J&K)	Carbon Nanoarchitectonics for Sustainable Energy Conversion and Storage
35	CRS/2022-23/01/684	NALLAMUTHU S 9791889719 nallamuthu.s@vitap.ac.in Department of Physics, School of Advanced Sciences, VIT-AP University, Near Vijayawada, 522 237 Andhra Pradesh	Investigation of quantum spin liquid in Rare-Earth Pyrochlores A ₂ B ₂ O ₇ , where A ³⁺ (La, Ce, Yb) and B ⁴⁺ (Ti and Ru) for quantum computation applications
36	CRS/2022-23/01/685	Saurav Giri 9432488554 sspsg2@gmail.com Indian Association for the Cultivation of Science	Exploring ferroelectric order and multicaloric effect in R ₂ Ti ₂ O ₇ and R ₂ M/M'/O ₆ series

37	CRS/2022-23/01/686	Dr. Sanjay Tiwari 7567503983 sanjay1.tiwari@niperraebareli.edu.in National Institute of Pharmaceutical Education and Research (NIPER) - Raebareli	Improvement in phase characteristics and solid-state performance of quercetin via cocrystal development
38	CRS/2022-23/01/687	Saikiran Vadavalli 9908041411 svadaval@gitam.edu GITAM Deemed to be University	Fabrication of bimetallic and multi-layered nanostructured thin films by magnetron sputtering for SERS applications
39	CRS/2022-23/01/688	Dr. Vijeth 9164223172 vijethhe-bri@gmail.com Nagaland University	Fabrication and Characterization of Metal Chalcogenide Nanostructures for Flexible Supercapacitor Applications
40	CRS/2022-23/01/689	Dr. Debasis De 08918409620 debasisd@rgipt.ac.in Rajiv Gandhi Institute of Petroleum Technology	Development of catalyst-coupled photo-electrodes for renewable energy
41	CRS/2022-23/01/690	Tirthankar Chakraborty 07866928269 tirtha255@gmail.com School of Physics and Materials Science, Thapar Institute of Engineering and Technology	Exploration of topological quantum phenomena in oxide single crystals
42	CRS/2022-23/01/691	Sunku Sreedhar 9491988708 sreedhar.sunku@gmail.com Madanapalle Institute of Technology and Science	Nanofabrication of ferroelectric multi-layered thin films based of BTO, BFO and Hf(Zr)O ₂ for integration into semiconductor electronic and photonic device applications
43	CRS/2022-23/01/692	Puja Dey 8910089756 puja.dey@knu.ac.in Kazi Nazrul University	Fabrication and study of Hybrid Inorganic-Organic Dual Spin Valves for Multifunctional Spintronics Application
44	CRS/2022-23/01/693	Dr. P. Sakthivel 9952806070 sakthi1807@gmail.com Karpagam Academy of Higher Education	Effective synthesis and investigation of structural, morphological, photoluminescence behaviors of CsPBXBr ₃ (X = Sn, Mn, Ni) Perovskite Quantum dots for Stretchable Light Emitting Diodes
45	CRS/2022-23/01/694	Dr. K. Suresh 9791670126 ksureshphy@buc.edu.in Bharathiar University	Empirical metage for economical production of magnetic quantum dots by Micro discharge plasma method for Immuno-precipitation Magnetic immunoassay
46	CRS/2022-23/01/695	Ravi Kumar Shukla 7895151892 ravi.shukla@dituniversity.edu.in DIT University, Dehradun, Uttarakhand	Photo-Dielectric Effect in Liquid Crystals (PDELC)
47	CRS/2022-23/01/696	Kulvinder Singh 9788300085 kulvinderchem@gmail.com DAV College, Sector 10, Chandigarh	SYNTHESIS, CHARACTERIZATION AND SUPERCAPACITIVE INVESTIGATION OF POROUS CARBON NITRIDE NANOSTRUCTURES
48	CRS/2022-23/01/697	Kodam Ugendar 9940270209 ukodam@gitam.edu GITAM School of Science, GITAM deemed to be University	Effect Of YFe _{1-x} CrxO ₃ (0 < x < 1) Layer On YBCO Critical Temperature for Spintronic Devices

49	CRS/2022-23/01/698	Dr. Alpa Dashora 9461503962 alpa.dashora-phy@msubaroda.ac.in The M.S. University of Baroda	Synthesis, magnetic and transport properties of large half-metallic bandgap Heusler alloys $\text{Fe}_{2-x}\text{Co}_x\text{HfSi}$ ($x = 0, 0.5, 1, 1.5, 2$) for applications in spintronics and spin caloritronics.
50	CRS/2022-23/01/699	Anup Thakur 9417110095 dranupthakur@gmail.com Punjabi University, Patiala	Developing broad red emitting $\text{Zn}_{1-x}\text{Sr}_x\text{Al}_2\text{O}_4$ based nanophosphors through cationic site engineering
51	CRS/2022-23/01/700	Dr. Tusharkanti Dey 9007841386 tushar@iitism.ac.in IIT (ISM) Dhanbad	Single crystal growth and search for novel magnetic phases in 3d Co^{2+} frustrated compounds: $\text{A}_3\text{CoTa}_2\text{O}_9$ ($\text{A} = \text{Ba}, \text{Sr}, \text{Ca}$)
52	CRS/2022-23/02/822	Dr. Sachin Bhaladhare 8974151903 sachinbhaladhare@tripurauniv.ac.in Chemical and Polymer Engg., Tripura University	Perylene diimide (PDI) based non-fullerene acceptor (NFA) for stable and efficient bulk heterojunction (BHJ) organic solar cells
53	CRS/2022-23/01/701	Dr. Susanta Ghosh 8001782253 susanta.ghosh@visva-bharati.ac.in Integrated Science Education & Research Center, Visva-Bharati (A Central University)	Development of low cost Bimetallic Phosphides (MnFeP) Electro-catalysts for the Water Splitting Reaction
54	CRS/2022-23/01/702	Dr Mona Semalty 9193342275 monasemalty@gmail.com HNB Garhwal University (A Central University) Srinagar Garhwal, Uttarakhand	Studying the crystalline nature of drug/drug excipient composites using ADXRD beamline (BL-12), Indus-2, and its effect on their biopharmaceutical properties
55	CRS/2022-23/01/735	JAI SINGH 09424459805 jai.bhu12@gmail.com Guru Ghasidas Vishwavidyalaya (A Central University), Bilaspur (C.G.), India 495009	Ternary nano-composite formation of bismuth telluride (Bi_2Te_3) with different amount of zinc oxide (ZnO) nanostructures and carbon nano-tubes (CNTs) to optimize the thermoelectric performance
56	CRS/2022-23/01/703	RANJITH RAMADURAI 09494424990 ranjith@msme.iith.ac.in Indian Institute of Technology Hyderabad	Utilization of synchrotron studies to examine the local structure and associated distortions of high TC layered perovskite $\text{Nd}_2\text{Ti}_2\text{O}_7$ for high temperature pyroelectric applications.
57	CRS/2022-23/01/704	Dr Mrunal Deshpande 9444803240 mrunald@ssn.edu.in Sri Sivasubramaniya Nadar College of Engineering	Development of black phase Formamidineum lead triiodide-based hybrid perovskite light absorber with improved thermal stability for solar cell applications
58	CRS/2022-23/01/706	Dr.K.Saravanakumar 9043732005 dr.k.saravanakumar@gmail.com Kongunadu Arts and Science College, Coimbatore	Study of thermal conduction and ZT in $\text{Ca}_3\text{Co}_4\text{O}_9$ nanostructured thin films with Phonon-Glass-Electron-Crystal approach
59	CRS/2022-23/01/707	GUBBALA VENKATA RAMESH 8076909068 venkataramesh_chm@cbit.ac.in Chaitanya Bharathi Institute of Technology	Alkali metal-doped g- C_3N_4 decorated with plasmonic nanostructures: A SERS based flexible sensor to detect pesticides in ppb level

60	CRS/2022-23/01/708	Jayaramulu Kolleboyina 9963768672 jayaramulu.kolleboyina@iitjammu.ac.in Indian Institute of Technology Jammu	Nanoporous MXene Heteronanostructures for Gas Sensors: Temperature-dependent powder XRD and Raman Study
61	CRS/2022-23/01/709	Sulochana Deb 7002803341 deb-sulochana@gauhati.ac.in Gauhati University	Study of Tunnel Magneto Resistance Ratio of Magnetic Tunneling Junction with Molybdenum Disulfide Tunnel Barrier for Spintronics Device
62	CRS/2022-23/01/710	Dr. N. PRIYADHARSINI 9942460041 priyadharsinin@psgrkcw.ac.in PSGR KRISHNAMMAL COLLEGE FOR WOMEN	MODELLING AND FABRICATION OF HIGH GAIN MICRO-STRIP PATCH ANTENNA USING POLYMER IMPREGNATED PEROVSKITE MANGANITE MATERIALS
63	CRS/2022-23/01/711	Dr Mukesh Chandra 08800420903 mukeshdimri@yahoo.com Jaypee University of Engineering and Technology, Guna, MP	Synthesis and studies of Garnet thin films for Magnon Spintronic Devices
64	CRS/2022-23/01/712	Dr. S. Shanmukharao Samatham 9630680607 shanmukharao_physics@cbit.ac.in Chaitanya Bharathi Institute of Technology (Autonomous), Hyderabad	Tailoring magneto-transport phenomena in magnetic skyrmion materials: $Mn_{1-x}Cr_xSi$ and $MnSi_{1-x}Sn_x$
65	CRS/2022-23/01/713	SUJIT DAS 8420000315 sujitas@iisc.ac.in Indian Institute of Science, Bangalore	Probing of magnetic skyrmions in perovskite oxide and ferroelectric control of metal-insulator transition in nitride heterostructures.
66	CRS/2022-23/01/714	S. Parthiban 8220929931 spn@psgias.ac.in PSG Institute of Advanced Studies	Excimer Laser Irradiation of highly conducting and broadband transparent oxide thin-films for solar cells
67	CRS/2022-23/01/715	Dr.N. Pavan Kumar 7702299587 pavanphysics@matrusri.edu.in Matrusri Engineering College, Hyderabad	Development of Multiferroic Composites and Fabrication of a Proto-type Multiferroic Energy Harvester
68	CRS/2022-23/01/716	Pravanjan Mallick 9437656274 pravanjanphy@gmail.com Maharaja Sriram Chandra Bhanja Deo University	Interfacial Coupling Induced Emergence of Properties in NiO based Bimagnetic Nanocomposites for Spintronics Application
69	CRS/2022-23/01/718	Dr. G. Hema Chandra 7387153681 drghc@rediffmail.com Visveswaraya National Institute of Technology, Nagpur	Fabrication of Ge-incorporated $Cu_2ZnSnSe_4$ thin film absorber based photovoltaic devices
70	CRS/2022-23/01/719	Dr. Gurudas Mandal 9051673657 gurudasmandal88@gmail.com Kazi Nazrul University	Fish Wastes (Hydroxyapatite) to Human Body implant: An Experimental Study of Biodegradation Behaviors of Mg-Hydroxyapatite Composite Implant
71	CRS/2022-23/01/720	Chivukula Ratna Prabha 9327201349 chivukula_r@yahoo.com The M.S. University of Baroda	Development of biosensors for the detection of pathogens, hormones and cancer biomarkers

72	CRS/2022-23/01/721	Dr Abhay A Sagade 9834223272 abhaya@srmist.edu.in SRM Institute of Science and Technology	Probing charge transport in 1D supramolecular nanowires by AC resistance measurements
73	CRS/2022-23/01/722	Charu Dwivedi 8630004042 charudwived@gmail.com Department of Chemistry, School of Physical Sciences, Doon University, Dehradun-248001	Development of tungsten oxide based nanostructures as near infrared shielding materials for smart window applications
74	CRS/2022-23/01/723	DIWAKAR SHENDE 9422390841 dzshende@che.vnit.ac.in Visvesvaraya National Institute of Technology Nagpur	Formulation and Design of Cenosphere based Prosthetic rod, nail, screw, tooth, bone implants and artificial bone through Metal/Metal Oxides Coating and Sintering
75	CRS/2022-23/01/724	Dr Suresh Pittala 9848868798 sureshp.ecc@gmail.com Dayananda Sagar University	Synthesis and Investigation of Structural and Magnetic Properties of Ce ₂ NiMnO ₆ double perovskite for Spintronic Applications
76	CRS/2022-23/01/725	Gopala Krishna Podagatlappalli 08374311009 gpodagat@gitam.edu GITAM deemed to be University	Fabrication of metal-doped Molybdenum di-sulfide quantum dots via ultra-fast laser ablation for biological, surface-enhanced Raman spectroscopic applications
77	CRS/2022-23/01/726	Virendra Kumar Verma 7893960185 vkvermai-itk@gmail.com VIT-AP University	Study of interface effect on the magnetoelectric coupling in composite ferroelectric and ferromagnetic heterostructures
78	CRS/2022-23/01/727	Prof. Alope Kanjilal 9958840640 aloke.kanjilal@snu.edu.in Shiv Nadar Institution of Eminence, Delhi-NCR	
79	CRS/2022-23/01/728	Bhaskar Chandra Mohanty 8437813908 bhaskar@thapar.edu Thapar Institute of Engineering and Technology, Patiala	Growth and characterizations of CaZrS ₃ based chalcogenide perovskite thin films for photovoltaic applications
80	CRS/2022-23/01/729	Netram Kaurav 9425957755 netramkaurav@yahoo.co.uk Department of Physics, Government Holkar (Model Autonomous) Science College	Exploring Frustration Effect in Low dimensional Spin Lattice Systems
81	CRS/2022-23/01/730	S M Senthil Kumar 9442066076 senthilkumarsm@cecric.res.in Central Electrochemical Research Institute	Design and development of heteroatom doped porous carbon / metal oxide, metal nitrides composites as bifunctional (ORR / OER) oxygen electrocatalyst for energy conversion and storage applications
82	CRS/2022-23/01/731	ASHIS BHATTACHARJEE 9434142050 ashis.bhattacharjee@visva-bharati.ac.in VISVA-BHARATI UNIVERSITY	Synthesis and Characterization of Iron Oxide Nanoparticles Through One-Step Thermal Protocol for Biomedical Applications
83	CRS/2022-23/01/732	Charu Lata Dube 8264269023 dubecharu@gmail.com Central University of Gujarat	Synthesis of tungsten oxide doped borosilicate glasses for NIR shielding application

84	CRS/2022-23/01/675	Sachin Pathak 9528042400 s.pathak@ddn.upes.ac.in University of Petroleum and Energy Studies, Dehradun	Origin and modulation of interfacial magnetic anisotropy in HM/CeFeB/MgO heterostructure for magnetic memory application
85	CRS/2022-23/01/717	Dr. Santhosh Kumar A 7767940529 asanthoshkumar_physics@cbit.ac.in Chaitanya Bharathi Institute of Technology (Autonomous), Hyderabad	Exploring doped-MnNiGe ribbons for magnetocaloric, magnetoresistance and EMI shielding applications
86	CRS/2023-24/01/1000	D Amaranatha Reddy 9493682129 dranreddy0404@gmail.com INDIAN INSTITUTE OF INFORMATION TECHNOLOGY, DESIGN AND MANUFACTURING, KURNOOL, Andhra Pradesh	Fabrication of lab scale to pilot scale photo-anodes for Photo-electrochemical Water Splitting
87	CRS/2023-24/01/1046	Dr. A. Karuppasamy 9443926267 akphy@tce.edu Thiagarajar College of Engineering, Madurai-625015	Development of Electrochromic textiles for camouflage applications
88	CRS/2023-24/01/1036	Dr. Vivek Kumar 8840694491 vivek@iitdm.ac.in Indian Institute of Information Technology Design & Manufacturing, Kancheepuram	Metal-organic framework derived CoSn(OH)6@MIL-100(Fe) as bifunctional electrocatalyst for efficient overall water splitting
89	CRS/2023-24/01/1019	Dr. Jayaram Peedialakkal 9496859738 jayaramp@mespni.ac.in Calicut University	The design and fabrication of the ReRAM device based on niobium pentoxide
90	CRS/2023-24/01/1014	Soham Manni 9987235901 smanni@iitpkd.ac.in Department of Physics, Indian Institute of Technology Palakkad	Experimental investigation of thermoelectric properties and electronic band topology of single-crystalline Kagome magnetic topological materials with CoSn- and MgFe6Ge6-structural prototypes and the effect of charge carrier doping on them.
91	CRS/2023-24/01/1016	Dr. Shraddha C. Shirbhate 8830150311 shraddhamshirrao@gmail.com Department of Physics, Institute of Chemical Technology (ICT), Mumbai	Investigation of Dopant-induced Local Structural Study of Rare Earth Phosphate-based Systems as Fast Proton Ion Conductor for low-temperature Fuel Cells: Via EXAFS, XANES and RAMAN Spectroscopy
92	CRS/2023-24/01/1006	Kambale Rahul Chandrakant 8600332257 rckambale@gmail.com Department of Physics, Savitribai Phule Pune University, (Formerly University of Pune) Pune- 411 007, Maharashtra, India.	Multiferroic magnetoelectric laminate composites of magnetostrictive/ textured lead-free piezoelectric constituents for energy harvester and magnetic field sensor application
93	CRS/2023-24/01/1031	Dr Mrityunjay Mahato 8131997390 mrityunjayphy@gmail.com North-Eastern Hill University	CNT-Metal Sulfide/Oxide based Composites for Supercapacitor Application

94	CRS/2023-24/01/1001	Dr. Sourav Marik 7557833109 soumarik@thapar.edu TIET	Exploring the Novel High Entropy Spinel Oxides by Utilizing X-ray Absorption Spectroscopy and X-ray Magnetic Circular Dichroism
95	CRS/2023-24/01/1020	Dr. Sonal Thakore 9428430422 drsonalit@gmail.com Maharaja Sayajirao University of Baroda	Studies on the role of Carbon dot nanocomposites towards solar energy induced thermal conversion for water purification
96	CRS/2023-24/01/1003	Hitesh Borkar 8447287127 bhitesh@nitw.ac.in Department of Physics, National Institute of Technology Warangal, Telangana India 506004	Designing an artificial synapse to improve synaptic plasticity in opto-ferroelectric memristor for visual recognition.
97	CRS/2023-24/01/1033	Dr. Vishakha Kaushik 8588944124 vishakhakaushik@gmail.com Department of Physics, DIT University, Dehradun	Modulation of MoS ₂ -phosphate nanocomposites for catalytic applications in Hydrogen Evolution Reaction.
98	CRS/2023-24/01/1013	Manvendra Kumar 8840294610 kmanav@gmail.com Shri Vaishnav Vidyapeeth Vishwavidyalaya	SHI irradiation of HfO ₂
99	CRS/2023-24/01/1005	Dr. SATYANARAYAN DHAL 9178871386 satyanarayan.dhal@cutm.ac.in Centurion University of Technology and Management	Enhancement of Supercapacitance of MXene based Supercapacitor using ion irradiation
100	CRS/2023-24/01/1002	Rajanish Nath Tiwari 8679615197 rajanishtiwari@mgcub.ac.in Mahatma Gandhi Central University, Motihari	STRUCTURAL AND ELECTRICAL CHARACTERIZATION OF SINGLE CRYSTAL GROWN DIAMOND THIN FILMS TOWARDS n-TYPE SEMI-CONDUCTOR
101	CRS/2023-24/01/1004	Anand Pal 9341414500 anand.pal@manipal.edu Manipal Institute of Technology Bengaluru, MAHE Manipal	Enhancement of the figure of merit of oxide Thermoelectric Materials for Green Energy Applications
102	CRS/2023-24/01/1024	Sk Imran Ali 7605869480 skim-ranchem18@klyuniv.ac.in Department of Chemistry, University of Kalyani, Kalyani, Nadia-741235, West Bengal	Structural Modulation, Physical and Chemical Properties of Transition metal dichalcogenides, oxo-chalcogenides and their intercalated compounds .
103	CRS/2023-24/01/1007	RANJAN KUMAR GHADAI 09038109904 ranjankumar-bls@gmail.com Manipal Institute of Technology, Manipal Academy of Higher Education, Manipal, India	Enhancing Multilayer TiN/TiAlN/TiSiAlN Coating Synthesis through Deep Learning Optimized Sputtering Parameters
104	CRS/2023-24/01/1023	Smita Acharya 07720819520 saha275@nagpuruniversity.nic.in Department of Physics, RTM Nagpur University	Mapping of anti-site disordering in La ₂ FeMnO ₂ double perovskite system by EXAFS and XANES: To predict its functional Aspects
105	CRS/2023-24/01/1012	Ganeshraja A S 6381436625 asgchem84@gmail.com SRM Institute of Science and Technology, Deemed to be University	MAGNETIC PHOTOCATALYSTS FOR ENERGY AND ENVIRONMENTAL APPLICATIONS: CARBON DIOXIDE REDUCTION AND WATER OXIDATION

106	CRS/2023-24/01/1009	Dr.G.ANANDHA BABU 09791137823 anand-cgc@gmail.com Sri Sivasubramaniya Nadar College of Engineering	Development of high-performance lead-free $(1-x)\text{Na}_0.5\text{Bi}_0.5\text{TiO}_3$ - $x\text{BaTiO}_3$ and $(1-x)\text{Na}_0.4\text{K}_0.1\text{Bi}_0.5\text{TiO}_3$ - $x\text{BaTiO}_3$ piezoceramics for next generation transducer applications
107	CRS/2023-24/01/1008	Dr Pruthviraj H Soni 9426022210 phsoni-phy@msubaroda.ac.in Department of Physics, Faculty of Science, The Maharaja Sayajirao University of Baroda, Vadodara	Development of pseudo binary Bi_2Se_3 :Ti based photodetector and thermoelectric devices
108	CRS/2023-24/01/1027	Dr. Sarfraj H. Muawar 9921110811 sarfrajmu-jawar695@gmail.com Yashavantrao Chavan Institute of Science< Satara	Title: One dimensional (1D) nanowire supported and Lanthanum / refractory metal ions doped NiMn and NiV layered double hydroxides (LDHs) for efficient electrochemical Water Splitting and Supercapacitor Application.
109	CRS/2023-24/01/1034	Sandeep Chhoker 9910007624 sandeep.chhoker@jiit.ac.in Jaypee Institute of Information Technology Noida	Study of CVD grown 2D MoO_3 and Mo_2C (MXene) composites for energy storage and catalysis applications
110	CRS/2023-24/01/1010	Prof. Dr. Dheeraj Kumar Singh 9415114778 dheeraj.singh@cug.ac.in Central University of Gujarat	Surface Enhanced Raman Scattering using 2D-dichalcogenides (MoS_2 and WS_2) Nanomaterials: Chemical and Biosensing Applications
111	CRS/2023-24/01/1026	Dr. P. Rajesh 9445434893 rajeshp@ssn.edu.in Sri Sivasubramaniya Nadar College of Engineering	Growth, Charge transport properties and defect studies on γ irradiated CdZnTeSe single crystals: A wide-bandgap semiconductor for photovoltaic dosimeter applications
112	CRS/2023-24/01/1011	Thirmal Chinthakuntla 9884796997 thirmal_ch@vnrvijet.in VNR Vignana Jyothi Institute of Engineering and Technology	Optimization of Multiferroic and Energy storage properties of eco-friendly $\text{Bi}_4\text{Ti}_3\text{-xMxO}_{12}$ ($\text{M}=\text{Zr}, \text{Mn}$) bulk ceramics
113	CRS/2023-24/01/1048	Dr S Janakiraman 9564419432 janakiramans@iiti.ac.in Indian Institute of Technology	Enhancement of sodium transport through crystal orientation control in layered oxide cathode thin film for sodium-ion microbatteries
114	CRS/2023-24/01/1015	Dr Jagannath Roy 9875357912 royj0707@gmail.com Central University of South Bihar	Chloride free Al-based eutectic electrolyte for fast charging and long cycling life of metal anode (Al) of Al-ion rechargeable batteries.
115	CRS/2023-24/01/1029	Surbhi Gupta 9582079119 sgupta@mnit.ac.in Motilal Nehru National Institute of Technology	Static and Dynamic Magneto-transport in Ferromagnet/Multiferroic Heterostructures
116	CRS/2023-24/01/1052	I Prakash 09486199353 prakmat@gmail.com SASTRA Deemed University	Carbon Dot Impregnated $\text{Li}_2\text{FeSiO}_4$ cathode material Engineering Electrode, Electrolyte and charging process for high capacity lithium-ion battery applications

117	CRS/2023-24/01/1018	Dr. Bhoomika Patel 9898308973 drbhoomikampatel@gmail.com National Forensic Sciences University	Comparative Analysis of Multiple Marketed Formulations of Shatavaryadi Churna
118	CRS/2023-24/01/1021	Dr. Vijayalakshmi Dayal 9620228132 drvldayal@gmail.com Maharaja Institute of Technology Mysore	Local structure studies from high energy X-ray diffraction and its correlation to understand the multiferroic behaviour in BiFeO ₃ and Zr-Ca modified BaTiO ₃ composites.
119	CRS/2023-24/01/1045	Mohammad Waseem Akhtar 9319411202 makhtar5@jmi.ac.in Jamia Millia Islamia	Spin Hall Magnetoresistance and Magnetic switching in Heavy metal / Ferromagnet heterostructure
120	CRS/2023-24/01/1055	Dr. R. Ajay Rakkesh 9941798898 ajayrakkesh@gmail.com SRM Institute of Science and Technology	Investigating Intercalation in Vanadium based Layered Oxides through Soft X-ray Absorption Spectroscopy for Fast-Charging Aqueous Zinc-Ion Batteries
121	CRS/2023-24/01/1022	Dr. Sasanka Dalapati 7797146518 sdalapati@gmail.com Department of Materials Science, Central University of Tamil Nadu	Development of room temperature phosphorescent materials for energy-efficient phosphorescent organic light emitting diode (PHOLED) applications
122	CRS/2023-24/01/1028	Dr Y Srinivasa Reddy 9849419334 ysreddy.ou@gmail.com Chaitanya Bharathi Institute of Technology (A)	Exploration of Strongly Correlated Magneto-responsive Functionalities of High Entropy Double Layered Oxides
123	CRS/2023-24/01/1043	Vekata Swamy Gollapothu 7675099909 venkatgrace77@yahoo.com Department of Physics, St. John's college, Agra	Magnonic spintronics in coupled ferromagnetic bilayers deposited by pulsed laser deposition.
124	CRS/2023-24/01/1025	Vasundhara Mutta 9496445333 mvas@iict.res.in CSIR-Indian Institute of Chemical Technology	Development of spinel structured high entropy ferrites with tunable magnetic ordering for multifaceted applications
125	CRS/2023-24/01/1057	THAKUR PRASAD YADAV 5422307307 yadavtp@gmail.com University of Allahabad	Development of multicomponent high entropy-based magnetocaloric materials for cutting-edge solid-state cooling technologies
126	CRS/2023-24/01/1030	BNVN 9845238106 prasan-nagd@davangereuniversity.ac.in FFGFQ	Smart Gas Sensors Using Polyaniline-Ferrite Nanostructures: A Sustainable Approach
127	CRS/2023-24/01/1032	ASHISH KUMAR CHALANA 8527346111 ashish.chalana@sharda.ac.in Sharda University	Synthesis and Application of Metal Chalcogenides decorated 3D porous Ti ₃ C ₂ T _x MXene Aerogel in Adsorption of Heavy Metals
128	CRS/2023-24/01/1039	Somnath Chanda Roy 8056081266 somnath@iitm.ac.in IIT Madras	Band edge engineering of metal oxide nanostructures: an investigation through the ultraviolet photoelectron spectroscopy

129	CRS/2023-24/01/1042	Dr. Kumar Prasannajit Pradhan 7008325721 kp-pradhan@iitdm.ac.in Indian Institute of Information Technology Design and Manufacturing Kancheepuram	Fabrication and Characterization of Single-Transistor FDSOI Neuron at Cryogenic Temperatures for Reliable Neuromorphic Computing: From Material to Device to System Perspective
130	CRS/2023-24/02/1114	Shankar H 7448727596 shankarnh@gmail.com KPR Institute of Engineering and Technology	Synchrotron-Based Investigation of Electronic Properties in Transition Metal-Doped Sulfide Materials for Thermoelectric Device Applications
131	CRS/2023-24/01/1047	Dr. Aditya Sharma 08745864881 adityaiuac@gmail.com Department of Physics, SOAE, UPES, Dehradun	X-ray absorption spectroscopy investigations on Na-ion based solid state Electrode and Electrolyte Materials
132	CRS/2023-24/01/1058	Sunanda Kumari Pattri 09438848400 skpatri_phy@vssut.ac.in Department of Physics, Veer Surendra Sai University of Technology, Odisha	Functional Properties of Multiferroic Derivatives with Antiferroelectric/Ferroelectric and Antiferromagnetic/Ferromagnetic Compositionally Complex Ceramics
133	CRS/2023-24/01/1037	Shailendra Kumar Saxena 9981366616 shailens@srmist.edu.in SRM Institute of Science and Technology, Kattankulathur	Electronic Transport through Protein/bio Molecular Junction
134	CRS/2023-24/01/1038	Dr. Anil J Patil 8208713100 aniljp48@gmail.com Department of Physics, DDSP college Erandol	Investigation on spin-chain structure of and Kondo effect of GO incorporated Na ₄ MTeO ₆ compound
135	CRS/2023-24/01/1040	Kailas Wasewar 9422558423 klwasewar@che.vnit.ac.in Visvesvaraya National Institute of Technology Nagpur	Development of Nano-Hybrid Metal Catalysts for Hydrogen Generation
136	CRS/2023-24/01/1041	Prof K S Lokesh 9035500208 kslokesh@vskub.ac.in Department of Studies in Chemistry, Vijayanagara Sri Krishnadevaraya University, Ballari	Design and development of bifunctional catalysts for clean energy production by electrochemical water splitting
137	CRS/2023-24/01/1044	Dr.D.Saritha 09591908844 dsaritha_chm@cbit.ac.in Chaitanya Bharathi Institute of Tvechnology	Nanoscopic Exploration of Honeycomb Layered Oxide Cathodes for Na-Ion Batteries: A Synergetic Approach via SEM, TEM, EDX, and In-Situ XRD
138	CRS/2023-24/01/1049	Prof. Garudadhvaj Hota 09938646340 garud@nitrkl.ac.in Department of Chemistry, NIT Rourkela, Odisha, 769008	Development of organic-inorganic hybrid nanomaterials for effectual visible-light active photocatalytic degradation of water pollutants
139	CRS/2023-24/01/1053	Debanjan Polley 7980766276 debanjap@srmist.edu.in SRM Institute of Science and Technology	Demonstration of Nanoparticle based Polarizers for the Terahertz Frequency Band
140	CRS/2023-24/01/1051	Santosh Krishna Haram 8888840630 santosh.haram@unipune.ac.in Department of Chemistry, Savitribai Phule Pune University	In-situ X-Ray Fluorescence and Absorption Spectroscopic Investigation of Pt-M (M = Ni, Co, and Fe) Alloys Supported on 2D MXene: The Correlation of Electronic, Structural, and Electrocatalytic Activities for Oxygen Reduction Reaction

141	CRS/2023-24/01/1050	Dr. P.S. Solanki 9327088608 piyush.physics@gmail.com Department of Physics, Saurashtra University, Rajkot, 360006, India	YMnO ₃ and BiFeO ₃ Assisted Field Effect Studies on Pulsed Laser Deposited Mixed Valent Manganites
142	CRS/2023-24/01/1054	Tulika Srivastava 9584463094 tulikas@srmist.edu.in SRM Institute of Science and Technology Katankulathur Chennai	Performance Evaluation of CMT and CZT detectors through tailoring the deep level defects
143	CRS/2023-24/01/1060	Prabhakar Singh 8004924507 psingh.app@iitbhu.ac.in IIT BHU	Superparamagnetic and optical absorption study of transition metal oxide doped bismuth ferrite nanopowder for memory & energy storage, photocatalysis and biomedical application
144	CRS/2023-24/02/1124	Dr. Srinivas Boora 8919527525 srinivas.physicsscholar@osmania.ac.in VNR Vignana Jyothi Institute of Engineering and Technology	Sol-gel derived Eggshell based bioactive glasses for bone tissue regeneration
145	CRS/2023-24/01/1056	ASHISH BHATNAGAR 7355903963 ashishbhatnagarbhu@gmail.com Jaypee Institute of Information Technology	Analysing MgH ₂ (0D)/MXene(2D) heterostructure for application in hydrogen fueled devices: Experimental and theoretical investigation
146	CRS/2023-24/01/1059	Dr. Pachineela Rambabu 9074508220 rams.hcu@gmail.com Department of Pure and Applied Physics, Guru Ghasidas Vishwavidyalaya (A Central University)	Exploring Anomalous Nernst effect in magnetic Heusler alloys for energy harvesting applications through first principles calculations
147	CRS/2023-24/01/1061	Anand Mohan Shrivastav 9811193975 anand.mhn734@gmail.com SRM Institute of Science and Technology	Robust plasmonic metasurfaces for bacterial detection via SERS spectroscopy and machine learning approaches
148	CRS/2023-24/01/1062	Dr. K. Vinay Kumar Reddy 9966352545 kvinay_physics@cbit.ac.in CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY, HYDERABAD	Unveiling spin-phonon coupling assisted magneto-electric properties and anisotropic thermal expansion of RFeO ₃ compounds
149	CRS/2024-25/01/1400	HARISH SHARMA AKKERA 9652050805 ah.sharma75@gmail.com BMS Institute of Technology and Management	High-performance -Ga ₂ O ₃ -based Metal-Insulator-Semiconductor structure deep UV photodetectors for biomedical applications
150	CRS/2024-25/01/1401	Mohd Zubair Ansari 8882629888 mohdzubair@nitsri.ac.in National Institute of Technology Srinagar	Stimulating the infrared shielding capability of Sb-doped SnO ₂ for energy-efficient windows.
151	CRS/2024-25/01/1402	Avinash Ganesh Khanderao 8793450562 avinashkhanderao@gmail.com Jagadamba Mahavidyalaya, Achalpur City	Development of Flexible Organic Field Effect Transistors (FO-FET)

152	CRS/2024-25/01/1411	Dr. Surender Kumar 9945670632 surender@ampri.res.in CSIR- Advanced Materials and Processes Research Institute (AMPRI)	Physico-chemical and electrochemical characterizations of Hard Carbon for Na- ion battery application
153	CRS/2024-25/01/1403	Anjaneyulu Ponnamp 9741965325 anjaneyulup@cuk.ac.in Central University of Karnataka	Photo memristors using nanomaterials for neuromorphic applications
154	CRS/2024-25/01/1404	PUTHA KISHORE 06302983846 kishore.photonics@iiitk.ac.in INDIAN INSTITUTE OF IN- FORMATION TECHNOLOGY DESIGN AND MANUFACTUR- ING KURNOOL	Development of Highly Sensitive Cryo- genic Magnetic Field FBG sensors for Accelerometer Applications
155	CRS/2024-25/01/1405	Sandeep Arya 09419156254 snp09arya@gmail.com University of Jammu	Fabrication and characterization of man- ganese based electrodes for self-charging supercapacitors
156	CRS/2024-25/01/1408	Sudeshna Samanta 9163773830 sudeshna2000@gmail.com GI- TAM Deemed To Be University, Bengaluru, India	Investigation of the kagome physics and novel quantum phenomena in an R-166 compound
157	CRS/2024-25/01/1415	Karthikeyan Krish- namoorthy 9944327247 karphd85@gmail.com CSIR- AMPRI	Development of conventional and hybrid alkaline electrolyzer cell using metal hex- acyanoferrate nanostructures for green hydrogen production
158	CRS/2024-25/01/1448	Laxman Singh 9910186046 lax- manresearcher@suksn.edu.in Sid- dharth University	Development of High Entropy Spinel Metal Oxide as Electrode Material for Superior-Performance of Supercapaci- tor via Auto Combustion Synthetic Ap- proach
159	CRS/2024-25/01/1432	Sunil Kumar Srivastava 9424610776 sksri- vasta@mngcub.ac.in Mahatma Gandhi Central University	Investigation on Polaron Pair Dynam- ics of Organic Semiconductors using Transient Absorption and Raman Spec- troscopy for Advanced Optoelectronics
160	CRS/2024-25/01/1407	C. S. Suchand Sangeeth 8547823845 sangeeth@nitc.ac.in National Institute of Technology Calicut	Tuning the charge transport in MX- ene Polymer composites for flexible elec- tronic applications
161	CRS/2024-25/01/1406	Rituraj Sharma 8358914348 rit- urajsharma.weizmann@gmail.com CSAR IPS Academy Indore	Interaction between chiral phonons and surface electronic states in topological crystalline insulators
162	CRS/2024-25/01/1440	Dr. S. Mohan Raj 9943845363 mohanraj.s@kpri.ac.in Materials Science	Development of high entropy oxide ma- terials for oxygen evolution reaction in anion exchange membrane water elec- trolyzer
163	CRS/2024-25/01/1429	Dr. Miteshkumar Harishbhai Patel 9904283429 miteshp- atel389@yahoo.com Dr. K. C. Patel Research and Development Center, CHARUSAT University	Fabrication of Asymmetric/symmetric high energy density supercapacitor using MOF derived Copper-based delafossites.
164	CRS/2024-25/01/1428	Dr. Nagaraju Rachna 9849452878 r.nagraju@vce.ac.in Department of Physics, Vasavi College of Engineering	Development of High-Density Glasses for Enhanced Optical Properties and Radia- tion Shielding Applications

165	CRS/2024-25/01/1417	K Sethuraman 9445252309 ksethuraman@cutn.ac.in Department of Materials Science, Central University of Tamil Nadu	Optimizing Quaternary Chalcogenide Absorber Layer Using Solution Method for Highly Efficient Thin Film Solar Cell Applications
166	CRS/2024-25/01/1423	Hemant Jatav 7000744113 hemantphy95@gmail.com SOP, DAVV	Plasmonic Nanoparticles in SiO and TiO Matrices: Exploring Nonlinear Optical Properties for Optical Limiting Applications
167	CRS/2024-25/01/1409	Dimple Shah 9714504517 dshah@phy.svnit.ac.in Department of Physics, Sardar Vallabhbhai National Institute of Technology (SVNIT), Surat	Exploring 2D layered Crystals and Nanocrystals for Applications in optoelectronics, photocatalysis, and Van der Waals Heterojunctions
168	CRS/2024-25/01/1447	Dr Mohammad Ashiq 9795618285 ashiq@ampri.res.in CSIR-Advanced Materials and Processes Research Institute, Bhopal	Porosity and residual stress analysis of additively manufactured AlSi10Mg based metal matrix composites through synchrotron X-ray imaging and diffraction experiments
169	CRS/2024-25/01/1410	Ashish kumar 9461230731 akumar.etc@nitrr.ac.in National Institute of Technology Raipur	Fabrication and Characterization of an AlGaN/GaN metal oxide semiconductor high electron mobility transistor for sensing applications
170	CRS/2024-25/01/1444	Shankar H 7448727596 shankarnh@gmail.com KPR Institute of Engineering and Technology	Synchrotron-Based Investigation of Electronic Properties in Transition Metal-Doped Sulfide Materials for Thermoelectric Device Applications
171	CRS/2024-25/01/1433	Avijit Ghosh 9801070687 avijitphy@gmail.com Department of Physics, Central University of Jharkhand, Cheri-Manatu, Kamre, Kanke, Ranchi, Jharkhand-835222	Defects Tuning Upconversion Emission for Efficient Nanoscale Thermometry
172	CRS/2024-25/01/1430	Bharat Kumar 8105291080 bharat@cuk.ac.in Central University of Karnataka	Organization of cholesterol and antimicrobial peptide molecules in the Langmuir-Blodgett films of Lipid mixtures
173	CRS/2024-25/01/1453	Dr. Samar Layek 9027612539 samar.layek@ddn.upes.ac.in UPES, Dehradun	Pressure-Induced Evolution of Structure and Electronic Properties in High-Entropy Oxides
174	CRS/2024-25/01/1454	Dr Srinivas Reddy Golkonda 9908581771 srgnish@gmail.com Department of Physics & Chemistry, Mahatma Gandhi Institute of Technology	Certain Spinel Ferrite-Based Materials for Energy Storage Applications
175	CRS/2024-25/01/1412	Malay Kumar Das 09933026626 mkdnbu@yahoo.com University of North Bengal	Synchrotron x-ray studies on the hexatic phases and fluid-hexatic phase transitions in liquid crystals
176	CRS/2024-25/01/1421	Dr. Manju Unnikrishnan 09937009982 manju@immt.res.in CSIR-Institute of Minerals and Materials Technology, Bhubaneswar	Deciphering the Interactions between Rare earth fillers and Piezoelectric Polymers for Designing Flexible Self-powered Devices

177	CRS/2024-25/01/1413	Balvantsingh Labana 8980290084 BLABANA4@GMAIL.COM CHAROTAR University of Science and Technology	Development and the Characterisation of Novel Sulphur-Doped Carbon Anodes for Efficient Sodium-Ion Batteries
178	CRS/2024-25/01/1434	Abhijith T 9847984016 abt@psgias.ac.in PSG Insti- tute of Advanced Studies	Development of Plasmonic-Organic Hy- brid Nanowires with Enhanced Nonlinear Optical Activity for Applications in Flex- ible Laser Protection Films
179	CRS/2024-25/01/1414	Dr. Ashish R. Tanna 9427550255 ashish.tanna@rku.ac.in RK Uni- versity	Structural, transport and optical studies of novel double perovskite oxides
180	CRS/2024-25/01/1416	Koteswara Rao Bom- misetti 7036174552 koteswararao@iittp.ac.in In- dian Institute of Technology Tirupati	Single Crystal Growth of Highly Fru- strated Quantum Magnets by Optical Floating Zone
181	CRS/2024-25/01/1422	Manju 8566878324 manju.rao007@gmail.com De- partment of Physics, Central University of Kashmir, Ganderbal	Development of novel K(Sr, Ba)ScSi2O7:Ce phosphors for tar- geted emission in blue-cyan region
182	CRS/2024-25/01/1435	Aartee Sharma 09926583496 aar- tee.sharma08@gmail.com SVVV	Growth and Swift Heavy Ions Induced Modifications of Transition Metal/Rare Earth Doped HfO Nanomaterials/Thin Films
183	CRS/2024-25/01/1437	Swapnil Patil 9421066673 spatil.phy@itbhu.ac.in IITBHU	Single crystal growth and transport prop- erties of topological semimetal
184	CRS/2024-25/01/1419	Hardeep Kumar 9818762632 hardeepkumar@nituk.ac.in Na- tional Institute of Technology Uttarakhand	Investigation of Manganese nitride (MnxN1-x) based heterostructures for next generation Spintronics devices
185	CRS/2024-25/01/1418	Dr Krishna Kumar M 8144390176 krishnakumarinfo@gmail.com CHRIST (Deemed to be Univer- sity)	Enabling Quantum Coherence in Graphene Oxide
186	CRS/2024-25/01/1420	RAMPAL PANDEY 9424740758 rppandeysu@gmail.com Maulana Azad National Institute of Tech- nology (MANIT) Bhopal	Metal Organic Framework Based Green Membranes for Wastewater Treatment
187	CRS/2024-25/01/1424	Amirthakumar. C 8608383228 amirthakumar.c@ametuniv.ac.in Academy of Maritime and Training (AMET) University	Unidirectional growth of organic single crystal: p- Toluidinium sulfanilate for nonlinear optical applications
188	CRS/2024-25/01/1431	Sanjeev Gautam 9779713212 sgautam@pu.ac.in Panjab Univer- sity	Fabrication and Characterization of 2D Magnetic Thin Films for Qubit Applica- tions
189	CRS/2024-25/01/1427	Dr. SARAVANAKUMAR SUBRAMANIAN 9943812370 saravanaphysics@gmail.com Kalasalingam Academy of Re- search and Education	Local Structure and Electronic Insights of Chalcogenide Perovskites for Ad- vanced Optoelectronics

190	CRS/2024-25/01/1425	Dr. Mohua Chakraborty 8986772543 mohua.chakraborty@cgu-odisha.ac.in C. V. Raman Global University, Bhubaneswar	Transition metal chalcogenides based photo-rechargeable supercapacitor: towards photoenergy storage device
191	CRS/2024-25/01/1426	Dr. Fazalurahman K 8281576875 kfazalurahman@gmail.com University of Calicut	Probing the Water Splitting Mechanism on Metalloporphyrins Using X-ray Absorption Spectroscopy
192	CRS/2024-25/01/1438	Dr. Keval Jayantilal Gadani 7984119411 kjgadani@gmail.com Indian Institute of Teacher Education, Gandhinagar	Transport and Magnetic Properties of Manganite Composites for Spintronic Applications
193	CRS/2024-25/01/1436	Sujit Manna 8084575705 smanna@iitd.ac.in IIT Delhi	In-situ surface characterization and electron spectroscopy study of epitaxial anti-ferromagnetic Kagome semimetal films.
194	CRS/2024-25/01/1450	Dr. Tejendra Dixit 9589629061 tdixit@iiitdm.ac.in Indian Institute of Information Technology Design and Manufacturing Kancheepuram	All layered Oxide Hetero-structures based Photo-memristor using 2D-CuO and 2D -MoO ₃ towards Optoelectronic Intelligence
195	CRS/2024-25/01/1442	Dr. Sanjay Kashyap 7082413527 kashyapsanjay@gmail.com Thapar Institute of Engineering and Technology, Patiala	Development of Cost-Effective Rare-Earth-Free High Entropy Alloys for Magnetocaloric Applications
196	CRS/2024-25/01/1449	Dushyant Kumar 7303505820 kumardushyant14@gmail.com IIT Jodhpur	Engineering the Nonlinear Properties of Topological Quantum Materials for Electronic Applications
197	CRS/2024-25/01/1443	Santanu Pakhira 9062667749 spakhira.phy@gmail.com Maulana Azad National Institute of Technology Bhopal	Tuning the flat-band magnetism in itinerant frustrated systems
198	CRS/2024-25/01/1445	Harishchandra Singh 9463525363 singh85harish@gmail.com Amity University Noida UP	In-Situ XPS and XAS Investigation of Negative Photoconductivity in Cobalt Tellurates
199	CRS/2024-25/01/1452	Dr. KONETI. SRIKANTH 9346065223 srikoneti.ou@gmail.com KESHAV MEMORIAL ENGINEERING COLLEGE, O.U, HYDERABAD.	Development of Rare Earth / Rare Earth Free Incorporated Phosphors/Nanophosphors for eco-energy lighting based White Light Emitting Diodes (W-LEDs)
200	CRS/2024-25/01/1446	RAMANJANEYA REDDY G 09994228166 anjireddy-gontu@gmail.com Sathyabama Institute of Science and Technology	DEVELOPING TAILORED MULTI-FERROIC COMPOSITIONS WITH DIVERSE CRYSTAL STRUCTURES AND MAGNETIC PROPERTIES FOR MAGNETOELECTRIC APPLICATIONS
201	CRS/2024-25/01/1451	DR. RAJEEV SHESHA JOSHI 9482864378 rajeevsj@cuk.ac.in Cetrul University of Karataka	Tuning Spin Textures at the Interface of Ferromagnets with Spin Orbit Coupled Solids and Ferroelectrics
202	CRS/2024-25/01/1457	Dr. MAMATHA NAKKA 6304422192 mamatha_n@vnrvjiet.in VALLURUPALLI NAGESWARA RAO INSTITUTE OF ENGINEERING AND TECHNOLOGY	CHITOSAN DERIVATIVES AS A CORROSION INHIBITOR FOR MILD STEEL

203	CRS/2024-25/01/1455	Dr.S GOKUL RAJ 9444039559 gokulraj@pondiuni.ac.in PONDICHERY UNIVERSITY	GROWTH OF STRONTIUM TITANATE (SrTiO_3) SINGLE CRYSTALS IN DIFFERENT ORIENTATIONS: A LOW COST ROUTE FOR DEVELOPING PHOTOSTRICTIVE ELEMENTS
204	CRS/2024-25/01/1456	SHYAMALA PULIPAKA 9949042258 shyamalapulipaka06@gmail.com Chemistry Department, Andhra University	Raman Spectroscopic Characterization of Solvation Effects in Non-flammable Phosphate-mixed Liquid Electrolytes for Sodium Ion Batteries.
205	CRS/2024-25/01/1458	Pallavi Ghalsasi 09427506305 pallavig@nuv.ac.in Navrachana University	Studies on Multidimensional Metal-Cyanide Framework Compounds and their Analogues
206	CRS/2025-26/01/1653	Dr. Vipin Kumar Singh 8726757569 vipinsingh@csir.res.in CSIR-CGCRI, Kolkata	Investigation of Perovskite Oxide Ultrathin Film Growth and Surface Properties Using LEED, STM, and Photoemission Spectroscopy
207	CRS/2025-26/01/1656	Rahul Shukla 9981177360 rshukla2@gitam.edu gitam	Design, synthesis, and Charge-Density Analysis of Halogen-Bonded Cocrystals for Organic Semiconducting Functional Materials.
208	CRS/2025-26/01/1658	Sayan Chaudhuri 8370000326 schaudhu@gitam.edu GITAM University	Tuning thermoelectric efficiency in Half-Heusler thin films through controlled off-stoichiometry and local structure probing
209	CRS/2025-26/01/1663	Manish Kumar 7879243286 manish.ugcdae@gmail.com University of Petroleum & Energy Studies, (UPES)	Tuning the metal-insulator transition and synchrotron radiation study of vanadium dioxide based thin films
210	CRS/2025-26/01/1666	Ravi Shankar Kumar.Ch 9246670474 schavali@gitam.edu GITAM University	Synthesized Functional Metal Organic Frameworks(MOF) of Schiff bases for Opto Electronic and Energy storage applications
211	CRS/2025-26/01/1667	Dr. Shikha Rani Sahu 9165518366 ap_shikhas@dhsgsu.edu.in Dr. Harisingh Gour Central University, Sagar (M.P.)	Synchrotron X-ray Diffraction Studies of Electric-Field and Temperature-Driven Structural Phase Transition in Single Crystalline VO_2
212	CRS/2025-26/01/1669	Debasish Datta 9433462745 debasish.physics@presiuniv.ac.in Presidency University	Ion Irradiation Effects on the Synthesis, Structure, and Properties of High-Entropy Alloys (HEA)
213	CRS/2025-26/01/1671	Budhendra Kumar Singh 08789680886 budhendrasingh@cusb.ac.in CENTRAL UNIVERSITY OF SOUTH BIHAR	Cationic Disorder-driven Magnetic Structure and VRH Transport in Mixed B-site rare-earth Perovskite $\text{Pr}_2\text{MnFeO}_6$ through Neutron Diffraction Analysis
214	CRS/2025-26/01/1683	Shalendra Kumar 9717220279 shalendra.kumar@ddn.upes.ac.in UPES	Operando Synchrotron X-ray Diffraction Studies of MXene/Metal Oxide Nanocomposites for Ultrahigh Energy Density Supercapacitor Devices
215	CRS/2025-26/01/1685	Aman Mahajan 09417932547 aman.phy@gndu.ac.in Guru Nanak Dev University	Investigation of Structural and Physico-chemical properties of High Entropy MXene for Energy Conversion and Storage Applications

216	CRS/2025-26/01/1689	Digvijay Narayan Singh 9453926992 singh.digvijaynarayan@gmail.com Department of Physics, Dayanada Sagar College of Engineering	Engineering of ferroelectric and spinel ferrite-based hybrid composite ceramics for spintronic applications.
217	CRS/2025-26/01/1692	Dr. Sweta Sharma 8858334488 swetasharma3989@gmail.com Department of Environmental Sciences, Dr. Harisingh Gour Vishwavidyalaya, Sagar, M.P.	Monitoring microplastic aging and oxidation through Raman and synchrotron infrared spectroscopy
218	CRS/2025-26/01/1696	Rohit Ranjan Shahi 9450872847 rohitrshahi@gmail.com Department of Physics, Central university of South Bihar	Advancing Soft Magnetic High Entropy Alloys: Synthesis and Property tuning in Bulk and Thin Film Form
219	CRS/2025-26/01/1700	BIDHAN HAZRA 9454811279 bidhanhazra2024@gmail.com Medicaps University	Exploring Nonlinear Optical and Fluorescent Properties of Plasmonic Nanostructures -Assisted Molecules Aimed for The Advancement of Cancer Treatment.
220	CRS/2025-26/01/1701	Vigneshwaran Baskaran 09789446048 vigneshwaran.b.irc@sathyabama.ac.in Sathyabama Institute of Science and Technology	Investigation on Dielectric Properties of (BaSm)(TiSn)O and (BaSm)(TiZr)O in Cryogenic Temperature for Sensing Applications
221	CRS/2025-26/01/1702	Dr. Neetik Mukherjee 9163413099 neetikm1985@gmail.com Medicaps University	Investigation of Information-Theoretic Measures and Nonlinear Optical Properties in Atoms, Molecules, and Plasmas under Extreme Conditions Using Density Functional Theory: Applications to Quantum Computing.

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S.No	CRS No	P.I. Details	Title
1	CRS/2022-23/02/822	Dr. Sachin Bhaladhare 8974151903 sachinbhaladhare@tripurauniv.ac.in Chemical and Polymer Engg., Tripura University	pH-responsive stable and biocompatible chitosan-based nanogels for controlled and target-specific drug delivery
2	CRS/2022-23/01/705	Jagadish Chandra Mahato 09775941090 jagadishc.mahato@visva-bharati.ac.in Department of Physics, Visva-Bharati	Structural and electronic property investigation of metallic ultrathin film on InAs(111) surfaces using STM and XPS
3	CRS/2022-23/02/800	Dr Pujarini Bannerjee 9831433538 pujarini.banerjee87@gmail.com DIAMOND HARBOUR WOMEN'S UNIVERSITY	Studies on PET-radioisotopes conjugated with compounds derived from Indian spices.
4	CRS/2022-23/02/801	Archana Tiwari 9679241203 archana.tiwari@bhu.ac.in Banaras Hindu University	Modulating magnetic properties of Arsenic nanoparticles by defect engineering for applications in magnetic separation of As ions.

5	CRS/2022-23/02/802	Swati De 9831244131 deswati1@gmail.com Univer- sity of Kalyani	Luminescent Lanthanide-based Nano- materials for the Development of Poten- tial Security Inks - Synthesis, Characteri- zation and Exploring Anti-Counterfeiting Application
6	CRS/2022-23/02/803	DR. JIGNESHKUMAR VAS- ANTBHAI ROHIT 9909500225 jignesh@nitsri.ac.in National Institute of Technology, Srinagar, Jammu and Kashmir, India	Nanoparticles as smart optical sensors: Development of green synthesis routes and Application in detection of pesticides at agriculture field
7	CRS/2022-23/02/804	DR. SK. ANIRBAN 9333284577 sk.anirban@gmail.com Govern- ment General Degree College, Salboni	Synthesis, characterization, magnetic and dielectric studies of some rare earth based double perovskites for futuristic applications
8	CRS/2022-23/02/805	Paltu Kumar Dhal 9732695969 paltuk.dhal@jadavpuruniversity.in Jadavpur University	Secondary metabolites of gamma- radiation-resistant bacteria and its antioxidant properties
9	CRS/2022-23/02/806	Soumyendu Roy 8250991908 soumyendu.roy@bennett.edu.in Bennett University	Detection of radio-resistance relevant mRNAs using metal oxide-based mi- crofluidic electrochemical biosensors
10	CRS/2022-23/02/807	Dr. ANULIPI AICH 9433318240 aanulipi@gmail.com BHAIRAB GANGULY COLLEGE (UN- DER WEST BENGAL STATE UNIVERSITY)	Improvement of Soil Fertility using Poly- acrylamide Degrading Halo-tolerant Mi- crobial Isolates from Mangrove soil and Enhancement of their Potential using Mutagenic Radiation: A Novel Approach
11	CRS/2022-23/02/808	URMI CHATTERJI 9339376535 urmichatterji@gmail.com Univer- sity of Calcutta	Evaluation of proteostasis and misfolded proteins in skin injuries of irradiated- diabetic mice to identify markers with di- agnostic significance
12	CRS/2022-23/02/809	Aritra Banerjee 9433678476 aritrabanerjee.cu@gmail.com De- partment of Physics, University of Calcutta	Investigation of electrical, thermal and magneto-transport properties of Sb and Mn doped GeTe-Bi ₂ Te ₃ based new class of thermoelectric materials.
13	CRS/2022-23/02/810	Sanjay Kumar Upad- hyay 8454882471 sku- physics@gmail.com HNB Garhwal Central University Srinagar Uttarakhand	Study of ferroelectricity in the magnetic state of spin-chain based system: Explo- ration of new multiferroic materials
14	CRS/2022-23/02/811	Hilal Ahmad Punoo 9419024079 hilalpunoo@gmail.com University of Kashmir Hazratbal Srinagar J&K	Nano-encapsulation of isoflavones from soy whey and their controlled release in yoghurt targeting health benefits
15	CRS/2022-23/02/812	Ranjita Misra 09043469112 ranjita.misra2022@gmail.com Jain University, Bengaluru.	Development of SMART: a Biomimetic Nanotheranostic Prototype for Simul- taneous Diagnosis and Therapy of Glioblastoma Recurrence after Radio- therapeutics
16	CRS/2022-23/02/813	Dr. A. Mohamed Haroon Basha 8248453242 harun- basha09@ametuniv.ac.in AMET Deemed to be University, Chennai	Study of the effect of Azolla and Graphite on Morphological and Physico chemical properties and Bacterial Yield of Soil for the Enhancement of Soil Fer- tility and Productivity

17	CRS/2022-23/02/843	VIVEKANANDA MAN-DAL 09434556340 mandal-vivek@gmail.com University of Gour Banga, Malda - 732103, West Bengal	Effect of gamma radiation on the antimicrobial compounds production of some selected bacteria and fungi.
18	CRS/2022-23/02/814	Nandan Bhattacharyya 09434453188 bhat-tacharyya_nandan@rediffmail.com Panskura Banamali College	To test the hypothesis whether DNA polymerase beta can be used as novel target for new drugs and gamma radiation mediated intervention of ovarian cancer.
19	CRS/2022-23/02/815	RINARANI RAY 09830312540 raypumicro@gmail.com Department of Biotechnology, Maulana Abul Kalam Azad University of Technology, West Bengal.	Elucidation of Quorum quenching efficacies of Phytochemicals from Two Medicinal Plants of Bengal (Gulancho and Kalanchoe) Tinospora spp and Kalanchoe spp against biofilm forming ESKAPE pathogens.
20	CRS/2022-23/02/816	Punarbasi Chaudhuri 9831140980 punar-basi_c@yahoo.com Department of Environmental Science, University of Calcutta	Possible enhancement of microbial efficiency of microplastic degradation by employing radiation exposure
21	CRS/2022-23/02/817	Arindam Karmakar 9903647067 akarmakar@suryasencollege.org.in Surya Sen Mahavidyalaya	Investigation of multicaloric materials
22	CRS/2022-23/02/818	Goutam Biswas 09830238008 goutam@cbpbu.ac.in Cooch Behar Panchanan Barma University	Synthesis and Development of Magnesium Doped Jeanbandyite Materials for Different Applications
23	CRS/2022-23/02/819	Dr Bichitra Nanda Parida 9439302293 bnparida@cit.ac.in Central Institute of Technology Kokrajhar	Multiferroic and Optical Characteristics of Rare Earth Doped Perovskite for Energy Harvesting Devices
24	CRS/2022-23/02/820	Chiranjib Barman 9432690164 chiranjib-barman@skbu.ac.in Sidho-Kanho-Birsha University	Theoretical prediction and experimental identification of evaporation residues on the interaction of high energy heavy ion beams on different converter targets
25	CRS/2022-23/02/821	Debarghya Goswami 9733179441 sangdin@gmail.com St. Joseph's College, Darjeeling	The effect of different ion beam irradiation on the physical properties of room temperature ferroelectric and antiferroelectric liquid crystal mixtures suitable for display applications
26	CRS/2022-23/02/823	Dr. Mustafa Jahir Raihan 9836224129 raihan@aliah.ac.in Department of Chemistry, Aliah University, New Town, Kolkata - 700160	Development of Novel Thiazole Derivatives as Potential Anticancer and Antimicrobial Agent
27	CRS/2022-23/02/824	Kamalika Sen 9163295148 kamalchem.roy@gmail.com Department of Chemistry, University of Calcutta	Design of Fluorescent Active Hydrogels for Trace Detection of Biomolecules of Physiological Importance
28	CRS/2022-23/02/825	Dripta De Joarder 9874321313 dripta.joarder@vitap.ac.in VIT-AP University	Detailed study of Human Neutrophil - Defensin peptide-2 (HNP-2) fragments in wound healing

29	CRS/2022-23/02/826	Dr. Rajarshi Sarkar 9830979777 rishiraj84@gmail.com VIT-AP University	Neural Regeneration: Design of an efficient nanocapsule for delivering nerve growth factor to the central nervous system
30	CRS/2022-23/02/827	Ananya Baksi 8597814186 ananyabaksi6@gmail.com Ja- davpur University	Probing intracellular compartmentalized distribution of Ca ²⁺ using nanoclusters as a result of ionizing radiation
31	CRS/2022-23/02/845	Samudra Prosad Banik 9874490243 samu- drapb@gmail.com Department of Microbiology, Maulana Azad College, Kolkata	Structural characterisation of glycation associated protein aggregation: Unravelling the cellular decision of AGE-RAGE axis induced inflammatory response versus amyloid associated toxicity
32	CRS/2022-23/02/828	Dr. Jayanta Kumar Biswas 09434179945 jk- biswas@klyuniv.ac.in University of Kalyani	Ecotoxicological Assessment of Silver Nanoparticles in a Model Food Chain of Freshwater Ecosystem: A Mechanistic Exploration
33	CRS/2022-23/02/829	Prof. Jatindra Nath Bhakta 9830958006 krishnendu- manna1986@gmail.com Uni- versity of Kalyani	Targeting Redox-Regulated Signaling System for Radioprotection using Grape Proanthocyanidins: A Molecular Approach for Product Development
34	CRS/2022-23/02/830	Prof. Sk Manirul Islam 9231572961 manir65@rediffmail.com Uni- versity of Kalyani	A search for materials-based heterogeneous catalysts with applications for the synthesis of valuable compounds
35	CRS/2022-23/02/831	Dr. Utpal Ghosh 7980323577 ut- pal8ghosh@gmail.com University of Kalyani	Insight on gamma radiation-induced bystander effects in various human cancer cells in the presence of olaparib
36	CRS/2022-23/02/832	Dr. Nilanjan Chakraborty 9432880773 nilanjan- chak85@gmail.com Scottish Church College, Kolkata	Reduction of post-harvest rot of tomato caused by <i>Alternaria</i> sp. through the application of γ -radiation
37	CRS/2022-23/02/833	Sukhamoy Bhat- tacharyya 9143546426 sukhamoy.b@gmail.com Dept. of Physics, Jadavpur University	Study on the effect of radiation dose on the glow curves of thermoluminescent materials
38	CRS/2022-23/02/834	N. Rajendra Prasad 09842305384 drprasadnr@gmail.com Annamalai University	Radioprotective effect of crude secondary metabolite extracts of <i>Deinococcus radiodurans</i> in human peripheral blood lymphocytes and Swiss albino mice.
39	CRS/2022-23/02/835	RAMA RANJAN BHAT- TACHARJEE 9748778922 rama.rb@snuniv.ac.in DEPART- MENT OF CHEMISTRY, SISTER NIVEDITA UNIVER- SITY	Effect of ion implantation on graphene-like thin films for chemo-resistive sensor development: Study the effect on the robustness and conducting properties of the films
40	CRS/2022-23/02/836	Prakash Kumar Nayak 7008017286 pk.nayak@cit.ac.in Central Institute of Technology Kokrajhar	Design and Development of a cost-effective motorized trunk crusher cum extractor for the formulation of functional food using a nutritionally rich wild edible fern, <i>Tashe</i>

41	CRS/2022-23/02/837	Dr. Saurabh Yadav 09456577674 saurabhyadav40@rediffmail.com Department of Biotechnology, H.N.B. Garhwal University, Srinagar Garhwal, Uttarakhand, Pincode-246174	Investigation of heavy metal analysis in soil, water and medicinal plants from areas undergoing anthropogenic activity in Garhwal Himalaya, India
42	CRS/2022-23/02/838	Dr. Subarna Bhattacharyya 9035757587 subarna.bhattacharyya@jadavpuruniversity.in Jadavpur University	Inhibition of fungal biodeterioration of leather using low and high LET ionizing radiation
43	CRS/2022-23/02/839	Dr. Tithi Maity 9474554625 tithi_chem@pkcollegecontai.ac.in Prabhat Kumar College, Contai	Development of novel supramolecular thio urea-amide spacer hydrazone chemosensor having effective anion/cation sensing results to heteronuclear complex formation having DNA/HSA binding, lysosome tracking and antiproliferative property
44	CRS/2022-23/02/840	SANJAY KUMAR 9831115427 kumar_dsa@yahoo.com Department of Physics, Jadavpur University	Probing functional applications of nano-sized spinal ferrites and rare-earth based perovskite manganites as heterogeneous catalyst and magnetocaloric refrigerant
45	CRS/2022-23/02/841	Jitendra Kumar Katiyar 8090113301 jitu1283@gmail.com SRM Institute of Science & Technology, Kattankulathur, Chennai	Tribo-corrosion and Mechanical Performance of Nanocomposite Thermal Barrier Coating for Reactor Application
46	CRS/2022-23/02/842	Dr. Geetarani K Sharma 9923879351 geeta.sharma@unipune.ac.in Department of Chemistry, Savitribai Phule Pune University	Investigation of the mechanism of free radical induced oxidation of Uracil in presence of metal nanoparticles from molecular to cellular level.
47	CRS/2022-23/02/847	Somnath Biswas 7597171575 somnath@lnmiit.ac.in The LNM Institute of Information Technology	Ion-implanted Heat Dissipation Channels in Microelectronics
48	CRS/2023-24/02/1109	JAYAVANT LAXMAN GUNJAKAR 7798969611 gun-jakarjl@gmail.com D. Y. Patil Education Society (Deemed to be University), Kolhapur	Self-assembled Polyoxovanadate Intercalated Ni-Fe-Layered Double Hydroxide Nanohybrid Electrocatalysts for Oxygen Evolution Reaction
49	CRS/2023-24/02/1102	JOYDEEP CHOWDHURY 9831074995 joy-deep.chowdhury@jadavpuruniversity.in DEPARTMENT OF PHYSICS, JADAVPUR UNIVERSITY, 188 RAJA S.C. MALLICK ROAD, KOLKATA : 700 032	Exploring the morphological and structural features of misfolded fibrilled proteins and their cytotoxic intermediates from small-angle X-Ray scattering and spectroscopic studies.
50	CRS/2023-24/02/1106	Dr. Soumya Mukherjee 8420084314 smmukherjee4a@gmail.com Kazi Nazrul University	Development of Metamaterial based on high dielectric constant material using CNT-Graphene as reinforcement for versatile applications

51	CRS/2023-24/02/1122	Dr. Sandipan Chatterjee 9874048450 sandipan@clri.res.in CSIR, Central Leather Research Institute	Transformation of waste tonner powder into functionalized magnetic carbon for the fabrication of metal-loaded recyclable catalyst for organic transformation and wastewater treatment.
52	CRS/2023-24/02/1100	Dr. Jayanta Nanda 8967344475 jayanta@nbu.ac.in University of North Bengal	Peptide-based Fluorescent, Smart, Supramolecular Materials and Their Applications
53	CRS/2023-24/02/1103	Dr. Vaibhavkumar Mehta 9426388144 vaibhavmehta@nau.in Navsari Agricultural University	Metal Organic Frameworks (MOFs) for Pesticide Degradation from Environmental samples in South Gujarat Region
54	CRS/2023-24/02/1113	Dr. Avik Mukherjee 0813598889 ak.mukherjee@cit.ac.in Central Institute of Technology Kokrajhar	Chitosan-gelatin based active and intelligent food packaging system with added onion peel extract as pH-indicator monitoring freshness of perishable foods
55	CRS/2023-24/02/1116	Ankan Dutta Chowdhury 9836001821 adchowdhury@kol.amity.edu Amity Institute of Nanotechnology	Precise Targeting through pH-Responsive Linkers for Optimizing Cancer Cell Eradication
56	CRS/2023-24/02/1101	Bidisa Chattopadhyay 9433064488 bidisa.chattopadhyay@gmail.com Lady Brabourne College	Impact of doping on the structural, magnetic, dielectric and transport properties of p-type CuCrO ₂ delafossite material
57	CRS/2023-24/02/1104	ABHIJIT BISOI 9830629051 ABIJITBISOI@GMAIL.COM INDIAN INSTITUTE OF ENGINEERING SCIENCE AND TECHNOLOGY SHIBPUR	Spectroscopic study of ⁵² Cr.
58	CRS/2023-24/02/1111	RamaRao Malla 07386168249 dr.rrmalla@gmail.com GITAM (Deemed to be University)	Assessment of comparative efficacy of high LET and low LET ionizing radiation to induce radiosensitivity in CD151+ stem-like Paclitaxel resistant subpopulation of triple-negative breast cancer
59	CRS/2023-24/02/1105	Prof Papita Das 9433021159 papitasaha@gmail.com Professor	Synthesis of Mxene/Graphene Oxide based magnetic Photo-catalyst and coated composite on biochar for the removal of Emerging pollutants present in water
60	CRS/2023-24/02/1120	Dr. Arnab Ghosh 9433912076 arnab.ghosh@uem.edu.in Department of Basic Science and Humanities, University of Engineering and Management Kolkata	Fabrication of freestanding 2D CuO nanosheets/reduced graphene oxide nanocomposite based electrodes and enrichment of its electrochemical performance by doping and defect engineering for supercapacitor device applications
61	CRS/2023-24/02/1108	Dr. Satya Prakash Pati 8260253166 pati.phys@gmail.com North-Eastern Hill University	Development of Lead-free, Single-phase Magnetoelectric Composites for Possible Straintronic Applications
62	CRS/2023-24/02/1107	Dr. Ranabir Banik 8100953738 ranabir.banik91@gmail.com Institute of Engineering & Management, University of Engineering and Management	Study of novel excitations in axially asymmetric nuclei in A ~ 120 region using light ion beams.

63	CRS/2023-24/02/1119	Manoj Kumar Sharma 9592780056 msharma@thapar.edu Thapar Institute of Engineering and Tech Patiala	Fragmentation analysis of actinide and superheavy nuclei and associated stability aspects
64	CRS/2023-24/02/1112	Biplab Kumar Paul 9830186619 destinationbiplab@gmail.com University of Engineering and Management, Kolkata.	Exploring the Doping Effects on Hydrogen and Oxygen Evolution Reactions of Transition Metal Oxide Semiconductor Quantum Dots
65	CRS/2023-24/02/1110	Hemen Dutta 943548279 duttah@gauhati.ac.in Gauhati University	Fractional Computational Modelling in Radiobiology
66	CRS/2023-24/02/1115	Gopi Nath Daptary 6294926832 daptarygn@nitrrkl.ac.in Department of Physics and Astronomy, National Institute of Technology, Rourkela 769008, India	Electronic transport in low dimensional spinel oxide superconductor
67	CRS/2023-24/02/1117	Dr. Zahed Hossain 8697901534 zahed_kly@klyuniv.ac.in Department of Botany, University of Kalyani	Study on the role of selenium nanoparticles (Se-NPs) in alleviating arsenic stress in maize
68	CRS/2023-24/02/1118	Dr. Abhijit Barthakur 9435109190 abhijit.barthakur@cottonuniversity.ac.in Cotton University	Investigation of Radiative capture reactions at Gamow peak using BARC-TIFR PLF (Pelletron-Linac Facility)
69	CRS/2023-24/02/1121	Monalisa Mohanty 06370667345 monalisamohanty@rdwu.ac.in Rama Devi Women's University	Elemental Composition and Bioconcentration profiling for heavy metals in chromite mines flora of Odisha with phytoremediation perspective
70	CRS/2023-24/02/1123	Dr. S. Manjunath Kamath 06380272746 manjunathkamath.irc@sathyabama.ac.in Sathyabama Institute of Science and Technology	SUSTAINED RELEASE OF CHRYSIN AND CERIUM OXIDE IONS FROM 3D PRINTED SCAFFOLD FOR PREVENTION OF RELAPSE AND BONE REGENERATION AT THE CANCER EXCISION SITE AND COMBINATORIAL EFFECT OF HIGH ENERGY RADIATION
71	CRS/2023-24/02/1125	Swarnendu Roy 8617408499 swarnendu.kc@gmail.com NBU	Synthesis of mesoporous silica nanoparticles loaded with natural antifungals for the management of Alternaria leaf spot disease
72	CRS/2023-24/02/1126	Nitish Rai 7753085251 nits6691@gmail.com University of Lucknow	Synthesis of Carbon Quantum Dots from Acorus calamus rhizome of Garhwal Himalayan range for investigation of potential Senotherapeutic activity
73	CRS/2024-25/02/1508	Dr. Pradip Kumar Sukul 9775576610 sukul.ochem@gmail.com Department of Chemistry, Amity University Kolkata	Polymersome-Based Nanotraps for Regulating Excessive Production of Reactive Electrophilic Species

74	CRS/2024-25/02/1500	SATISH KUMAR PANDEY 9915926715 pandey.satish12@gmail.com Mizoram University (Central University) Aizawl	Development of NIR-Responsive Multifunctional Zeolitic Imidazolate Framework-8 (ZIF-8) Modified Hydrogel for Bacterial Infection Treatment and Wound Healing
75	CRS/2024-25/02/1503	Dr. S. Srinivasan 9884766203 srini.140375@gmail.com Presidency College	Understanding the mechanism of electrocatalytic performance of annealed Molybdenum disulfide catalysts for Hydrogen Evolution Reaction
76	CRS/2024-25/02/1502	Dr. Surajit Ghosh 9635380751 sghosh@chemistry.du.ac.in University of Delhi, Delhi	Biomimetic Bacterial Outer Membrane Models for Antibiotic Permeability Assessment
77	CRS/2024-25/02/1501	Dr. Mijanur Rahaman Molla 9239018512 mrm-chem@caluniv.ac.in University of Calcutta	Water Soluble Polycurcumin Prodrug: Design, Synthesis, Self-assembly, Triggered Degradation and Chemotherapeutic Application
78	CRS/2024-25/02/1505	Abinash Das 8876055439 abinashnitsm@gmail.com Department of Physics, PSG Institute of Advanced Studies, Coimbatore	Development of Z-scheme Based Photoelectrodes through Energetic Ag Ion Beam Implantation for Photoelectrochemical Hydrogen Production
79	CRS/2024-25/02/1506	Joydeep Das 8617280805 joydeep@mzu.edu.in Department of Chemistry, Mizoram University	Fabrication of metal and nitrogen co-doped Carbon Dot-based nanoenzymes with significant antioxidant capacity as well as their applications in colorimetric and fluorometric detection of selective analytes
80	CRS/2024-25/02/1514	Dr Jyoti Ranjan Rout 9438047975 routjr@aiph.ac.in AIPH University, Bhubaneswar, Odisha	Understanding the mechanism of stress development due to excess fertilizers and pesticides in rice cultivation: Possible etiology of cancer in Bargarh district of Odisha
81	CRS/2024-25/02/1507	Dr. Bidhan Chandra Samanta 8250095619 bidhansamanta@yahoo.in Department of Chemistry, Mugberia Gangadhar Mahavidyalaya, Bhubapatnagar, Purba Medinipur, West Bengal, India	Radio sensitizing attributes of bio-inspired transition metal complexes derived from N, S, O donor ligands balancing efficacy and toxic side effects
82	CRS/2024-25/02/1516	Jyoti Prakash Maity 7363988133 jyotiprakash.maityfch@kiit.ac.in Kalinga Institute of Industrial Technology (KIIT), Deemed to be University,	Exploring the potential of radiation-modified microbial/ bacteria consortia in bio augmentation of metal decontamination in polluted wastewater/groundwater
83	CRS/2024-25/02/1524	Dr. Uttam Kumar Das 07980953013 uttamkumar-das@mgcub.ac.in Mahatma Gandhi Central University	"Design and Synthesis of Schiff Base based Asymmetric Chemosensor for Colorimetric or Fluorometric Detection of Water-Soluble Toxic Cations, Anions and Biomolecules and its Application."
84	CRS/2024-25/02/1523	Tapas Ghosh 9123064267 tapasg.chemistry@jadavpuruniversity.in Department of Chemistry, Jadavpur University, Kolkata, West Bengal	Design and Synthesis of Shape-Persistent Donor-Acceptor Functional Liquid Crystals for Optoelectronic Applications

85	CRS/2024-25/02/1515	Manojkumar Maroti Jad-hao 9604445548 manojjad-hao04@gmail.com Institute of Chemical Technology Mumbai Marathwada Campus Jalna	Development of highly selective fluorescent Carbon Quantum Dots for PFAS Detection via Hydrophobic, Positive Functionalization
86	CRS/2024-25/02/1509	RATAN DAS 8974445986 das-ratanphy@gmail.com Tripura University (A Central University)	To study the influence of changes in cation distribution due to rare earth metal ion doping in Co-Mn ferrite and Ni-Zn ferrite nanocrystals on the dielectric, ferroelectric, optical and magnetic properties along with Mossbauer spectroscopic study
87	CRS/2024-25/02/1510	Dr Nandan Pakhira 8670674033 npakhira@gmail.com Kazi Nazrul University	Magnetic and transport properties of undoped and doped Crednerite phase by solution chemistry
88	CRS/2024-25/02/1512	Biswanath Mukherjee 9433135126 biswanath.mukh@gmail.com Sidho-Kanho-Birsha University, Purulia	Visible-Light sensitive Organic Memristor devices for brain-inspired Synaptic functionalities and Neuromorphic computing
89	CRS/2024-25/02/1511	Chirantan Kar 9434714425 chirantankar2000@gmail.com Amity University Kolkata	Innovative and smart detection technologies for potentially toxic heavy metals in food samples
90	CRS/2024-25/02/1513	Bidhan Chandra Ruidas 07589216760 bidhanruidas@bitmesra.ac.in BIT Mesra	Electrochemical Energy driven valuable products Generation from CO ₂ using MXene-based electrocatalyst
91	CRS/2024-25/02/1522	Prasanta kumar rath Rath 7349460444 babu-code0x@gmail.com Centurion University of Technology and Management Odisha	Study of material properties due to irradiation of secondary particles on perovskites materials.
92	CRS/2024-25/02/1517	Jyoti prasad Borah 9077435260 jpborah@nitnagaland.ac.in NIT Nagaland	Induced exchange bias effect by Gamma irradiation for optimizing self-heating efficiency for magnetic hyperthermia applications
93	CRS/2024-25/02/1518	Ruma Ray 9433439652 ju-phyruma@gmail.com JADAVPUR UNIVERSITY	Tailoring of dielectric and piezoelectric response of piezo-active materials
94	CRS/2024-25/02/1519	Tanmoy Basu 9040227037 tanmoy.basu@tcgcrest.org TCG CREST	Single photon emitter creation by low energy ion beam
95	CRS/2024-25/02/1521	Dr. Amit Banerjee 9609719400 amitbanerjee.nus@gmail.com Dept. of Physics, Bidhan Chandra College, Kazi Nazrul University, Asansol, West Bengal, India	Terahertz Nano-screening Towards Defect Analysis in Thin Films and Devices
96	CRS/2025-26/02/1721	Esa Bose 07980703422 ebose@kol.amity.edu Department of Physics, Amity University Kolkata	Development and Characterization of Rare-Earth-Free Permanent Magnets based on Mn-Al, Mn-Bi, Fe-based alloys with Exchange-Spring Composite Architectures

97	CRS/2025-26/02/1725	E. Thirumalaikumar 08778422148 thirumalai.e@gmail.com Sathyabama Institute of Science and Technology	Biosurfactant Production by Halophilic Microbes: A Promising Approach for Heavy Metal Bioremediation
98	CRS/2025-26/02/1730	Dr. Susmita Das 9051468348 sdas@kol.amity.edu Amity University Kolkata	Solar Energy Powered Photoelectrocatalytic Membranes for Simultaneous Green hydrogen Production and Wastewater Remediation
99	CRS/2025-26/02/1731	Nilanjana Kumar 8427669814 nilanjana.kumar@gmail.com Chettinad Institute of Technology	Study of astrophysical gamma rays using gamma ray spectroscopy
100	CRS/2025-26/02/1733	Sukanta De 9735637820 sukanta.physics@presiuniv.ac.in Presidency University	Abundant Bio-waste Derived Activated Carbon and Its Nanocomposites for High-Performance Supercapacitors
101	CRS/2025-26/02/1745	Dr. Kolli Suresh Kumar 09848322321 skolli@gitam.edu Department of Life Sciences- Environmental science	Phytoremediation Potential of Halophytes for Environmental Cleanup: Assessment of Metal Uptake and Binding Mechanisms Using Advanced Characterization Techniques at UGCDAE CSR Kolkata Centre
102	CRS/2025-26/02/1746	Dr.Subha Krishna Rao 6383378766 subhakrishna narao.irc@sathyabama.ac.in Sathyabama Institute of Science and Technology	Development Of Multifunctional Composites Incorporating Tailored Crystal Structures And Diverse Magnetic Classifications For Advanced Defense And Aerospace Applications.

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S.No	CRS No	P.I. Details	Title
1	CRS/2022-23/03/864	Sumit Bhawal 06351343768 sumitbhawal@gmail.com Navrachana University Vadodara	Development of Cholesterol Based Biomimetic Amphiphiles: Self Assembly, Microstructure and Drug Delivery Applications
2	CRS/2022-23/03/862	Ratnesh Kumar Pandey 7017346709 rpandey@ddn.upes.ac.in University of Petroleum and Energy Studies Dehradun	Study of radiation stability of WC nanostructures towards neutron irradiation for fusion reactor applications
3	CRS/2022-23/03/850	ANUP KUMAR NATH 8473084970 anup.tu@gmail.com COTTON UNIVERSITY	Studies on electrical transport and electrochemical properties of graphitic carbon nitride based 2D nanocomposites
4	CRS/2022-23/03/851	Dr. Chandra Sekhar Angani 9573958184 cangani@gitam.edu GITAM Deemed to be University	Electromagnetic Non-Destructive Testing for inspection of Magnetic Pulse Welded joints
5	CRS/2022-23/03/852	Dr. Y. SUNDARAYYA 8837015172 ysun- dar@nagalanduniversity.ac.in Nagaland University	Metallic Spin-Liquid Behavior and Anomalous Hall Effect in Geometrically Frustrated Pyrochlore Nanoparticles

6	CRS/2022-23/03/853	Dr. Soumyaranjan Mohapatra 8895540740 soumyaranjan.mohapatrafpy@kiit.ac.in Kalinga Institute of Industrial Technology (KIIT) Deemed to be University, Bhubaneswar, Odisha.	Investigation for the magnetoelectric coupling and the microscopic origin in (1-x) Bi ₂ Fe ₄ O ₉ (x) La _{0.7} Sr _{0.3} MnO ₃ (x = 0.1 - 0.5) composites for spintronics applications
7	CRS/2022-23/03/854	GIRISH JOSHI 8838660102 varadgm@gmail.com Institute of Chemical Technology Mumbai Marathwada Jalna campus	Development of Dielectric properties of Polymer /Air Plasma treated Graphene Oxide (APTGO) Nanocomposites for electronic Applications
8	CRS/2022-23/03/855	Dr. Swapan Kumar Mandal 9064596605 swapankumar.mandal@visva-bharati.ac.in Visva-Bharati, Santiniketan	Probing spin state bi-stability of spin crossover materials using neutron diffraction technique
9	CRS/2022-23/03/856	Dr. Sadafara Pillai 9913337995 sadafshirgar@rocketmail.com School of Sciences, P P Savani University, Surat	Mixed Polymeric Nanomicelles of Soluplus [®] and Tetronics [®] as a Strategy for Enhancing the Solubility, Bioavailability and Efficacy of Poorly Soluble Anti-cancer Drugs
10	CRS/2022-23/03/857	Dr. Ketaki Ketan Patankar 9890693356 ketakiketan@gmail.com Rajaram College Kolhapur	Magnetic interactions in substitutional solid solutions of ferrites and chromites.
11	CRS/2022-23/03/858	Dr. Ramesh Singampalli 8328570362 rsingamp@gitam.edu GITAM Deemed to be University	Investigation of irradiation induced defects/disorder in BiFeO ₃ based ferroelectrics for energy storage application.
12	CRS/2022-23/03/859	Ayyappan S 9445483531 ayyappan@phy.sastra.ac.in SASTRA Deemed to be University	Explore the Creation and Annihilation of Magnetic Ordering in Spinel Ferrite Nanoparticles
13	CRS/2022-23/03/860	Venkata Nagendra Kumar Putta 9885357559 pvenkatanagendrakumar@gmail.com GITAM Deemed to be University, Hyderabad Campus	Separation of rare-earth elements from geological samples on nanomaterial adsorbents and its quantification by neutron activation analysis (NAA)
14	CRS/2022-23/03/861	Dr Madhu Chennabasappa 9482944034 madhuc@sit.ac.in Siddaganga Institute of Technology Tumkur	Structural phase transitions in spinel's and NASICON structured materials
15	CRS/2022-23/03/865	Rohit Medwal 9818140025 rmedwal@iitk.ac.in Indian Institute of Technology Kanpur	Spin to Charge Interconversion at Ferromagnetic Metal/Ferromagnetic Metal and Metal/Metal Oxide Interfaces
16	CRS/2022-23/03/866	Dr. Soumya Jyoti Ray 7091640976 ray@iitp.ac.in IIT Patna	Neutrons as a probe for local magnetic behaviour of Nd-based perovskite oxide systems
17	CRS/2022-23/03/867	Manjunath Timappa Nayak 09764247790 manjunathscifi@gmail.com Carmel College of Arts, Science and Commerce for Women	Study of percolation pathways in alkali silicate glasses to understand and enhance the electrical conduction properties.

18	CRS/2022-23/03/868	Prof. Nikesh A. Shah 9099939450 snikesh@yahoo.com Department of Physics, Saurashtra University, Rajkot, 360006, India	Resistive, Magnetoresistance and Magnetic Behaviors of YMnO ₃ Nanoparticles added Earth Mixed Valent Manganites
19	CRS/2022-23/03/869	Dr. D Sajan 09495043765 drsajanbmc@gmail.com Bishop Moore College, Mavelikara, Kerala	Single-Crystal Neutron Diffraction and Third Order Nonlinear Optical Studies of Pyridine-2-Carboxylic Acid derivative for Optical Limiting Applications
20	CRS/2022-23/03/870	Dr. Vivek K Malik 8979610980 vivek.malik@ph.iitr.ac.in Indian Institute of Technology Roorkee	To study the temperature and field dependent spin reorientation in Cr substituted orthoferrites
21	CRS/2022-23/03/871	NAVED I MALEK 9033167127 navedmalek@chem.svnit.ac.in SARDAR VALLABHBHAI NATIONAL INSTITUTE OF TECHNOLOGY	Hydrogel Promoted Transdermal Permeation of Anti-cancer Drug for the Breast Cancer Treatment
22	CRS/2022-23/03/872	Karthik Shastry 08897920216 choudur.karthik@gmail.com RV College of Engineering	Study of laser texturing on interface of Graphene/Al-Si coating on Al 7075 using Positron Annihilation Lifetime Spectroscopy (PALS) technique.
23	CRS/2022-23/03/873	Sachin Gupta 09930115209 gsachin55@gmail.com Bennett University (Times of India Group), Greater Noida, UP	Development of novel spintronic material and devices
24	CRS/2022-23/03/874	Ketan Kuperkar 9998651458 kck@chem.svnit.ac.in Department of Chemistry, Sardar Vallabhbhai National Institute of Technology (SVNIT).	Amphiphilic hydrogel formulation as emerging templates in drug delivery systems
25	CRS/2022-23/03/875	Dr. Sudip K. Batabyal 8870886694 s_batabyal@cb.amrita.edu Department of Science, Amrita Vishwa Vidyapeetham, Coimbatore	Development of photoferroc materials for efficient solar energy harvesting
26	CRS/2022-23/03/876	Sunita Srivastava 8291998572 sunita.srivastava@phy.iitb.ac.in Indian Institute of Technology Bombay	Investigating self-assembly of functional building blocks at the nano-bio interface for biomedical applications
27	CRS/2022-23/03/877	Dr. V. Ganesan 9893342597 v.ganesan@medicaps.ac.in MediCaps University, Indore	Probing the magnetism in substituted chromites : [(Zn,Co)Cr ₂ O ₄].
28	CRS/2022-23/03/878	Sajal Kumar Ghosh 8527695318 sajal.ghosh@snu.edu.in Shiv Nadar Institution of Eminence	Deciphering mechanism of diseases caused by imbalance of phenylalanine: A biophysical study by X-ray and Neutron scatterings
29	CRS/2022-23/03/879	Dr Ganesh Shridhar Hegde 08277049441 358ganesh-hegde@gmail.com KLE Society's S Nijalingappa College	Synthesis and thermoelectric Characterization of In/Sn/Ge doped Bismuth Chalcogenide films prepared by DC magnetron sputtering

30	CRS/2022-23/03/880	Ranjita Ghosh Moulick 9953846057 ran- jita.ghoshmoulick@gmail.com Amity University Haryana	Measurement of lipid and protein arrangement in a proteoliposome by SANS
31	CRS/2022-23/03/863	PANNEER MUTHUSEL- VAM I 9790376301 ipm- physics@gmail.com BANARAS HINDU UNIVERSITY	Investigation of charge, and spin ordering in the mixed valance Mn ³⁺ and Mn ⁴⁺ manganite in A _{1-x} Mn _{1-x-y} TeyO ₆ (A: Sr, Ba, Ca) Single crystals
32	CRS/2023-24/03/1210	Dr. Bhaskar Chan- dra Behera 7978186306 bhaskar.phyitm@gmail.com Department of Physics and Nanotechnology, Faculty of Engineering and Technology, SRM Institute of Science and Technology, Kattankulathur	Insight for the Establishment of Quasi 2-Dimensional Honeycomb lattice and Spin-Liquid State with very precise mixing of d ₀ -d ₁₀ Cations through Synthetic Approach in 1-Dimensional Canted Anti-ferromagnet -Cu ₂ V ₂ O ₇
33	CRS/2023-24/03/1200	Jesby George 09037462326 jes- bypulickal@gmail.com St. Do- minic's College Kanjirapally	Device Quality and Large Size Quinoline Derivative Single Crystals for Nonlinear Optical (NLO) Applications
34	CRS/2023-24/03/1229	NAJMUL ARFIN 8899181118 syednajmularfin@gmail.com JAMIA MILLIA ISLAMIA	Structure, size and aggregation study of Phytoglycogen based soft materials: A step in developing potential drug carrier
35	CRS/2023-24/03/1209	Dr. Anjana P S 9495628015 psanjanaa@yahoo.com Depart- ment of Physics, All Saints' College, Thiruvananthapuram	A NEUTRON DIFFRACTION INVESTIGATION ON W-TYPE HEXAGONAL FERRITE FOR WIDEBAND TUNABLE MICROWAVE ABSORPTION
36	CRS/2023-24/03/1206	Shivani Dhall 8851164015 shiv- ani.dhall24@gmail.com D.A.V College, Jalandhar	Fabrication of Smart Hybrid Nanostruc- tures for Environment Gas Sensing Ap- plication
37	CRS/2023-24/03/1205	Dr. K. CHENNAKESAVULU 09600187387 chennakesavu- lureddy.chemistry@sathyabama.ac.in Sathyabama Institute of Science and Technology (Deemed to be University), Chennai- 600 119	DEVELOPMENT OF MAGNETO- ELASTOMER FOR EMI SHIELD- ING BY SYNTHESIZING NANO- MAGNETITE FROM IRON ORE TAILINGS AND GRAPHITE CON- CENTRATE FROM LOW GRADE GRAPHITE ORE
38	CRS/2023-24/03/1216	Dr. Subhasis Ghosh 9910345150 subhasis.ghosh.jnu@gmail.com Jawaharlal Nehru University	Investigation of interactions responsi- ble for formation of skyrmions and skyrmions driven phase transition in 2d and 3d magnetic magnetic systems
39	CRS/2023-24/03/1217	Dr. Dharmesh Va- rade 09662099608 dharmesh.varade@nuv.ac.in Navrachana University	The StructureFunction Relationship of Novel Green Surfactant Systems and their Applications in Cosmeceutics
40	CRS/2023-24/03/1220	Akhilesh Kumar Singh 07518357730 akhileshkumars- ingh@banasthali.in Banasthali Vidyapith, Rajasthan	Lanthanide and Transition-metal doped Halide Perovskites for Photodetectors
41	CRS/2023-24/03/1207	Tanmoy Chakrabarty 9394582670 im- tan270@gmail.com Krea Uni- versity	Exploring the magnetically ordered states in novel magneto-electric com- pounds Sr/CaFe ₃ O(PO ₄) ₃

42	CRS/2023-24/03/1203	Dr. Indrajit Naik 9437774653 indrajit_naik@yahoo.co.in Maharaja Sriram Chandra BhanjaDeo University	Exploration of Structural, magnetic & dielectric behaviors by substituting Al and Mn in CoTiO ₃
43	CRS/2023-24/03/1204	P Balaji Bhargav 9789095983 balajibhargavp@ssn.edu.in SSN	Structural and phase determination of highly stable and ionic conductive LLZO-based solid electrolytes using Neutron Diffraction Technique
44	CRS/2023-24/03/1208	Prof. Rabi Narayan Panda 9518984037 rnp@goa.bits-pilani.ac.in Birla Institute of Technology and Science, KK Birla, Goa Campus, Goa, India	Novel ferrites and magnetic alloys for multimodal theragnostic application for cancer treatment
45	CRS/2023-24/03/1212	Dr. Vidhi Shah 9426622725 vidhi.shah@lmcp.ac.in L. M. College of Pharmacy	Structural investigation of micellar nanocarrier of antibiotic drug in deep eutectic solvents
46	CRS/2023-24/03/1221	Kaustuv Manna 8972081383 kaustuvmanna@iitd.ac.in Indian Institute of Technology- Delhi,	Investigating novel topological states in kagome lattice single crystals using heat capacity, electrical and thermal magneto-transport measurements
47	CRS/2023-24/03/1219	Dr. Arpita Datta 7042026802 adatta@amity.edu Amity Institute of Nuclear Science and Technology, Amity University Uttar Pradesh, Sec- 125, Noida-201303	Efficacy Evaluation of Anti-diabetic and Cardio-protective Herbal Medical Formulations using Nuclear Analytical and Chromatography Techniques.
48	CRS/2023-24/03/1213	Dr. Nazima Sultana 9954654969 sultana.nazima47@gmail.com University of Science & Technology Meghalaya	Investigations of Morphologically Tuned Gemini Surfactant Self-assemble: Induced by Synchronization with Pharmaceutical Drug and its Potential Bio-Application
49	CRS/2023-24/03/1226	Dr S SHRAVAN KUMAR REDDY 9989828160 shra- van.somireddy@gmail.com CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY (CBIT), HYDERABAD	Exploring the emergence of long-range magnetic and skyrmion properties in doped Mn-Si based binary spin systems
50	CRS/2023-24/03/1211	Sivaprasad Mitra 9436161736 smitranehu@gmail.com Department of Chemistry, North-Eastern Hill University	Functionalized nanocarriers with surface active ionic liquids for drug delivery and augmented protein activity
51	CRS/2023-24/03/1215	Sony Varghese 9677072968 sonysv11@gmail.com Center for Nanoscience and Nanotechnology, Sathyabama Institute of Science and Technology	Investigation of the temperature-dependent electrical properties and structural characteristics of ionic liquid-mediated solid polymer electrolyte for sodium ion battery
52	CRS/2023-24/03/1214	RAJ KUMAR DUTTA 8859136848 r.dutta@cy.iitr.ac.in IIT Roorkee	Physico-chemical characterization of doped materials using conventional and nuclear techniques, and their device fabrication for supercapacitor application
53	CRS/2023-24/03/1224	Prof. Sugata Ray 9831009959 mssr@iacs.res.in Indian Association for the Cultivation of Science(IACS)	Unusual absence of Co magnetic moment within the Griffiths Phase system Dy _{1-x} Er _x BaCo ₄ O ₇ (x = 0.0, 0.25, 0.5, 0.75, 1.0)

54	CRS/2023-24/03/1218	Dr Chandra Shekhar Yadav 9816614494 shekhar@iitmandi.ac.in Indian Institute of Technology Mandi	Study of the evolution of exotic magnetic states in doped zirconates: $\text{Dy}_{2-x}\text{A}_x\text{Zr}_{2-y}\text{MyO}_7$, A: Pr, Tb, M = Ti, Sn ($x = 0 - 2.0$; $y = 0 - 2.0$)
55	CRS/2023-24/03/1227	Ranjan Patra 8872444652 ranjan-patra06@gmail.com Amity University Noida	Designing of Transition and Lanthanide ion Based Molecular Magnets for Quantum Computing Application
56	CRS/2023-24/03/1222	Dr. Oinam Gobin Singh 9856189874 oinamgobinsingh@yahoo.com Oriental College, Imphal, Manipur	Effect of electrolytes and pH on the mixed micellization of amphiphilic drugs with sodium alkylsulphate surfactants.
57	CRS/2023-24/03/1225	Dr. Jaydeep Bhattacharya 9711775392 jaydeep@jnu.ac.in School of Biotechnology, Jawaharlal Nehru University, New Delhi	Quantitative assessment of the properties of the Biodegradable Thermoresponsive zinc silicate fortified tuneable hydrogel for biomedical applications
58	CRS/2023-24/03/1223	Dr. G. Rajesh Babu 9429601439 rajesh.babu@nfsu.ac.in National Forensic Sciences University sector-9, Gandhinagar, Gujarat 382007	Use of Natural Fibres in Various Armour Applications
59	CRS/2023-24/03/1228	Dr. Vijaykumar Ishverlal Patel 9979509888 vijaypatel4686@gmail.com Navyug Science College, Surat	Stimuli responsive nanoassemblies: Bile salt mixed surfactants aggregates for pharmaceuticals
60	CRS/2023-24/03/1202	Dr. Dalpat Meena 9694016108 dalpat11phdmeena@gmail.com University of Rajasthan, Jaipur	Detection and Quantification of Fluorine and Uranium in Soil Samples from Rajasthan state
61	CRS/2024-25/03/1551	Sumanta Sarkar 7047542358 ssarkar@chemistry.du.ac.in University of Delhi	Investigation of structure-property correlations in new polyanionic lithium based solid-state conductors by Neutron Diffraction
62	CRS/2024-25/03/1550	Ganesh Shridhar Hegde 08310225169 ganesh.hegde@reva.edu.in REVA University	Fabrication and Characterization of cost-effective conducting polymer/chalcogenides flexible thermoelectric devices
63	CRS/2024-25/03/1550	Ganesh Shridhar Hegde 08310225169 ganesh.hegde@reva.edu.in REVA University	Fabrication and Characterization of cost-effective conducting polymer/chalcogenides flexible thermoelectric devices
64	CRS/2024-25/03/1550	Ganesh Shridhar Hegde 08310225169 ganesh.hegde@reva.edu.in REVA University	Fabrication and Characterization of cost-effective conducting polymer/chalcogenides flexible thermoelectric devices
65	CRS/2024-25/03/1552	Dr. Alik Sundar Majumdar 7045800260 asmajumdar@iitism.ac.in Department of Applied Geology, IIT (ISM) Dhanbad	Evaluation of Lithium and Rare Earth Elements Resource Potential in Jharkhand Laterite Deposits using Nuclear Analytical and Spectroscopic Techniques

66	CRS/2024-25/03/1554	Ashwin Mohan 9869506632 as.mohan@ictmumbai.edu.in Institute of Chemical Technology	Investigating the effect of introducing dopant 4d and 5d transition metals on the magnetism and spin structure of hybrid improper ferroelectric $\text{Ca}_3(\text{TM})_2\text{O}_7$, where TM = 3d transition metal
67	CRS/2024-25/03/1553	Partha Laskar 9903303177 laskarpartha@gmail.com GITAM University	CD44-targeted stimuli-responsive lipid-based cationic polymersomes for targeted cancer combination therapeutics
68	CRS/2024-25/03/1555	Shivaji Bhikaji Kashte 09518757400 ShivajiKashte.cir@dypgroup.edu.in D. Y. Patil Education Society (Deemed to be University) Kolhapur	Characterization of scaffolds containing montmorillonite, graphene oxide, and mxene for tissue engineering applications
69	CRS/2024-25/03/1567	RADHA PERUMAL RAMASAMY 8608762302 perumal.ramasamy@gmail.com ANNA UNIVERSITY CHENNAI	Investigation of 3D Printed Polymer Nano Composites Using Neutron and Dielectric Relaxation Spectroscopy
70	CRS/2024-25/03/1558	BHARATAM JAGADEESH 9866121601 jbharata@gitam.edu GITAM University, Visakhapatnam	Neutron Diffraction Investigations of Natural Hydrogenated and Selectively Deuterated 2D-layered Perovskite Solar Energy Materials
71	CRS/2024-25/03/1556	Akanksha Singh Kachhawaha 8459056541 akanksha.singh@nfsu.ac.in National Forensic Sciences University	Forensic Screening of PFAS in Indian Consumer Products using Conventional and Nuclear Analytical techniques
72	CRS/2024-25/03/1557	Durga Rao Tadiseti 7288023434 dtadiset@gitam.edu GITAM (Deemed to be University), Visakhapatnam	Unveiling structure-property relationships in double perovskites with strong spin-orbit coupling
73	CRS/2024-25/03/1559	Megha Vagadia 07678029528 meghavagadia@sauuni.ac.in Department of Physics, Saurashtra University, Rajkot	Probing magnetic quasiparticle phenomena using neutron diffraction
74	CRS/2024-25/03/1560	Dr. Ramovatar 7014335039 RAMOVATAR@CUH.AC.IN Central University of Haryana	Exploring RECrO Perovskite with Selective Dopants for Room Temperature Magnetization Reversal Applications
75	CRS/2024-25/03/1561	Dr. Sarita Rai 8299188841 dr_saritar@yahoo.co.in Department of Chemistry, Dr. Harisingh Gour Central University, Sagar, M. P.	Investigating the Effects of Doping and Nanostructuring on the Luminescence Properties of Rare-Earth Doped Phosphors and Neutron Activation Analysis
76	CRS/2024-25/03/1562	Prof Pawan Kumar Kulriya 8800389872 pkkulriya@mail.jnu.ac.in Jawaharlal Nehru University New Delhi	To investigate the structural and magnetic properties of HEAs by neutron diffraction
77	CRS/2024-25/03/1564	Shiv Brat Singh 9434036902 sbs22@metal.iitkgp.ac.in IIT Kharagpur	Study on clustering and precipitation in different steel microstructures

78	CRS/2024-25/03/1563	DASARI VENKATASAI 9652662027 venkatasai.physics@gmail.com VNR Vignana Jyothi Institute of Engineering and Technology	Study of magnetic and dielectric properties of $\text{Bi}_{1-x}(\text{Sr}_x/2\text{Sm}_x/2)\text{Fe}_{1-y}\text{Mn}_y\text{O}_3$ bulk ceramic materials for enhanced multiferroic applications
79	CRS/2024-25/03/1565	Ashvini D. Joshi 9427214675 ashvinijoshishah@gmail.com Saurashtra University	Charge Transport and Magnetoresistance Behaviors of $\text{La}_{0.3}\text{A}_{0.7}\text{MnO}_3$ based Thin Film Composites
80	CRS/2024-25/03/1566	Dr. Kiran Singh 09893134824 singhkp@nitj.ac.in Department of Physics, Dr B R Ambedkar National Institute of Technology, Jalandhar	Investigation of magnetic structure of magnetic selenites $\text{M}_2\text{Se}_2\text{O}_7$ (M: Fe, Mn, Co, Ni, etc.)
81	CRS/2025-26/03/1752	BHUMIREDDI SAT-TIBABU 09966101923 sbhumire@gitam.edu GITAM UNIVERSITY	High-Entropy Double Perovskites: Tailoring Cationic Disorder and Entropy Stabilization for Improved Multiferroic and Magnetoelectric Coupling
82	CRS/2025-26/03/1754	Swastik Mondal 9836469796 swastik_mondal@cgcric.res.in CSIR-Central Glass and Ceramic Research Institute	Exploration and Characterisation of Alkaline-Earth Transition Intermetallics: SpinOrbit Coupling, Topological States and Superconductivity
83	CRS/2025-26/03/1757	Dr. Anupinder Singh 09988191852 anupinders@gmail.com Guru Nanak Dev University Amritsar	Probing Magnetoelectric Coupling and Energy Harvesting in KNNBarium HexaferritePVDF Ternary Ceramic Composites Using Neutron Diffraction and Magnetic Measurements tools
84	CRS/2025-26/03/1764	Dr. P. Aruna 9108980300 draruna692@gmail.com Department of Physics, Dayannada Sagar College of Engineering	Neutron Scattering Insights into Interfacial StructureProperty Relationships in P3HT-based Polymer Thin Films.

Kalpakkam Centre

S.No	CRS No	P.I. Details	Title
1	CRS/2022-23/04/885	Dr C. Venkateswaran 9840868323 cvenkateswaran@gmail.com University of Madras	Optimisation of Double Perovskite $\text{Sm}_2\text{CrFeO}_6$ for Flexible Thin Film Device applications
2	CRS/2022-23/04/886	Sanjay Sankaranarayanan 9884988390 ssanjay@klh.edu.in Department of Electronics and Communication Engineering, Koneru Lakshmaiah Education Foundation, Hyderabad - 500 075, Telangana	Tailoring the material properties of MoS_2 and WS_2 nanosheets via ion implantation process for next generation photodetectors
3	CRS/2022-23/04/887	Dr V N Vijayakumar 9488021151 vnvphysics@gmail.com Bannari Amman Institute of Technology	Nanoparticles Dispersed Hydrogen Bond Ferroelectric Liquid Crystals for Efficient Optical Modulator

4	CRS/2022-23/04/888	Dr. K. Poonkodi 9842990353 poonks.che@gmail.com Nallamuthu Gounder Mahalingam College, Pollachi	"Construction of a 2D/2D MoS ₂ /Layered Double Hydroxides Heterojunction for Photocatalytic Green Ammonia Synthesis at Ambient Conditions".
5	CRS/2022-23/04/889	Anita R Warriar 9176432161 anitawarrior@ametuniv.ac.in Academy of Maritime Education and Training	Development of 2-Dimensional -In ₂ S ₃ -Ag/Au superstructures for electrochemical energy storage applications
6	CRS/2022-23/04/890	Dr. Kajal Kumar Dey 9810960870 itstiyash@gmail.com Centre for Nanoscience & Technology, Prof. Rajendra Singh (Rajju Bhaiya) Institute of Physical Sciences for Study and Research, Veer Bahadur Singh Purvanchal University	Ion beam induced surface engineering of 2-D metal chalcogenide nanomaterials for enhanced electrocatalytic activity in hydrogen evolution reaction (HER)
7	CRS/2022-23/04/891	A K NANDA KUMAR 09524698610 ak_nandakumar@cb.amrita.edu AMRITA UNIVERSITY, COIMBATORE CAMPUS	An ultra-low temperature synthesis of some of the 211 and 312 group MAX phases by flash sintering and a study of their suitability for energy applications
8	CRS/2022-23/04/892	Dr. Srinivasan Sampath 9488225916 srinivasansampath@cutn.ac.in Central University of Tamil Nadu, Thiruvavur	Extended -Conjugated Tetrabenzofluorene based Dual State Emissive Molecules for Detection of Explosives
9	CRS/2022-23/04/893	Dr. Kartick Malik 08584821557 kartickmalik@vec.ac.in Vidyasagar Metropolitan College	SnTe based Nano-Composite: Impact on structural, transport and Thermoelectric Power factor
10	CRS/2022-23/04/894	Kumaran V 7338703240 kumaranv@srmist.edu.in SRM Institute of Science and Technology (SRMIST), Kattankulthur campus	Investigation of Uranium Based Polyanionic Cathodes using GD-OES Depth Profile Analysis for Rechargeable Na-ion Batteries.
11	CRS/2022-23/04/895	Dr D VASANTH RAJ 8220944905 dvr.phy@psgtech.ac.in PSG College of Technology	Growth of WO ₃ Nanostructured Thin films on Flexible PET/PI Substrates as a Transparent Conductive Electrode for Smart Window Applications
12	CRS/2022-23/04/896	Sudip Kumar Saha 9830747140 sudipsahaju@gmail.com Diamond Harbour Women's University	Enhanced opto-electronic performance of Halide Perovskite Nanomaterials using dual oxide transporting layers
13	CRS/2022-23/04/897	Ramesh R 9790177663 rameshphys@gmail.com Periyar University	Fabrication of microscopic porous 3D turbostratic graphene film by Joule-heating method and study of electronic/ionic transport properties for compact capacitive energy storage
14	CRS/2022-23/04/898	Mani Ulaganathan 9500379742 nathanphysics@gmail.com Department of Sciences, Amrita School of Physical Sciences, Amrita Vishwa Vidyapeetham	New generation high voltage "Micro-Supercapattery" Proto-Type for Various Wearable/Portable Power Backup Applications

15	CRS/2022-23/04/899	R. Parimaladevi 9486148468 parimala249@gmail.com Mother Teresa Women's University	Tuning chalcogenide quantum dots/molybdenum disulfide nanocomposites for environmental remediation and dye-sensitized solar cell
16	CRS/2022-23/04/900	Gopika G 9645037589 gopikag1987@gmail.com Sathyabama Institute of Science and Technology	Development of 1T Transition Metal Di-Chalcogenides based heterostructures for efficient Hydrogen Evolution Reaction (HER)
17	CRS/2022-23/04/901	Karthikeyan Balasubramanian 9843566445 karthikeyanb@mepcoeng.ac.in Mepco Schlenk Engineering College	Fabrication and investigation of prototype Mg-ion battery using various Mg ₂ SiO ₄ based nanocomposites as electrode material
18	CRS/2022-23/04/902	Dr K Senthil 08610337911 senthil.k@vitap.ac.in VIT-AP University	Development of Advanced Materials based on MXene / Metal Oxide Nanocomposites for Energy and Environmental Applications
19	CRS/2022-23/04/903	R. Sivasubramanian 9994453010 rss@psgias.ac.in PSG Institute of Advanced Studies	Development of perovskite based efficient cathode for high performance Al-air battery
20	CRS/2022-23/04/904	Dr. D. Kalpana 9445394868 drkalpanaa@gmail.com Scientist	Hydrogen canisters for portable Fuel cell applications
21	CRS/2022-23/04/905	Dr.K.Jeyasubramanian 09486028170 kjeya@mepcoeng.ac.in Department of Chemistry, Mepco Schlenk Engineering College, Sivakasi, Tamilnadu	FABRICATION OF PROTOTYPE SUPERCAPACITOR EMPLOYING GAMMA RAY IRRADIATED AND ION IMPLANTED NEYVELI LIGNITE AS A RAW MATERIAL
22	CRS/2022-23/04/906	J Senthilselvan 9176056005 js-selvan16@gmail.com University of Madras	Development of transition metal nitride thinfilm counter electrode for solar cell application
23	CRS/2022-23/04/907	S DINAKARAN 9965998129 sdinakaran.phy@gmail.com St. Joseph's College (Autonomous)	Investigations on turning the luminescence of molybdate phosphors for WLED applications
24	CRS/2022-23/04/908	Dr. M. Rajasekar 08072736916 mrjasekar_83@yahoo.com Sathyabama Institute of Science and Technology	Development of novel copper sulfide-based heterostructure nanocomposite for high-performance thermoelectric device application
25	CRS/2022-23/04/909	Rafi Ahamed 9698753162 rafiahamed81@ametuniv.ac.in Academy of Maritime Education and Training	Development of Picric Acid based crystalline materials for the protection of photosensitive components against intense laser radiation during eye surgeries
26	CRS/2022-23/04/910	LAKHINATH SAIKIA 9774149510 lakhi-nath.saikia@rgu.ac.in Department of Chemistry, Rajiv Gandhi University, Arunachal Pradesh-791112	Magnetically active bare metal/mixed metal oxide nanoparticles for catalytic applications in cascade organic transformations
27	CRS/2022-23/04/911	Dr. S. Gowri 9043501140 gowri.phy@cauverycollege.ac.in Cauvery College for Women (Autonomous)	Design and Fabrication of Metal Organic Framework/Conducting Polymer Electrode Material for Energy Storage Applications

28	CRS/2022-23/04/912	Syed Arshad Hussain 7005694182 sahussain@tripurauniv.ac.in Tripura University	Study of chromatic response of Polydiacetylene (PDA) and demonstration of its application towards designing low cost colorimetric sensors
29	CRS/2022-23/04/913	Karunanithi Rajamanickam 9790818436 rkarunanithi@care.edu.in Chettinad Academy of Research and Education	Engineered Nanoformulation for MRI guiding and X-ray induced photothermal destruction of breast cancer tumors.
30	CRS/2022-23/04/914	Ravi Kant Choubey 9711236754 ravikantchoubey@gmail.com Amity University, Noida	Fabrication of low-cost and fast-response Ultraviolet/Visible photodetector based on ZnS/p-Si thin films.
31	CRS/2022-23/04/915	Dr. M. Govindaraju 7207359461 m_govindaraju@ch.amrita.edu Amrita Vishwa Vidyapeetham	Development of High Entropy Alloy (HEA) hardfacing material for nuclear applications
32	CRS/2022-23/04/916	Dr. M. Srinivasan 8939316518 srinivasanm@ssn.edu.in Department of Physics, SSN College of Engineering	Development of High Quality Novel Half Heusler Single Crystal(TaFeSb) for Waste Energy Recovery: Theoretical and Experimental Approach
33	CRS/2022-23/04/917	Mallikarjuna Rao Motapothula 7382025117 mallikarjuna.m@srmmap.edu.in Dr	Investigation of ion induced defect density and alloying dopants for catalyst development for CO2 reduction
34	CRS/2023-24/04/1323	Prabhakaran Thandapani 9488138153 prabhakaran.thandapani@vitap.ac.in Department of Physics, School of Advanced Sciences, VIT-AP University, Andhra Pradesh, India	Nanoheaters with Binary Phases for Magnetic Hyperthermia in Cancer Therapy
35	CRS/2023-24/04/1300	BALAJI D 9940855738 balajidevakumarcgc@gmail.com SATHYABAMA UNIVERSITY	Investigations on Rare Earth Doped Oxide Color Tunable Phosphors for White Light Emitting Diode Applications
36	CRS/2023-24/04/1307	Dr.P.Raji 9486963248 raji@mepcoeng.ac.in Mepco Schlenk Engineering College	Green synthesis of- [Li (Mn, Ni,Co) 2 O4] of anode material for Lithium- ion batteries
37	CRS/2023-24/04/1320	M. SIVANANTHAM 8608780287 siva_82msc@yahoo.com PRIST Deemed to be University	Development of heteroatom doped carbon based composites as electrocatalyst counter electrode for high performance solar cell applications
38	CRS/2023-24/04/1312	Abu Jahid Akhtar 7003156495 jahid.dhwu@gmail.com Diamond Harbour Women's University	Nanostructured Mixed Metal Oxides and Their Composites with 2D Materials for Photocatalysis and Energy Storage Applications
39	CRS/2023-24/04/1301	Dr P Kathirvel 9750299955 pkv.phy@psgtech.ac.in Department of Physics, PSG College of Technology, Coimbatore	INVESTIGATING THE EFFECT OF PROTON IRRADIATION ON THE PERFORMANCE OF GALLIUM OXIDE BASED UV PHOTODETECTOR FOR APPLICATION IN SPACE COMMUNICATION DEVICES
40	CRS/2023-24/04/1311	Dr. Jyothi G 9446118259 jyothi@msmcollege.in Department of Physics, M S M College, Kayamkulam, Kerala, Affiliated to University of Kerala	Development of rare earth doped single phase phosphors for white light emitting applications

41	CRS/2023-24/04/1302	Sudagar Jothi 8778587992 sudagar.jothi@vitap.ac.in VIT-AP University	Development of radiation-tolerant CrFe-CuNiWx/Cx high/medium-entropy alloy coatings through electroless route for nuclear applications
42	CRS/2023-24/04/1303	Prasanth R 7639846141 prasanth.ravindran@gmail.com Pondicherry University	Investigating the Impact of H ₂ and O ₂ Bubble Dynamics on Photoelectrochemical Water Splitting Efficiency
43	CRS/2023-24/04/1304	Dr. Amit Ranjan 8976882500 amitranjan@tnfu.ac.in Tamil Nadu Dr. J. Jayalalithaa Fisheries University	Electron beam irradiation and its effect on anti-nutritional factors, digestibility, and mycotoxin levels of aquafeed ingredients
44	CRS/2023-24/04/1305	Dr. K. P. V. Saba-reesh 8072362027 saba-reesh.velu@gmail.com Rathinam College of Arts and Science (An Autonomous Institution Affiliated to Bharathiar University; Accredited with A++ Grade (3rd Cycle) by NAAC & Approved by AICTE; NIRF Ranked within Top 200 Institutions for Seven consecutive years (2017-2023);	Impact of Heavy-Ion Irradiation on the Structural, Morphological, and Opto-Thermoelectric Properties of Dielectric-Gold Janus Particles as Efficient Propelling Microswimmers
45	CRS/2023-24/04/1306	Dr. R. Sivasubramanian 8374154294 s_subramanian@av.amrita.edu Department of Chemistry, School of Physical Sciences, Amrita Vishwa Vidyapeetham Amaravati Campus	Development of Perovskite based efficient cathode for high performance Al-air battery
46	CRS/2023-24/04/1309	Dr. B. Subramanian 9443465544 bsmanian@cecri.res.in CSIR- Central Electrochemical Research Institute	Enhancement of Electrocatalytic activity and bioactivity of Sputtered/Laser Ablated Transition Metal Nitride/Oxide Thin films For Biosensors and Bio implants
47	CRS/2023-24/04/1308	Raghavendra K G 9524236721 raghavendra.kg@manipal.edu Manipal Academy of Higher Education	Evaluation of mechanical properties and ion irradiation studies in novel ZrO ₂ Oxide Dispersion Strengthened Steels
48	CRS/2023-24/04/1325	DR TARIQ AHMAD SOFI 09419444019 tariq-sofi1@gmail.com SHER-E-KASHMIR UNIVERSITY OF AGRICULTURAL SCIENCES AND TECHNOLOGY OF KASHMIR	Nanoscale micro-nutrients: Synthesis, Characterization and application in Apple plant health management
49	CRS/2023-24/04/1316	Dr. R. Vaira Vignesh 9944446208 r.vairavignesh@gmail.com Amrita Vishwa Vidyapeetham	Studies on the fabrication of Borated Austenitic Stainless Steel SS304B4 using Diffusion Bonding and Diffusion Brazing Processes for Nuclear Shielding Applications

50	CRS/2023-24/04/1310	Dr.A.Sakthivel 9445975086 asakthivel@mepcoeng.ac.in Mepco Schlenk Engineering College	FABRICATION OF FULLY AUTOMATED REACTOR FOR THE EFFECTIVE REMOVAL OF HEXAVALENT CHROMIUM FROM INDUSTRIAL EFFLUENTS USING SURFACE MODIFIED NEYVELI LIGNITE
51	CRS/2023-24/04/1318	Ananth Steephen 9444554424 ananth.steephen@yahoo.com KPR institute of engineering and technology, Coimbatore	Green Hydrogen Generation from Toxic Industrial Wastewater through novel metal oxides
52	CRS/2023-24/04/1322	RAJASEKAR R 9952460698 rajamech@kongu.ac.in Kongu Engineering College	CREATION OF 2D MXENE HETEROSTRUCTURES TO AUGMENT PHOTOVOLTAIC PERFORMANCE
53	CRS/2023-24/04/1313	RAMALINGAM G 09445295572 ramanloyola@gmail.com ALAGAPPA UNIVERSITY	Room Temperature Ferromagnetic Behaviour of Vanadium based 2D nanomaterials
54	CRS/2023-24/04/1314	Dr. Barun Kumar Sanfui 9163493361 mailme.drbks@gmail.com Government College of Engineering and Ceramic Technology	Development of super hydrophobic ceramic matrix composites by cold sintering technique for space application
55	CRS/2023-24/04/1315	B. Geetha Priyadarshini 09843821434 geethapriyadarshini@gmail.com PSG Institute of Advanced Studies	An Integrated Approach in Advancement of Quaternary Oxychalcogenide Synthesis for Thermoelectric Applications
56	CRS/2023-24/04/1317	Dr.T.SATISH KUMAR 7200021540 t_satishkumar@cb.amrita.edu Department of Mechanical Engineering	High-entropy alloy cladding on high-nitrogen austenitic stainless steel with improved mechanical and corrosion properties for nuclear applications
57	CRS/2023-24/04/1319	C. R Mariappan 7404341816 crm@nitkkr.ac.in Pondicherry University	Design and development of all solid-state sodium ion battery based on novel solid electrolytes.
58	CRS/2023-24/04/1324	VARI SIVAJI REDDY 9633650698 sivaji@nitc.ac.in National Institute of Technology Calicut	Plasmonic nanostructure decorated transition metal dichalcogenide nanosheets for performance enhancement of organic solar cells
59	CRS/2023-24/04/1321	Prof. P. Ravindran 8300178007 raviphy@cutn.ac.in Central University of Tamil Nadu	Phase stability, thermodynamic, mechanical, and spectroscopic properties of nuclear fuel materials for fast breeder reactors at ambient and high pressures
60	CRS/2023-24/04/1326	Dr Ramesh Thotakura 9160400066 rameshouphysics@gmail.com BVRIT HYDERABAD College of Engineering for Women	Development of High Squareness Nanocrystalline Hexa Ferrites and Fabrication of a Proto-type Self-Biased Microwave Circulator
61	CRS/2024-25/04/1601	Rajesh Kumar Ulaganathan 7539938242 urajesh@nt.iitr.ac.in Indian Institute of Technology Roorkee	2D Hybrid Perovskite Crystals: A Scalable Solution for High Performance Transistor and Photodetector Devices

62	CRS/2024-25/04/1626	DASARADHA RAMARAO SEETHIRAJU 09880672045 dasaradharamarao.s@vitap.ac.in VIT-AP UNIVERSITY	MXenes based nano heterostructures: Synergistic Approaches for the development of Efficient Overall Water Splitting catalysts
63	CRS/2024-25/04/1610	Dr. G. Sathiyar 8883737950 gsn@psgias.ac.in PSG Institute of Advanced Studies	Development of CsPbI ₃ Quantum Dots with Short-chain Aromatic Ligands for Perovskite Quantum Dot Solar Cells
64	CRS/2024-25/04/1625	Dr. Indrajit Shown 07596917050 shownindrajit@gmail.com Hindustan Institute of Technology and Science	Exploring Sulfur Defects in 2D Zinc Indium Sulfide and Their Impact on Photocatalytic CO ₂ Reduction and Water Splitting
65	CRS/2024-25/04/1615	Dr. Junaid Masud Laskar 06382542022 jmlaskar@gmail.com SRM Institute of Science and Technology (SRM-IST), Kattankulathur, Chennai	Development of Quantum Raman sensor device for ultrasensitive detection of organic pollutant dye Rhodamine 6G
66	CRS/2024-25/04/1603	Dr. Ranjith G. Nair 07012910083 rgnair@nits.ac.in National Institute of Technology Silchar	Development of theoretically validated plasmonic multiphasic titania thin film through ion implantation technique and test its performance for green hydrogen generation
67	CRS/2024-25/04/1627	Subhenjit Hazra 8805209114 hazra.sj2009@gmail.com Sathyabama Institute of Science and Technology	Development of tunable emissive eco-friendly semiconducting ink for potential anti-counterfeit application
68	CRS/2024-25/04/1613	Prof. P. Ravindran 8300178007 raviphy@cutn.ac.in Central University of Tamil Nadu	Phase stability, thermodynamic, mechanical, and spectroscopic properties of nuclear fuel materials for fast breeder reactors at ambient and high pressures
69	CRS/2024-25/04/1604	Anil Kumar Thakur 8527856101 anilkt@hindustanuniv.ac.in Department of Physics, Hindustan Institute of Technology and Science (HITS)	Structural dynamics of topological defects in liquid crystals and its applications
70	CRS/2024-25/04/1631	Dr. Basil Kuriachen 9947187133 bk@nitc.ac.in National Institute of Technology Calicut	Investigations of microstructure and effect of anisotropy on the corrosion performance of wire-arc additively manufactured (WAAM) 304L
71	CRS/2024-25/04/1605	Dr. V. SIVA 8344396962 siva33phy@gmail.com Karpagam Academy of Higher Education	Development of Layered Transition Metal Oxide Cathode Material for Sodium-Ion Batteries with long cycle life
72	CRS/2024-25/04/1606	Dr. R. Ananthakumar 8895001133 ananth@larpm.in Advanced Research School for Technology & Product Simulation (ARSTPS), Central Institute of Petrochemicals Engineering & Technology (CIPET) T.V.K. Industrial Estate, Guindy, Chennai - 600 032, India.	Scaling to Feasible Pouch Cell Supercapacitors Based on Transition Metal Carbonitrides

73	CRS/2024-25/04/1609	Dr. Yuvaraj S 8090673100 yuvarajoptim.90@gmail.com Indian Institute of Information Technology, Design and Manufacturing (IIITDM), Kancheepuram	Fabrication of the mode generator for testing interaction circuit assembly of a 28 GHz OAM gyrotron
74	CRS/2024-25/04/1629	Dr. T. Dharini 9789110293 dharini.t.irc@sathyabama.ac.in Sathyabama Institute of Science and Technology	Development of Advanced Carbon/Carbon - Zirconium Carbide (C/C-ZrC) Ultra High-Temperature Ceramics by Arc Melting for Nuclear Thermal Propulsion
75	CRS/2024-25/04/1612	Dr.Srinivasa Rao Dammavalam 9966232722 dammavalam2@gmail.com VNR Vignana Jyothi Institute of Engineering and Technology	Accurate and Effective Plant Disease Detection and Classification using Leaf Images with Machine Learning and Deep Learning Techniques in Agriculture
76	CRS/2024-25/04/1611	Dr. S. Thirukkumar 9042704485 s_thirukkumar@cb.amrita.edu Amrita School of Agricultural Sciences	Exploring Minerals (Iron and Zinc) Interactions with Lactic Acid Bacteria (LAB) in Idli Batter for Enhanced Food Fortification
77	CRS/2024-25/04/1614	D S JAYALAKSHMI 9884973863 jayaanand10@gmail.com Sathyabama Institute of Science and Technology	Computational and Experimental Investigation on novel Fex(TM)1-x-Bi-O based Unconventional Superconducting materials for Superconducting magnetic energy storage (SMES) applications.
78	CRS/2024-25/04/1619	Dr. P. VENGATESH 09965623477 vengatesh.irc@sathyabama.ac.in Sathyabama Institute of Science and Technology	Cu-Based (p-Type) Delafossite Oxide films by Reactive RF Magnetron Co-Sputtering for Planar Heterojunction Oxide Solar Cells
79	CRS/2024-25/04/1618	Dr. Pravin Prakash Pawar 9663489458 pravin-pawar.cir@dypgroup.edu.in Department of Medical Physics, Center for Interdisciplinary Research, D.Y. Patil Education Society (Deemed to be University), Kolhapur 416006, Maharashtra, INDIA	Rare Earth (Sm ³⁺ and Dy ³⁺) based nano-phosphors in Tb ³⁺ doped luminescent glasses for yellowish (warm) white LED application
80	CRS/2024-25/04/1617	Dr. P. Ramesh 6379367839 drramesh2608@gmail.com Vivekanandha College of Arts and Sciences for Women (A)	Portable Fluorescent Chemo-Sensor for Toxic Metal Detection in Industrial Water Matrices: FeO-SiO/Cyclen Complex Integrated with ZIF-67 Derivatives on 2D Graphene Nano-sheets
81	CRS/2024-25/04/1620	Shaik Anwar 7416714997 drsa_sh@vignan.ac.in Vignan's Foundation for Science, Technology and Research-VFSTR	Synthesis and characterization of - extended 1,3-indanedione skeletons: Exploration towards Organic Sensitizers
82	CRS/2024-25/04/1632	Dr. Sanni Dilipbhai Kapatel 9723844102 kapatel-sanni@gmail.com P D Patel Institute of Applied Sciences, Charotar University of Science and Technology	"Design and Engineering of Hybrid Metal Phosphate and Binary Transition Metal Oxide Heterostructures for Enhanced Glycerol Oxidation Reaction (GOR), and Hydrogen Cogeneration"

83	CRS/2024-25/04/1624	Dr. K. Kamakshi 08978163865 kamakshikoppole@gmail.com Indian Institute of Information Technology Tiruchirappalli	Development of plasmonic nanostructures for SERS-based pathogenic bacteria sensing
84	CRS/2024-25/04/1630	Durgalakshmi Dhinasekaran 9444927250 durgaklakshmi@gmail.com Anna University	Development of Fluorine doped Carbon Quantum Dots as SERS Probes for the Detection of Lead and Cadmium in Pharmaceuticals.
85	CRS/2024-25/04/1622	Dr. Ritamay Bhunia 9836704366 ritamay.joybhunia@gmail.com Adamas Univeristy	Development of Magnetic Field Controlled Soft Robotic Actuator Based on Ionic Dielectric Elastomer
86	CRS/2024-25/04/1628	Dr. J. Judith Vijaya 9500026204 jjvijaya78@gmail.com Loyola College, Chennai	Innovative Cathode fabrication for Zinc-Ion Batteries using Pr-Cu co-doped NdMnO ₃ perovskite
87	CRS/2025-26/04/1777	Rajamani D 9486025900 rajamani-che@sfrcollege.edu.in The Standard Fireworks Rajaratnam College for Women	Ion Beam Assisted Polyimide Nanocomposites for enhanced Thermal and Mechanical Performance
88	CRS/2025-26/04/1779	Linganaboina Srinivasa Rao 9849803685 lsrao18@gmail.com Department of Physics, VNR Vignana Jyothi Institute of Engineering and Technology (A College with potential for Excellence, UGC Autonomous, Accredited with A++ grade by NAAC, Accredited by NBA) Nizampet (S.O), Hyderabad 500 090, Telangana, Indi	Development of Multifunctional Nanocrystalline Bismuth-Phosphate Glass-Ceramics Doped with Rare Earth Ions for Next-Generation Photonics, Optoelectronics and Radiation Shielding Applications
89	CRS/2025-26/04/1780	Dr, Amrita Pal 08116465867 amritapal.chemistry@sathyabama.ac.in Sathyabama Institute of Science and Technology	Design and Development of Transition-MetalDoped 2D Nanosheets for Sustainable Hydrogen Storage A Combined Theoretical and Experimental Approach
90	CRS/2025-26/04/1783	Dr. R. Sudha Periathai 9443842680 sudhaperiathai-phy@sfrcollege.edu.in The Standard Fireworks Rajaratnam College for Women, Sivakasi	Tuning the Gas Sensing Efficiency of SnO Nanofibers through Ion Beam Irradiation
91	CRS/2025-26/04/1786	Dr. Arjunan Sidharthan 9840824216 sidharth@annauniv.edu Anna University	Producing filaments of bulk metallic glass and investigate feasibility of fused filament fabrication of 3D structures for bio-implants applications
92	CRS/2025-26/04/1789	Dr. V. Mugendiran 9443815315 mugendiran.v@mitindia.edu Anna University, Madras Institute of Technology Campus, Chennai	Development of a High-Strength, High-Temperature Silicone-Sheathed Flexible Metallic Conduit for Dynamic Reeling Applications

USERS LIST (As on 31/03/2026)**Indore Centre**

S.No.	Name of User	Affiliation
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24	Dr. Prabir Pal	CSIR-Central Glass and Ceramic Research Institute, Kolkata
25	Dr. Sonal Thakore	The Maharaja Sayajirao University of Baroda, Vadodara
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68	Mr. Madhav Singh	University of Baroda, Vadodara
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103	Dr. Debasish Sarkar	Malaviya National Institute of Technology, Jaipur
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118	Mr. Ravi Kumar	RRCAT
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250	Dr. Pravanjan Mallick / Dr. Pravanjan Mallick	Maharaja Sriram Chandra Bhanja Deo University
251	Mr. Manoj Kumar M / Dr. Justin Raj Chellan	VIT CHENNAI

Thermal Vacuum Annealing

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253	Mr. Anmol Sharma / Dr. Sachin Pathak	University of Petroleum and Energy Studies
254	Mr. Biswanath Das / Prof. Satyam Venkata Parlapalli	IIT Bhubaneswar
255	Prof. Maniraj Mahalingam / Prof. Maniraj Mahalingam	Indian Institute of Technology Bombay

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258	Mr. Ajoy Biswas / Prof. Sub-habrata Dhar	IIT Bombay
259	Dr. Hema Chandra Gali / Dr. Hema Chandra Gali	VNIT, Nagpur

Electrochemical Workstation (ANRF funded)

260	Mr. Akshay Pandurang Bangar / Dr. Sandeep Awaghuley	Sant Gadge Baba Amravati University, Amravati
261	Mr. Akshay Pandurang Bangar / Dr. Sandeep AWaghuley	Sant Gadge Baba Amravati University, Amravati
262	Ms. Divya Choudhary / Dr. Soumyendu Roy	Bennett University
263	Mr. Monu Jakhar / Dr. Surender Kumar Sharma	Central University of Punjab

Benchtop Spectrophotometer Colorimeter

264	Dr. Bhasker Soni / Dr. Bhasker Soni	Maharaja Sayajirao University
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280	Ms. Charul Uniyal	Sri Dev Suman Uttarakhand University
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282	Mr. Satnam Singh	Guru Ghasidas University
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288	Ms. Twara Harshal Kikani	Maharaja Sayajirao University of Baroda
289	Mr. Guhan Gandhi	Central University of Tamil Nadu
290	Ms. Sandhya Suresh	University of Kerala
291	Dr. Harunar Rashid	Rajiv Gandhi University
292	Mr. Vishnu Sharma	IIT BHU
293	Ms. Nirali Narendra Udani	Saurashtra University
294	Dr. Lipika Guwalani	Government College of Dentistry
295	Mr. Satnam Singh	Guru Ghasidas University
296	Mr. Nandkishor Gangaram Rangari	Gondwana University Gadchiroli
297	Mr. Nandkishor Gangaram Rangari	Gondwana University Gadchiroli
298	Dr. Lipika Guwalani	Government College of Dentistry
299	Dr. Girish Sambhaji Gund	M.P.A.S.C. College, Maharashtra
300	Dr. Girish Sambhaji Gund	M.P.A.S.C. College, Maharashtra
301	Dr. Bhasker Soni	Maharaja Sayajirao University
302	Mr. Akshat Singla	Punjabi University, Patiala
303	Mr. Akshat Singla	Punjabi University, Patiala
304	Mr. Akshat Singla	Punjabi University, Patiala
305	Ms. Abhilasha Upadhyay	Vikram University
306	Ms. Varsha Bundela	Barkatullah University
307	Mr. Manish Kumar	Mahatma Gandhi Central University
308	Mr. Manish Kumar	Mahatma Gandhi Central University
309	Dr. Oroosa Subohi	VNIT Nagpur
310	Mr. Vishnu Sharma	IIT BHU
311	Ms. Ritu Ritu	BML Munjal University
312	Ms. Lekhamala Dilip Ingale	Kavayitri Bahinabai Chaudhari North Maharashtra University
313	Ms. Lekhamala Dilip Ingale	Kavayitri Bahinabai Chaudhari North Maharashtra University
314	Prof. Ganesan V	Medi-Caps University, Indore

Atomic Force Microscope (Bruker Bioscope and Veeco AFM)

315	Mr. Ambrish Dwivedi	Maharaja Bhoj PG College Dhar (MP)
316	Ms. Sona C P	University of Calicut, Kerala
317	Dr. Ashish B. Raval	Department of Nanoscience and Advanced Materials, Saurashtra University, Rajkot
318	Ms. Kumari Sumana Radheshyam Hajra	Department of Nanoscience and Advanced Materials, Saurashtra University, Rajkot
319	Ms. Shiwani Jat	Devi Ahilya Vishwavidyalaya, Indore
320	Mr. Shyam Rameshbhai Ajudiya	RK University, Rajkot
321	Ms. Karishma Tavar	Holkar Science College, Indore
322	Ms. Akanksha Malik	Gurukul Kangri University, Haridwar

323	Ms. Charul Uniyal	Sri Dev Suman Uttarakhand University
324	Dr. Stephen Rajkumar Inbanathan	The American College, Madurai
325	Mr. Rajeev Dwivedi	Bennett University, Greater Noida
326	Ms. Maria Pavithra	Maharaja Institute of Technology Mysore
327	Dr. Anju Ahlawat	SAGE University, Indore
328	Mr. Milan Subhash Sonawane	Kavayitri Bahinabai Chaudhari North Maharashtra University
329	Ms. Krutika Vishvas Patil	Kavayitri Bahinabai Chaudhari North Maharashtra University
330	Mr. Kundan Kumar Sharma	Jagran Lakecity University, Bhopal
331	Ms. Priya Singh	National Institute of Technology, Patna
332	Dr. Pavan Kumar Naini	MATRUSRI Engineering College, Hyderabad
333	Dr. Pravanjan Mallick	Maharaja Sriram Chandra Bhanja Deo University
334	Dr. Anshu Singh	Gurukul Kangri Deemed to be University
335	Mr. Vinay Shrivastava	Maharaja Bhoj Govt. P.G. College Dhar
336	Mr. Puran Mal Saini	Banasthali Vidyapith, Rajasthan
337	Prof. Satishchandra Ogale	IISER Pune
338	Mr. Arockiya Amalraj S	Central University of Tamil Nadu
339	Mr. Abhay Singh Rajawat	Jamia Millia Islamia, New Delhi
340	Mr. V. Meenakshi Sundaram Sundar	Madura College, Madurai
341	Ms. Tanvi Dudharejiya	Saurashtra University, Rajkot
342	Dr. Anju Ahlawat	SAGE University, Indore
343	Ms. Shravani N	Alliance University, Bengaluru
344	Dr. Vijaylakshmi Dayal	Maharaja Institute of Technology Mysore
345	Dr. Pravanjan Mallick	Maharaja Sriram Chandra Bhanja Deo University
346	Mr. Poonacha C T	Maharaja Institute of Technology Mysore

9T PPMS System for Resistivity, MR and Hall Measurements

347	Ms. Arti	IIT Indore
348	Mr. Shashikant	Central University of South Bihar, Gaya
349	Mr. Vishnu	IIT BHU
350	Ms. Priya Singh	NIT Patna
351	Abhay Singh	Jamia Millia Islamia University, Delhi
352	Dr. Mukesh Kumar Dashaundhi	Wiseman, Israel
353	Tanvi Dudharejiya	Saurashtra University, Gujarat
354	Arti Lakhara	IIT Indore
355	Ramavtar	IIT Indore
356	Mr. Rajeev Dwivedi	Bennet University
357	Dr. Mukesh Kumar Dashaundhi	Wiseman, Israel
358	Dr. Upendra Prasad	IPR, Gandhinagar, Gujarat
359	Indrajit Bihola	IITE, Gandhinagar, Gujarat

TEM

360	Dr. Girish Sambhaji Gund	M.P.A.S.C. College, Panvel, Maharashtra
361	Dr. Vishakha Kaushik	DIT University, Dehradun
362	Dr. Charu Dwivedi	Department of Chemistry, School of Physical Sciences, Doon University, Dehradun-248001
363	Dr. Himani Sharma	Doon University Dehradun
364	Dr. Kavita Sharma	Medicaps University, Indore
365	Mr. Mithlesh Jani	Medi-Caps University, Indore

366	Prof. Rahul Singhal	MNIT Jaipur
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LTHM XRD

367	Dr Shashi Bhusan singh	IIISER BERHAMPUR
368	Dr. AGA Shahee	Kashmir university
369	Prof. Kiran Singh	NIT Jalandhar
370	Prof. Amiya Ranjan Sahoo	VNIT Nagpur

Thin film x-ray diffractometer (HRRD)

371	Ms. Vibha	BML Munjal University
372	Ms. Sona CP	Calicut University
373	Prof. Ajay Gupta	UPES Dehradun
374	Ms. Aarsi Gupta	Amity University, Noida
375	Dr. Neha Sharma	RRCAT Indore
376	Dr. Sagar Sen	PG College Dhar
377	Dr. Ashish Mishra	DAVV Indore
378	Mr. Lucky Verma	BAU, Agra
379	Dr. Mukesh Charde	JP University, Rewa
380	Ms. Shiwangi Mishra	University of Hyderabad
381	Ms. Hajra Sumana	RK College, Gujarat
382	Mr. Bishwanath Pramanik	IIT Guwahati
383	Dr. Gagan Sharma	Allahabad University
384	Dr. Shilpam Sharma	RRCAT Indore
385	Dr. Ashok Kumar	Medicaps University, Indore
386	Dr. Maniraj	IIT Bombay
387	Dr. Sivadasan A.K	CMET Kerala
388	Mr. Shyam Ajudiya	R K University, Gujarat
389	Dr. Mini Krishna	Vimala College, Trissur
390	Mr. Deepak Pandey	MGCU Bihar
391	Mr. Sanidul Islam	MGCU, Bihar
392	Mr. Kundan Sharma	JLCU Bhopal
393	Ms. Neha Sharma	UPES Dehradun
394	Mr. Monu Kataria	IUAC Delhi
395	Ms. Divya Choudhary	Bennett University, Noida
396	Ms. V. Meenakshi Sunder	Madurai College

Mössbauer Spectroscopy

397	Prof. Sanjit Konar	IISER Bhopal
398	Ms. Neha	UPES Dehradun
399	Mr. Tarun Pratap Singh	Bilaspur Central University, Bilaspur
400	Prof. Sanjay Kumar	Jadavpur University
401	Prof. S. N. Kane	DAVV Indore
402	Mr. Dev Sankar	CeNS Bangalore
403	Ms. Reshma Philip	IIT Palakkad
404	Prof. S. L. Samal	NIT Rourkela
405	Mr. Swalihu P.M.	MGU Kerala
406	Ms. Anupriya Choudhary	Thapar Institute, Patiala
407	Dr. Abhishek Mandal	IISc Bangalore
408	Dr. R. M. Belekhar	Institute of Science, Nagpur
409	Dr. Harish Reddy	IISER Trivandrum

410	Dr. Kinnari Parekh	K C Patel R&D Centre
411	Dr. Mani Manender	Osmania University, Hyderabad
412	Ms. Aparna Ashok	Symbiosis University
413	Ms. Manisha Kumari	University of Delhi
414	Dr. D. Mamtha	MIT Manipal, Karnataka
415	Mr. Gehwar Ram	JNV University, Jodhpur
416	Dr. P.N. Anantharamaiah	Ramaiah University, Bangalore
417	Mr. Hitendra	Bilaspur Central University, Bilaspur
418	Dr. Samar Layek	UPES Dehradun
419	Dr. S. N. Dash	NIT Rourkela

Magneto-Optical Kerr Effect (MOKE): Magnetometer and Microscopy

420	Prof. Ajay Gupta	UPES Dehradun
421	Prof. S. Srinath	Hyderabad Central University
422	Dr. Sachin Pathak	UPES, Dehradun
423	Dr. Gagan Sharma	Allahabad Central University
424	Dr. Bhagwati Prasad	IISc, Bengaluru
425	Dr. Parasmani Rajput	RRCAT, Indore
426	Dr. B. K. Hazra	IIT Guwahati
427	Dr. Bivas Saha	JNCASR, Bengaluru
428	Dr. Surabhi Gupta	IIT, Delhi
429	Dr. Sagar Sen	Dhar Govt Degree College, MP

Ferroelectric (P-E) Loop Tracer

430	Ms. Naga Kumari	Andhra University, Vizag
431	Ms. Reshma Jadav	SP University, Pune
432	Dr. Sanjay Kumar Upadhyay	HNB Garhwal University, Garhwal
433	Dr. Pavan Kumar	Matrusri Engineering College, Hyderabad
434	Dr. Oroosa Subohi	VNIT, Nagpur
435	Ms. Pratibha Xalo	Bilaspur Central University, Bilaspur
436	Dr. Yadagiri	NIT, Warangal
437	Dr. P. Sarah	VJIT, Hyderabad

Raman

438	Ms. Shalini Mishra C/o Dr. Netram Kaurav	Govt. Holkar Science College, Indore, MP
439	Ms. Divya Choudhary C/o Dr. Soumyendu Roy	Bennett University, Greater Noida, Uttar Pradesh
440	Ms. Priyanka Saini C/o Prof. Ambesh Dixit	IIT, Jodhpur
441	Dr. Samrat Mukherjee	NIT, Patna
442	Mr. Biswanath Das C/o Prof. Satyam VenkataParlapalli	IIT, Bhubaneswar
443	Ms. Banan Wahbi C/o Dr. Vijaylakshmi Dayal	Maharaja Institute of Technology, Mysore
444	Mr. Govind Pandey C/o Dr. Narendra Kumar Singh	University of Lucknow, Lucknow
445	Ms. Deepika Pathak C/o Dr. Arpan Bhardwaj	Govt. Madhav Science P.G. College, Ujjain (M.P.)
446	Dr. Praveen Kumar Yadav	RRCAT, Indore

447	Dr. Bhasker Soni	The M S University of Baroda, Vadodara
448	Mr. Visheshvar Verma C/o Dr. Arun Kumar Singh	Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh
449	Mr. Niharkanta Badhai C/o Dr. Shiv P Patel	Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh
450	Ms. Karishma Tavar C/o Dr. Jitendra Tripathi	Govt. Holkar Science College, Indore, MP
451	Mr. Karthikeyan B C/o Dr. Manikandan Narendran	VIT, Chennai
452	Ms. Shiwani Jat C/o Dr. Anubha Pandya	Devi Ahilya Vishwavidyalaya, Indore
453	Mr. Ambrish Dwiwedi C/o Dr. Sagar Sen	Maharaja Bhoj PG College, Dhar, MP
454	Dr. Himanshu Srivastava	RRCAT, Indore, MP
455	Dr. Girish Sambhaji Gund	M.P.A.S.C. College, Panvel, Maharashtra
456	Dr. Md. Kashif Shamim C/o Dr. Seema Sharma	A N College, Patna, Bihar
457	Ms. SHALINI MISHRA C/o Dr. Netram Kaurav	Govt. Holkar Science College, Indore, MP
458	Dr. Pavan Kumar Naini	Matrusri Engineering College, Hyderabad
459	Mr. Satnam Singh C/o Dr. Jai Singh	Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh
460	Mr. Akshay Pandurang Bangar C/o Dr. Sandeep A Waghuley	Sant Gadge Baba Amravati University, Amravati
461	Ms. Vaidehi Vinodrao Deshmukh C/o Dr. Kiran Singh	Dr. B. R. Ambedkar National Institute of Technology, Jalandhar
462	Mr. Hariram M C/o Dr. Debasish Sarkar	Malaviya National Institute of Technology, Jaipur
463	Prof. Sindhunil Barman Roy	Ramakrishna Vivekananda Educational and Research Institute, Belur, West Bengal
464	Mr. Hariram M C/o Dr. Debasish Sarkar	Malaviya National Institute of Technology, Jaipur
465	Mr. Rudransh Dev C/o Dr. Debasish Sarkar	Malaviya National Institute of Technology, Jaipur
466	Ms. Charul Uniyal C/o Dr. Manoj Yadav	Sri Dev Suman Uttarakhand University
467	Dr. Stephen Rajkumar Inbanathan	The American College, Madurai
468	Ms. Akanksha Malik C/o Dr. Richa Saini	Gurukul Kangri University, Haridwar, Uttarakhand
469	Prof. Sindhunil Barman Roy	Ramakrishna Vivekananda Educational and Research Institute, Belur, West Bengal
470	Dr. Umesh Prakash Gawai	DDSP Arts Commerce and Science College, Erandol Dist-Jalgaon
471	Mr. Poonacha C T C/o Dr. Vijaylakshmi Dayal	Maharaja Institute of Technology, Mysore
472	Mr. Kundan Kumar Sharma C/o Dr. Vandana Rathore	Jagran Lakecity University, Bhopal Madhya Pradesh

473	Ms. Akanksha Malik C/o Dr. Richa Saini	Gurukul Kangri University, Haridwar, Uttarakhand
474	Ms. Aruna Verma C/o Dr. Uma Sharma	Vikram University, Ujjain
475	Dr. Divya Verma	Vikram University, Ujjain
476	Ms. Anshu Dewangan C/o Prof. Madhvendra Nath Tripathi	Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh
477	Ms. Kanchan Rao C/o Dr. Ankush Vij	Central University of Haryana
478	Dr. Santanu De C/o Dr. Abhishake Mondal	Indian Institute of Science Bengaluru
479	Ms. Dhruvi Bhatnagar C/o Prof. Ramesh Chandra Srivastava	G. B. Pant University of Agriculture and Technology, Pantnagar
480	Mr. Amrit Das C/o Dr. Sonit Kumar Gogoi	Gauhati University, Gauhati, Assam
481	Mr. Satnam Singh C/o Dr. Jai Singh	Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh
482	Ms. DASLIMA NAZREEN C/o Dr. Manikandan Narendran	Vellore Institute of Technology, Vellore
483	Mr. Deepak Pandey C/o Dr. Neelabh Srivastava	Mahatma Gandhi Central University, Bihar
484	Ms. Divya Choudhary C/o Dr. Soumyendu Roy	Bennett University, Greater Noida, Uttar Pradesh
485	Ms. Tanvi Dudharejiya C/o Dr. Bharat R Kataria	Saurashtra University, Rajkot, Gujarat
486	Ms. Nirali Narendra Udani C/o Dr. Bharat R Kataria	Saurashtra University, Rajkot, Gujarat
487	Dr. Ruchi Rashmi	A N College, Patna
488	Dr. Alesh Kumar	Gautam Buddha University, Greater Noida, Uttar Pradesh
489	Mr. Neerav Kumar Mallick C/o Dr. Ashutosh Mishra	DAVV, Indore
490	Mr. Sumit Banerjee C/o Dr. Anulipi Aich	Bhairab Ganguly College, Belgharia, West Bengal
491	Mr. Shekhar Kumar C/o Dr. Seema Sharma	A N College, Patna
492	Mr. Virendra Singh Choudhury C/o Dr. Surender Kumar Sharma	Central University of Punjab, Bathinda, Punjab
493	Mr. Monu Jakhar C/o Dr. Surender Kumar Sharma	Central University of Punjab, Bathinda, Punjab
494	Ms. Preeti Hude C/o Dr. Bhawna Chourasiya	Govt. Holkar Science College, Indore, MP
495	Ms. Preeti Hude C/o Dr. Bhawna Chourasiya	Govt. Holkar Science College, Indore, MP
496	Ms. Twara Harshal Kikani C/o Dr. Sonal Thakore	The M S University of Baroda, Vadodara
497	Ms. Priya Yadav C/o Prof. Ganesan V	Medi-Caps University, Indore
498	Ms. Aruna Verma C/o Dr. Uma Sharma	Vikram University, Ujjain

499	Dr. Girish Sambhaji Gund	M.P.A.S.C. College, Panvel, Maharashtra
500	Ms. Chuleshwari Jaiswal C/o Dr. Vijaya Kumar Ramavath	Guru Ghasidas Vishwavidyalaya, Bilaspur
501	Ms. Kanchan Rao C/o Dr. Ankush Vij	Central University of Haryana, Jaat-Pali, Mahendergarh
502	Ms. Shalini Mishra C/o Dr. Netram Kaurav	Govt. Holkar Science College, Indore
503	Dr. Umesh Prakash Gawai	DDSP Arts Commerce and Science College, Erandol, Jalgaon
504	Mr. Hitendra Sahu C/o Dr. Mahavir Prasad Sharma	Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh
505	Ms. Priya Singh C/o Dr. Neeraj Shukla	National Institute of Technology, Patna
506	Mr. Milan Subhash Sonawane C/o Dr. Sanjay S. Ghosh	Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon
507	Mr. Keval Mansukhbhai Bhatt C/o Prof. Ratna Prabha Chivukula	The M S University of Baroda, Vadodara
508	Mr. Manish Kumar Tekam C/o Dr. Netram Kaurav	Govt. Holkar Science College, Indore, MP
509	Ms. Chuleshwari Jaiswal C/o Dr. Vijaya Kumar Ramavath	Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhattisgarh
510	Ms. Rupali Joshi C/o Dr. Anand Yadav	Medi-Caps University, Indore
511	Mr. Akshat Singla C/o Dr. Manju	Punjabi University, Patiala
512	Mr. Amit Kumar C/o Prof. Ashish Agarwal	Guru Jambheshwar University of Science and Technology, Hisar
513	Ms. Swati Dnyaneshwar Wakade C/o Dr. Vijay Tipanna Vader	Walchand College of Arts and Science, Solapur
514	Mr. Prathamesh Anil Tope C/o Dr. Dnyaneshwar Kisankulal	Ramnarain Ruia Autonomous College, University of Mumbai
515	Mr. Ashok Vasant Rao Humbe C/o Dr. Pallavi G Undre	Dr. Babasaheb Ambedkar Marathwada University, Aurangabad, MH
516	Mr. Bilal Ahmad Bhat C/o Dr. Bhawna Chaurasia	Govt Holkar Science College, Indore, MP
517	Ms. Aruna Verma C/o Dr. Uma Sharma	Vikram University, Ujjain
518	Mr. Kartikey Mishra C/o Prof. Devendra Mohan Kumawat 11/2025/12378	School of Studies in Microbiology and Food Technology
519	Mr. Vinay Shrivastava C/o Dr. Sagar Sen	Maharaja Bhoj Govt. P.G. College, Dhar
520	Ms. Aruna Verma C/o Dr. Uma Sharma	Vikram University, Ujjain
521	Mr. Irfan Akbar C/o Dr. Mohammad Waseem Akhtar	Jamia Millia Islamia
522	Dr. Yadagiri K	NIT Warangal
523	Ms. Ekta Yadav C/o Dr. Chhayabrita Maji	BML Munjal University

524	Dr. Rituraj Sharma	CSAR, IPS Academy, Indore
525	Mr. Manish Kumar Dr. Rajanish Nath Tiwari	Mahatma Gandhi Central University
526	Mr. Monu Jakhar C/o Dr. Surender Kumar Sharma	Central University of Punjab
527	Dr. Sanjay Kumar Upadhyay 12/2025/12426	HNB Garhwal University (Central University)
528	Mr. M M Manendar Mani C/o Prof. Gopal Reddy Ch.	Osmania University, Hyderabad
529	Ms. Priya Yadav C/o Prof. Ganesan V	Medi-Caps University, Indore
530	Ms. Kanchan Rao C/o Dr. Ankush Vij	Central University of Haryana
531	Ms. Tanvi Dudharejiya C/o Dr. Bharat R Kataria	Saurashtra University, Rajkot
532	Mr. Nikhil Malik C/o Dr. Ankush Vij	Central University of Haryana
533	Dr. Bhasker Soni	Maharaja Sayajirao University
534	Ms. Lekhamala Dilip Ingale C/o Dr. Sanjay S. Ghosh	Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon
535	Mr. Milan Subhash Sonawane C/o Dr. Sanjay S. Ghosh	Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon
536	Mr. Ankit Prajapati C/o Dr. Netram Kaurav	Govt. Holkar (Model, Autonomous) Science College, Indore
537	Ms. Chuleshwari Jaiswal C/o Dr. Vijaya Kumar Ramavath	Guru Ghasidas Vishwavidyalaya (A Central University)
538	Mr. Manoj Kumar M C/o Dr. Justin Raj Chellan	VIT, Chennai
539	Mr. Vijay Kumar Patil C/o Dr. Justin Raj Chellan	VIT, Chennai
540	Mr. Pardeep Malhotra	Himachal Pradesh University, Shimla

16 T PPMS for resistivity, magnetoresistance, and magnetization measurements

541	Ms. Sandhya Suresh/ Dr. Kavitha VT	University of Kerala, Thiruvananthapuram
542	Dr. Umesh Prakash Gawai	DDSP Arts Commerce and Science College, Erandol Dist-Jalgaon
543	Ms Vindhya P S/ Dr. Kavitha VT	University of Kerala, Thiruvananthapuram
544	Ms. Nikita Sharma/Dr. Tirthankar Chakraborty	Thapar University, Patiyala
545	Dr. Sudeshna Samanta	Gitam University, Noida
546	Mr. Manish Singh/Dr. Nikhil Kumar	Gorakhpur University
547	Ms. Pooja Chaurashiya/Dr. Sourav Manik	Thapar University, Patiyala
548	Dr. Upendra Prasad	Institute of Plasma Research, Gandhinagar
549	Ms. Sandhya Suresh/ Dr. Kavitha VT	University of Kerala, Thiruvananthapuram
550	Mr. Rahul Kumar Sahoo/Dr. Oroosa Subhoi	Visvesvaraya National Institute of Technology, Nagpur

551	Dr. Umesh Prakash Gawai	DDSP Arts Commerce and Science College, Erandol Dist-Jalgaon
552	Ms. Pooja Chaurashiya/Dr. Sourav Manik	Thapar University, Patiyala
553	Mr. Suraj Kushwaha/Dr. Tirthankar Chakraborty	Thapar University, Patiyala
554	Ms. Nikita Sharma/Dr. Tirthankar Chakraborty	Thapar University, Patiyala

Electron Beam Evaporation

555	Mr. Anmol Sharma	UPES, Dehradun
556	Dr. Nikhil Kumar	DDUU, Gorakhpur

Scanning Electron Microscope (SEM)

557	Varun C/O Dr. Rahul Shukla	RRCAT
558	Ashutosh Anand C/O Dr. Rajesh	GGSIU Delhi
559	Vishnu C/O Prof. Sandip Chatterjee	IIT BHU
560	Ms. Sipun Mohanty C/O Dr. Samrat Mukherjee	NIT Patna
561	Ms. Shivangi C/O Dr. S. Srinath	University of Hyderabad
562	Dr. Varsha Savaner	IPS Academy
563	Dr. Surender Kumar Sharma	Central University of Punjab
564	Dr. Girish	M.P.A.S.C. College, Panvel
565	Dr. Rishiraj	DAVV
566	Dr. Harishchandra Singh	Amity University
567	Mr. Sanket C/O Dr. Pankaj	Shri Shivaji Science College, Amravati
568	Ms. Shiwani Jat C/O Dr. Anubha Pandya	Christian Eminent College, Indore
569	Mr. Abhimanyu Bhardwaj C/O Dr. Abhay Kumar	RRCAT
570	Ms. Sonia Beniwal C/O Dr. Ankush Vij	Central University of Haryana
571	Mr. Akshay C/O Dr. Sandeep A. Waghuley	SGB Amravati University
572	Amiya C/O Dr. Oorsa Subhi	NIT Nagpur
573	Dr. Abu Jahid Akhtar	Diamond Harbour Women's University
574	Mr. Abhimanyu Bhardwaj C/O Dr. Abhay Kumar	RRCAT
575	Prof. Sindhunil Barman Roy	Ramakrishna Vivekananda Educational and Research Institute
576	Dr. Rekha Khanna	Vikram University, Ujjain
577	Dr. Anju Ahlawat	Medicaps University
578	Praveen C/O Dr. Sarath Lal	UPES, Dehradun
579	Ms. Naga Kumari Gogisetty C/O Dr. Lavanya P. D.	Gayatri Vidya Parishad College for Degree and PG Courses
580	Pusupati Naveen C/O Dr. Pawan Kumar	Hyderabad
581	Deepak Pandey C/O Dr. Neelabh Srivastava	MGCU Bihar
582	Vishal Tyagi C/O Dr. Gagan Sharma	Amity University

583	Dr. Salil Modak	SOP, DAVV
584	Mr. Vishnu C/O Prof. Sandip Chatterjee	IIT BHU
585	Banan Wahabi C/O Dr. Vijay Lakshmi	MIT Mysore
586	Mr. Sumit Banerjee C/O Dr. Anulipi Aich	Bhairab Ganguly College
587	Mr. Virendra Singh Choudhary C/O Dr. Surendra Kumar Sharma	Central University of Punjab
588	Dr. Ruchi Rashmi	A. N. College, Patna
589	Dr. Lipika Guwalani C/O Dr. Anuradha Agrawal	Government College of Dentistry
590	Dr. Yogita Rajendra Jaigude	Modern College Shivajinagar, Pune
591	Ms. Aarti Pathak C/O Dr. Archana Chaudhury	Medi-Caps University, Indore
592	Ms. Karishma Tavar C/O Dr. Jitendra Tripathi	IPS Academy, Indore
593	Dr. Girish Sambhaji Gund	M.P.A.S.C. College, Panvel
594	Dr. Anu Hardenia	Sri Aurobindo Institute of Pharmacy, Indore
595	Ms. Monu Jakhar C/O Dr. Surender Kumar Sharma	Central University of Punjab
596	Mr. Vishnu Kaveti C/O Dr. Pankaj Sharma	PDPM-IIITDM Jabalpur
597	Mr. Subhendu Biswas C/O Dr. Sudipta Pal	University of Kalyani
598	Mr. Abhimanyu Bhardwaj C/O Dr. Abhay Kumar	RRCAT
599	Dr. Anuj Bhardwaj	College of Dental Science and Hospital
600	Dr. Pawan Kumar Dubey	School of Pharmacy, Indore
601	Ms. Naga Kumari Gogisetty C/O Dr. Lavanya P. D.	Gayatri Vidya Parishad College for Degree and PG Courses
602	Dr. P. Ganesh C/O Dr. Abhay Kumar	RRCAT
603	Ms. Karishma Tavar C/O Dr. Jitendra Tripathi	IPS Academy, Indore
604	Mr. Sekhar Kumar C/O Dr. Seema Sharma	A. N. College, Patna
605	Ms. Aruna Verma C/O Dr. Uma Sharma	Vikram University, Ujjain, M.P.
606	Dr. Bhasker Soni	Maharaja Sayajirao University
607	Ms. Sheetal Pandya C/O Dr. Uma Sharma	Vikram University, Ujjain, M.P.
608	Manish Singh C/O Dr. Nikhil Kumar	DDU Gorakhpur University

Magnetron Sputtering

609	Ms. Sampurna	—
610	Mr. Mayank	SNUD, NCR
611	Mr. Manish Singh	DDUU, Gorakhpur
612	Ms. Karishma	IPS, Indore
613	Ms. Shravani	Alliance University, Bengaluru

d33 and dielectric measurements

614	Mr. Virendra Singh Choudhary C/o Dr. Surender Kumar Sharma	Central University of Punjab, Bathinda
615	Ms. Harsha Chouhan C/o Dr. Maheswar Panda	Dr. Harisingh Gour Vishwavidyalaya, Sagar, M.P.
616	Mr. Jabran Ayoub Bhat C/o Dr. Ghala AnjumKhan	Govt. SAM Degree College, Budgam
617	Mr. Osheen Sharma C/o Dr. Jaiparkash Sorout	Department of Sciences (Physics), Manav Rachna University, Faridabad, Haryana
618	Mr. Saurabh Pandey C/o Dr. Subhash Chandra Pokhriyal	Kumaun University, Nainital (Uttarakhand)
619	Ms. Ritu C/o Dr. Abhimanyu Singh Rana	BML Munjal University
620	Mr. Pardeep Malhotra	HPU Shimla
621	Mr. Rajeev Dwivedi C/o Dr. Sachin Gupta	Bennett University
622	Prof. Pankaj Mishra	Amity University, Gwalior
623	Mr. Poonacha C T C/o Dr. Vijay Lakshmi	MIT, Mysore

Thermopower

624	Mr. Satnam Singh C/o Dr. Jai Singh	Guru Ghasidas Vishwavidyalaya, Bilaspur
625	Mr. Vishnu Sharma C/o Prof. Sandip Chatterjee	IIT BHU
626	Ms. Kanchan Rao C/o Dr. Ankush Vij	Central University of Haryana
627	Ms. Resna Philip C/o Dr. Soham Mani	IIT Palakkad, Kerela
628	Prof. Milind Prabhakar Desh- pande	Sardar Patel University, Gujrat
629	Mr. Gaurav Vaid C/o Dr. Deepshikha Jaiswal	IISER TVM
630	Mr. Saptak Majumdar C/o Dr. Vinayak Kamble	IISER TVM
631	Ms. Sonia Beniwal C/o Dr. Ankush Vij	Central University of Haryana
632	Dr. Bhagwati Vishnoi	KIT Ghaziabad
633	Dr. R. Jangir	RRCAT

14T - VSM

634	Mr. Vishnu Sharma C/o Prof. Sandip Chatterjee	IIT BHU
635	Mr. Satnam Singh C/o Dr. Jai Singh	Guru Ghasidas Vishwavidyalaya, Bilaspur
636	Ms. Harsha Chouhan C/o Dr. Maheswar Panda	Dr. Harisingh Gour Vishwavidyalaya, Sagar, M.P.
637	Mr. Ravinder C/o Dr. Sachin Gupta	Bennett University, Noida
638	Mr. Rajeev Dwivedi C/o Dr. Sachin Gupta	Bennett University, Noida

639	Ms. Sonia Beniwal C/o Dr. Ankush Vij	Central University of Haryana
640	Dr. Pankaj Mishra	Johannesburg Univ., South Africa
641	Dr. Bhagwati Vishnoi	KIT Ghaziabad

SQUID-VSM (RR) MPMS3 XL

642	Dr. Pooja Gupta	RRCAT, Indore
643	Ms. Aparna Ashok / Dr. Neeru Bhagat	SIU, Pune
644	Dr. Kiran Kumar	NIT Jalandhar
645	Prof. G. Mishra	DAVV, Indore
646	Ms. Ramya Shri / Dr. Mamatha D. Daivajna	Manipal Institute of Technology, Manipal
647	Dr. Santanu De / Prof. A. Mandal	IISc Bangalore
648	Prof. Ankush Viz	Central University of Haryana
649	Dr. Nilesh Shrivastava	MGCU, Motihari, Bihar
650	Ms. Aparna Ashok / Dr. Neeru Bhagat	SIU, Pune
651	Mr. Pramode R. Nadig / Dr. Mamatha D. Daivajna	Manipal Institute of Technology, Manipal
652	Dr. Preeti Bhohe	IIT Indore
653	Ms. Preeti Negi / Dr. Hardeep Kumar	NIT Uttarakhand
654	Dr. Bindu Radhamany	IIT Mandi
655	Dr. Pooja Gupta	RRCAT, Indore
656	Dr. Moumita Patra	Raghunathpur College, Purulia, West Bengal
657	Prof. Ajay Gupta	UPES, Uttarakhand
658	Dr. Chhayabrita Maji	BML Munjal University, Gurugram
659	Dr. Mukesh Chandra Dimri	JAYPEE University, Guna
660	Dr. Bhagwati Prasad Joshi	IISc Bangalore
661	Mr. Pramod R. Nadig / Dr. Mamatha D. Daivajna	MIT Manipal
662	Dr. Ratnesh Gupta	DAVV, Indore
663	Dr. Surjit Singh	IISER Pune
664	Dr. Ashim Pramanik	JNU Delhi
665	Ms. Aparna Ashok / Dr. Neeru Bhagat	SIU, Pune
666	Ms. Ramya Sri / Dr. Mamatha D. Daivajna	Manipal Institute of Technology, Manipal
667	Prof. Ankush Viz	Central University of Haryana
668	Dr. Preeti Bhohe	IIT Indore
669	Dr. Ashim Pramanik	JNU Delhi
670	Dr. Pampi Saha	DESY, Hamburg, Germany
671	Dr. Nanda Kumar Kalarikkal	MG University, Kottayam
672	Mr. A. Barik / Dr. T. Setti	SN Bose Centre, Kolkata
673	Mr. S. Chakraborty / Dr. T. Setti	SN Bose Centre, Kolkata
674	Dr. Ashim Pramanik	JNU Delhi
675	Dr. S. Nallamuthu	VIT-AP University, Amaravati
676	Mr. Vishnu Sharma / Dr. —	IIT BHU
677	Dr. K. Yadagiri	NIT Warangal
678	Dr. Binoy De	IISc Bangalore

679	Dr. Sudipta Pal	University of Kalyani
680	Dr. S. B. Roy	RKMVERI, West Bengal
681	Prof. Asish Agrawal	Guru Jambheshwar University of Science and Technology
682	Dr. Gopal Reddy	Osmania University, Hyderabad
683	Dr. Umesh Gawai	DDSP Arts, Commerce and Science College, Jalgaon
684	D. Prakash Chandra Mondal	IIT Kanpur
685	Dr. Uma Sharma	Samrat Vikramaditya University, Ujjain
686	Dr. Ayan Das	IIT Kharagpur

Specific Heat (9T, 2K)

687	Mr. Pramod / Dr. Mamatha D. Daivajna	Manipal Institute of Technology, Manipal
688	Ms. Aarti Lakhara / Prof. Preeti Bhobe	IIT Indore
689	Dr. Bindu Radhamany	IIT Mandi
690	Ms. Preeti Negi / Dr. Hardeep Kumar	NIT Uttarakhand, Srinagar
691	Dr. Elaine Dias	Goa University
692	Ms. Aparna Ashok / Dr. Neeru Bhagat	Savitribai Phule Pune University, Pune
693	Ms. Sristi Sarkar / Dr. Mamatha D. Daivajna	Manipal Institute of Technology, Manipal
694	Dr. Arup Mondal / Prof. Bhagwati Prasad Joshi	IISc Bengaluru
695	Dr. Pampi Saha	DESY, Hamburg
696	Mr. Vishnu Sharma / Dr. Sandeep Chatterjee	IIT BHU, Varanasi
697	Mr. Irfan Akbar / Dr. Mohammad Waseem Akhtar	Jamia Millia Islamia, New Delhi
698	Mr. Vimaljith A. R. / Dr. Nallamuthu S	VIT-AP University, Amaravati
699	Ms. Pooja / Dr. Sourav Marik	Thapar Institute of Engineering and Technology, Patiala
700	Ms. Sristi Sarkar / Dr. Mamatha D. Daivajna	Manipal Institute of Technology, Manipal
701	Ms. Rakhi Saha / Prof. Somaditya Sen	IIT Indore
702	Mr. Arun Kumar Kuntla / Dr. Venkataiah Gorige	University of Hyderabad

High Performance Computing

703	Prof. A. Sundaresan	JNCASR
704	Dr. Saroj Lochan Samal	NIT Rourkela
705	Ms. Minakshi Rana/Dr. Priya Singh	Medicaps University, Indore
706	Dr. Kaustav Mukherjee	IIT Mandi
707	Dr. Diptikanta Swain	ICT Bhubaneswar

FESEM Users (GV)

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709	Ms. Ramya Shri (C/o Dr. Matha D. Daivajna)	Manipal Institute of Technology, MAHE Manipal, Karnataka
710	Mr. Swedhip Paul	KNU
711	Mr. Ronald P. Koushik (C/o Dr. Jitumani Kalita)	Cotton University, Guwahati, Assam
712	Mr. Shashi Kant Mohapatra (C/o Dr. Rohit Ranjan Shahi)	Central University of South Bihar, Bihar
713	Ms. Dipanwita Das (C/o Prof. Bharti)	Jadavpur University, Kolkata, West Bengal
714	Ms. Vibha Durugkar (C/o Dr. Chhayabrita Maji)	BML Munjal University, Haryana
715	Prof. Ganeshan	Medicaps University, Indore, Madhya Pradesh
716	Mr. Vishnu Sharma (C/o Prof. Sandip Chatterjee)	IIT (BHU), Varanasi, Uttar Pradesh
717	Ms. Sona C. P. (C/o Dr. Jayaram Peediyekkal)	University of Calicut, Kerala
718	Mr. Visheshvar Verma (C/o Dr. Arun Umarsingh)	Guru Ghasidas Vishwavidyalaya, Bilaspur, Chattisgarh
719	Mr. Sourav Deb (C/o Dr. Y. Ashok Kumar Reddy)	IIITDM Kancheepuram
720	Dr. Madhav Singh (C/o Dr. Bhasker Soni)	Maharaja Sayajirao University, Baroda, Gujarat
721	Mr. Akshay P. Bangar (C/o Dr. Sandeep A. Waghuley)	Sant Gadge Baba Amravati University, Maharashtra
722	Dr. Sanjay Kumar Upadhyay	HNB Garhwal University, Uttarakhand
723	Mr. V. Meenakshi Sundaram	Madura College, Madurai, Tamil Nadu
724	Prof. Maniraj	IIT Bombay
725	Mr. Bandeep (C/o Dr. Sudeshna Chattopadhyay)	IIT Indore, Madhya Pradesh
726	Mr. Praveen Kumar Dubey (C/o Dr. Sarathlal K. V.)	UPES, Dehradun, Uttarakhand
727	Mr. Umashankar Bhardwaj	Pt. Ravishankar Shukla University, Raipur, Chattisgarh
728	Ms. Akanksha Malik (C/o Dr. Richa Saini)	Gurukul Kangri University, Uttarakhand
729	Ms. Charul Uniyal (C/o Dr. Manoj Yadav)	Sri Dev Suman Uttarakhand University, Tamil Nadu
730	Prof. Qasim Murtaza	Delhi Technological University, New Delhi
731	Mr. Monu Kataria (C/o Dr. Deb-dulal Kabiraj)	Inter-University Accelerator Centre, New Delhi
732	Mr. Satnam Singh (C/o Dr. Jai Singh)	Guru Ghasidas University, Bilaspur, Chhattisgarh
733	Dr. Shilpam Sharma	RRCAT, Indore, Madhya Pradesh
734	Mr. Amrit Das (C/o Dr. Sonit Kumar Gogoi)	Gauhati University, Assam
735	Prof. Ramphal B. Sharma	IIS Jaipur, Rajasthan
736	Ms. Anshu Dewangan (C/o Prof. Madhvendra Nath Tripathi)	Guru Ghasidas Vishwavidyalaya, Bilaspur, Chattisgarh
737	Mr. Deepak Pandey (C/o Dr. Neelabh Srivastava)	Mahatma Gandhi Central University, Bihar

738	Mr. Shyam R. Ajudiya (C/o Dr. Ashish R. Tanna)	RK University, Gujarat
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740	Ms. Shradhanajli / Twara H. Kikani (C/o Dr. Sonal Thakore)	Maharaja Sayajirao University, Baroda, Gujarat
741	Mr. Guhan Gandhi (C/o Dr. Preethi Meher KRS)	Central University of Tamil Nadu
742	Ms. Sandhya Suresh (C/o Dr. Kavitha V. T.)	University of Kerala
743	Dr. Lipika Guwalani (C/o Dr. Anuradha Agrawal)	Government College of Dentistry, Indore, Madhya Pradesh
744	Dr. Harunar Rashid	Rajiv Gandhi University, Arunachal Pradesh
745	Mr. Nandkishor G. Rangari (C/o Prof. Amrut S. Lanje)	Gondwana University, Gadchiroli, Maharashtra
746	Dr. Bhasker Soni	Maharaja Sayajirao University, Baroda, Gujarat
747	Benzir (C/o Dr. Girish S. Gund)	M.P.A.S.C. College, Panvel, Maharashtra
748	Mr. Akshat Singla (C/o Dr. Manju)	Punjabi University, Patiala, Punjab
749	Dr. Hemant	Devi Ahilya Vishwavidyalaya, Indore, Madhya Pradesh
750	Ms. Abhilasha Upadhyay (C/o Dr. Sanjay Parihar)	Bhagat Singh Govt. P.G. College, Jaora, Madhya Pradesh

Confocal Microscope

751	Dr. Neelima U R	Madhya Pradesh Medical Science University, Jabalpur
752	Dr. Vijay bhan Singh	Madhya Pradesh Medical Science University, Jabalpur
753	Dr. Bharti Vyas	Madhya Pradesh Medical Science University, Jabalpur
754	Dr. Suresh Kumar Paswan	Shri G.S. institute of science and technology, Indore
755	Dr. Rekha Khanna	Vikram University, Ujjain
756	Mr. Pratik Prataprao Deshmukh	RRCAT Indore
757	Dr. Surekha Puri	College of Dental Science and Hospital, Indore
758	Dr. Khushboo Barjatya	Sri Aurobindo college of dentistry, Indore
759	Dr. Vaishnavi Tribhuvan Tare	College of Dental Science and Hospital, Indore
760	Dr. Shivaji Bhikaji Kashte	D Y Patil Education Society (Deemed University), Kolhapur

Second Harmonic Generation

761	Prof. Rohit Kumar Sharma	Department of Chemistry, Panjab University, Chandigarh
762	Prof. B M Krishna Mariserla	Indian Institute of Technology Jodhpur, dhpur
763	Prof. K D M Rao	Indian Association for the Cultivation of ience, Kolkata
764	Prof. Abhishek Mondal	IISc Bangalore

STM

765	Prof. P V Satyam	Department of Physics, Indian Institute of Technology Bhubaneswar
766	Dr. Prabir Pal	CSIR-CGCRI, Kolkata
767	Dr. Vipin Kumar Singh	CSIR-CGCRI, Kolkata
768	Dr. Jayita Nayak	Indian Institute of Technology Kanpur
769	Prof. Chhayabrita Maji	BML Munjal University, Gurugram
770	Prof. Kaustubh R. S. Priolkar	Goa University, Goa

XPS

771	Dr. Bibekananda Sundaray	Ravenshaw University, Cuttack
772	Dr. Arnab Ghosh	UEM, Kolkata
773	Dr. Shailesh Kalal	Linköping University, Sweden
774	Dr. Subhadeep Datta	IACS, Kolkata
775	Dr. Maniraj	IIT Bombay
776	Dr. Mayukh Majumdar	Shiv Nadar Institution of Eminence, Noida, UP
777	Prof. Sandip Chatterjee	IIT BHU, Varanasi
778	Dr. Moumita Nandi	IIT Palakkad, Kerala
779	Dr. Jayanta Das	Panchakot Mahavidyalaya, Sarbari, West Bengal
780	Dr. Prabir Pal	CSIR-CGCRI, Kolkata
781	Dr. Sourav Marik	Thapar Institute of Engineering and Technology, Patiala
782	Dr. Vipin Singh	CSIR-CGCRI, Kolkata
783	Dr. Madhuri Venkata Kalapala	Vignan's Foundation for Science, Technology and Research, Vadlamudi, Guntur
784	Dr. Bhaskar Chandra Mohanty	School of Physics and Materials Science, Thapar Institute of Engineering and Technology, Patiala
785	Dr. Sonit Kumar Gogoi	Gauhati University
786	Dr. Mayukh Majumder	Shiv Nadar University

ARPES

787	Dr. Mukesh Kumar Dasoundhi	Weizmann Institute of Science, Israel
788	Dr. Maniraj	IIT Bombay
789	Prof. Subhadeep Datta	IACS, Kolkata
790	Dr. Moumita Nandi	IIT Palakkad, Kerala
791	Prof. Sandip Chatterjee	IIT BHU, Varanasi
792	Dr. Jayanta Das	Panchakot Mahavidyalaya, Sarbari, West Bengal
793	Dr. Tapas Paramanik	NIT Andhra Pradesh, Andhra Pradesh
794	Dr. Praveen Kumar Yadav	RRCAT Indore

Muffle Furnace

795	Dr. Uma Sharma	Vikram University, Ujjain (MP)
796	Dr. Sanjay Parihar	Bhagat Singh Govt. P. G. College Jaora

7T MPMS3 system

797	Dr. Neeru Bhagat	SIU, Pune
798	Dr. Mamatha D Daviyana	MIT, Manipal
799	Prof. Ankush Viz	Central University of Haryana
800	Dr. Preeti Bhohe	IIT, Indore
801	Dr. Asim Pramanik	JNU, New Delhi
802	Dr. Pampi Saha	Briston Germany
803	Dr. Nanda Kumar Kalarikkal	MG University Kottayam
804	Dr. T. Setti (A. Barik)	SN Bose Kolkata
805	Dr. T. Setti (S. Chakrabarti)	SN Bose Kolkata
806	Dr. Ashim Pramanik	JNU Delhi
807	Dr. S. Nallamuthu	VIT AP University
808	Vishnu	IIT BHU
809	Dr. Yadagiri	NIT Warangal

810	Dr.Vinoy	IISC Bangalore
811	Dr.Sudipta Pal	Uni. Of Kalyani
812	Dr S B Roy	RKMVERI, West Bengal
813	Prof. Asish Agrawal	Guru Jambheshwari Uni. Of science and technology
814	Dr. Gopal Reddy	Osmania University Hyderabad
815	Dr. Umesh Gawai	DDSP Arts, Commerce and Science College, Jalgaon
816	D. Prakash Chnadra Mondal	IIT Kanpur
817	Dr.Uma Sharma	Samrat Vikramaditya University Ujjain
818	Dr.Ayan Das	IIT KGP

XPS (UD)

819	Ms. Dipannita Das/ Dr. Bharti Tudu	Jadhavpur University, Kolkata
820	Mr. Aksahya Sonewal/ Dr. Ajay Kumar Kushwaha	IIT Indore
821	Mr. Prathamesh U Joshi / Dr. Preeti A Bobe	IIT Indore
822	Prof. Tapobrata Som	IOP, Bhubaneswar
823	Prof. K. S. Lokesh	Vijayanagara Shri Krishnadivarya University, Ballari
824	Dr.Girish C.Verma	IIT Indore
825	Mr. Smruti Sourav / Dr. Nimai Mishra	Institute of chemical Technology Mumbai(ICT), Bhubaneswar campus
826	Mr. Yash G. Kapdi / Dr.Saurabh S.Soni	Sardar Patel University, Anand Gujrat
827	Dr. M. D. Kashif Shamim / Dr. Seema Sharma	A. N. Collage, Patna
828	Dr. Goutam Biswas	Behar Panchanan Burma University, Coach Behar
829	Mr. Janmejaya Misra	Ravenshaw University, Cuttack
830	Ms. K Sumiran / Dr. Shahid Anwar	CSIR-IMMT Bhubaneswar
831	Dr.Subhdeep Sen	Coachbehar Panchanan Barma University, Coachbehar
832	Ms. Banan Wahabi/ Dr. Viyaja Lakshmi Dayal	MIT, Mysore
833	Ms. Shriti Vyas / Dr. V. Ganeshan	Medicaps University, Indore
834	Mr. Kundan Sharma / Dr. Vandana Rathode	Jagran Lackecity University ,Bhopal
835	Dr. Milan Bera	MMDU,Mullana, Ambala,
836	Dr. Harunavi Rashid	Ghadhi University A.P
837	Ms. Sonia Beniwal / Dr. Ankush Bij	Central University of Haryana, MahenderGarh
838	Mr. Akshay Pandurang Bangar / Dr. Sandeep A Waghulay	Mr. Akshay Pandurang Bangar / Dr. Sandeep A Waghulay
839	Mr. Shanu Bandyopadhyay / Prof. Tapobrata Som	IOP Bhubaneswar
840	Ms. Charvi Pandey / Dr. Savita Khare	DAVV Indore
841	Mr. Sonu Navaneeth P	Central University Of Punjab Bathinda
842	Dr. Anupma Chanda	Dr. Hari Singh Gaur University Sagar
843	Dr. Mini Krishna K	Govt. Engineering Collage Ramavarmapuram Thrissur
844	Dr. Sivadasan A.K.	C-MET, Thrissur
845	Prof. Sanjay Singh / Mr. Tushar Karde	IIT Indore

846	Dr. B. Geetha Priyadarshani	NRIIC, Peelamedu
847	Mr. Vishal Tyagi / Dr. Gagan Sharma	University of Allahabad, Prayag
848	Mr. Banadeep Dutta / Prof. Sudehna Chattop	IIT, Indore
849	Ms. Romita Jain / Prof. Pratibha Sharma	DAVV Indore
850	Ms. Akanksha Malik/ Dr. Richa Saini	Gurukul Kangri University, Haridwar
851	Dr. Ashim Kumar Parmanik	JNU, New Delhi
852	Dr. Jai Singh / Mr. Satnam Singh	Guru Ghasiyadas University, Bilaspur
853	Ms.Charul Uniyal / Dr. Manoj Yadav	Shri Dev Suman University, Rishikesh
854	Dr. Arun kumar Singh Mr.Visheshvar Verma	Guru Ghasidas Vishavavidhayalaya, Bilaspur, (C.G)
855	Dr. Stiphan Rajkumar Inbanathan	The American College, Madurai
856	Ms. Divya Choudhary/ Dr. Soumyendu Roy	Bennett University University, Greater Noida
857	Mr. Amrit Das/ Dr. Sunit Kumar Gogoi	Guwahati University, Guwahati
858	Mr. Shyam. R. Ajudiya/ Dr. Ashish. R. Tanna	R. K. University, Rajkot
859	Mr. Deepak Pandey / Dr. Neelabh Srivastava	Mahatma Gandhi Central University Bihar, Motihari
860	Ms. Rashmi Singh	RRCAT, Indore
861	Ms. Renu Sharma Mr. Rampal Sharama	IIS University, Jaipur
862	Ms. Tanvi Dudharejiya/ Prof. B. R. Katarya	Saurashtra University Rajkot , Rajkot
863	Dr. Suman Mahendia	Kurukshetra University, Kurukshetra
864	Mr. Sampa Sutradhar/ Dr. Rajamohan S	RRCAT, Indore
865	Ms. Nirale N. Udani / Prof. B. R. Kataria	Sourashtra University, Rajkot
866	Prof. Lokesh Koodlur San-negowde	Vijayanagar Sri Krishnadevaraya University, Ballari
867	Vijayanagar Sri Krishnadevaraya University, Ballari	Guru Ghasiyadas Visvvidhyalay Bilaspur
868	Mr. Virendra Singh	Central University Punjab, Bhatinda
869	Mr. Guhan G./Dr. K.R.S. Preethi	Central Univ. of Tamilnadu , Thiraruvur
870	Prof. Smita Acharya	Nagpur University , Nagpur
871	Dr. Imran Ali	DOC, Univ. of Kalyani, Nadi
872	Ms. Neha Sharma / Prof. Ajay Gupta	UPES Dehradun
873	Ms.Sonia Beniwal / Dr.Ankush Bij	Central University of Haryana Mahender Garh
874	Jayesh Avadhut Patil / Dr. Umesh Prakash Gawai	Institute North Maharashtra University, Jalgaon
875	Mr.Avala Ramesh / Dr.Sukanti Behera	MANIT, Bhopal
876	Ms.Ankita Singh / Dr.Ajay Kush-waha	IIT Indore

877	Mr. Muhammed Swalihi P.M	Mahatma Gandhi University Kerla
878	Mr. Abdul Basit / Prof. Grish Verma	IIT,Indore
879	Dr. Rajeev Padee	Sambalpur University Barla
880	Mr. Saurabh Pandey / Dr. Subhash Chandra Pokhariyal	Kumaun University, Nainital
881	Dr.Bhaskar Soni	M. S. University Baroda
882	Mr.Banadeep Dutta / Prof. Sudeshna Chattopadya	IIT Indore
883	Dr. Imran Ali	DOC, Univ. of Kalyani, Nadia, WB, Nadia
884	Ms. Ayushi Jaiswal / Dr. Surendra Kumar	CSIR-AMPRI Bhopal
885	Dr. R. S. Ajimsha / Ms. Mamami Modday	RRCAT, Indore
886	Dr. Joy Mukharjee	VIT, Vellore
887	Prof. K.S Lokesh	Vijayanagara Shri Krishnadevaraya University, Ballari, Karnatak
888	Ms. Aarti Lakhara / Prof. Preeti Bhubhe	IIT Indore
889	Dr. Ajay Kumar Kushwaha / Akshay Kumar Sonwane	IIT Indore
890	Mr. Amiya Ranjan Sahoo / Dr. Oroosa Subohi	NIT Nagpur
891	Dr. Abhimanyu Singh Rana	BML Manjal University , Gurugram
892	Mr.Sanjay Kapadi / Prof. Saurabh Soni	S.P University, Anand
893	Dr. Abhijit Majumdar	IEST, Sibalpur
894	Dr. Girish Chandra Verma	IIT Indore
895	Ms. Tanvi Dudharejiya / Prof. Bharat Kataria	Saurashtra University, Rajkot
896	Mr. M. M. Manedar Mani / Prof. Gopal Reddy CH	Osmania University , Hyderabad
897	Dr. Rajib Padhee / Mr. Dinesh kumar Pati	Sambapur University Burla , Odisha
898	Ms. Priya Yadav/ Dr. V. Gagne-shan	Medicaps University Indore
899	Dr. Gagan Dixit	G. B. Pant University, Pantnagar
900	Dr. S. K. Imran Ali	University of Kalyani, Kalyani
901	Mr. Tushar Khare/ Prof. Snajay Singh	IIT Indore
902	Mr. Smruti Sourav / Dr. Nimai Mishra	Institute of Chemical Technology, IOCL Campus , Bhubaneshwar
903	Ms. Anusha A / Dr. Dharmendar Mishra	MNIT, Bhopal
904	Dr. Harunar Rashid	Rajeev Gandhi University Arunachal Pradesh

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906	Mr. Tausif Alam/ Dr. Avirup Das	DOP, VIT Bhopal
907	Mr. Ajay Dhodi / Dr. Grish Gund	Mumbai University
908	Mrs. Shiwani Jat / Dr. Anubha Pandya	Christian Eminent College Indore

909	Mr. Visheshvar Verma / Dr. Arun Kumar Singh	GGV, Bilaspur
910	Ms. Sheeba Khan / Dr. Rekha Khanna	Gov. Madhav Science Collage, Ujjain
911	Ms. Snehal Purohit/ Dr. Pratibha sharma	SOC, DAVV, Indore
912	Ms. Karishma Tawar	IPS Academy, Indore
913	Mr. Adarsh Dangwal / Dr. Rajeew kumar	G.B. Pant University, Pantnagar
914	Ms. Suchita Shivani, Mech. Engg	IPS, Indore
915	Mrs. Shiwani Jat / Dr. Anubha Pandya	Christian Eminent College Indore
916	Ms. Versha Bundela/ Dr. BKSinha	Barkatulla University
917	Mr. Manish Kumar/ Dr. Rajanish Nath Tiwari	MGCUB, Motihari
918	Dr. Salil Modak	DAVV, Indore
919	Mr. Navin Pusapati / Dr. Pawan Nanini	Osmaina University, Hyderabad
920	Mr. Kartikey Mishra/ Dr. D.M Kumawat	Vikram University, Ujjain
921	Mrs. Aruna Verma/ Dr. Uma Sharma	Vikram University, Ujjain
922	Mrs. Sheetal Pandya/ Dr. Uma Sharma	Vikram University, Ujjain
923	Ms. Lekhamalaingale/ Dr. SS Ghosh	DOP, Jalgaon University
924	Mr. Milan Sonawane / Dr. SS Ghosh	DOP, Jalgaon University
925	Ms. Lekhamalaingale / Dr. SS Ghosh	DOP, Jalgaon University
926	Dr. Amit Jain/ DOESH	IIST Indore
927	Ms. Deepika Pathak/ Dr. Arpan Bhardwaj	AVV, Ujjain
928	Ms. Sneha Wat, Dr. Jitendra Bhawsar	ABVHV, Bhopal
929	Mr. Visheshvar Verma / Dr. Arun Kumar Singh	DOP, Guru Ghasidas Vishwavidyalaya, Bilaspur

UV-VIS

930	Dr. Varsha Savaner	IPS, Academy Indore
931	Ms. Sona C P / Dr. P. Jayaram	Calicut University, Calicut Kerala
932	Ms. Sona C P / Dr. P. Jayaram	Bannett University
933	Mr. Biswanath Das/ Dr. Prof. P. V. Satyam	IIT Bhubaneswar
934	Dr. Shilpa Tripathi	BARC (RRCAT), Indore
935	Ms. Chetna Parmar/ Dr. Salil Modak	DAVV, Indore
936	Mr. Arnab Kanti Jana/ Dr. S. B. Roy RKMVERI, Belur	RKMVERI, Belur
937	Ms. Shivani Jat / Dr. Anubha Pandya	DOC, Christian Eminent College, Indore

938	Ms. Shivani Jat / Dr. Anubha Pandya)	DOC, Christian Eminent College, Indore
939	Dr. Bhaskar Soni	MSU, Baroda
940	Mr. Arnab Kanti Jana/ Dr.S.B.Roy	
941	Dr. Stephen	American College, Madurai
942	Ms. Charul uniyal/ Dr.Manoj Yadav	Shri Dev Suman Uttrakhand University, Rishikesh
943	Ms. Akanksha Malik	Gurukul Kangri University, Haridwar
944	Mr. Shekhar Kumar/ Dr.Ruchi Rashmi	AN Collage Patna,
945	Ms. Dhruvi Bhatnagar	GBPUAT, Pantnagar
946	Ms. Karishma Tavar/ Dr.Jitendra Tripathi	IPS Collage Indore
947	Dr. Ruchi Rashmi	A.N. College, Patna
948	Mrs. Preeti hude / Dr. Bhawana Chourasia	Holkar Science Collage, Indore
949	Mrs. Priya Yadav/ Dr.V.Ganeshan	Medicaps University, Indore
950	Ms. Nisreen Tezabwala/ Dr. Preeti Jain,	Medicaps University, Indore
951	Mr. Amit Verma / Dr. Mukul Gupta	Sputtering Lab, CSR, Indore
952	Ms. Chuleshwari Jaiswal / Dr. R. Vijaykumar	Guru Ghasidas University , Bilaspur
953	Dr. Varsha Sanwre	IPS Academy Indore
954	Mr. Nayan Guchhait / Dr. Debalaya Sarker	DSFM, CSR, Indore,
955	Ms. Ekta Yadav / Prof. Chahyabrita maji	SOET, BML Munjal University Gurgaon
956	Ms. Versha Bundela/ Dr. B. K. Sinha	Barkatulla University, Bhopal
957	Mr. Ashok V Humbe	Dr.Babasaheb Ambedkar Marathwada University Darashiv
958	Mr. Banan Wahbi / Prof. Vijay-lakshmi Dayal	Maharaja Inst. of Technology, Mysore
959	Mrs. Aruna Verma/ Dr. Uma Sharma	Vikram University Ujjain
960	Mr. Kartikey Mishra/Dr. D.M.Kumawat	Vikram University, Ujjain
961	Mrs. Sheetal Pandya/ Dr. Uma Sharma	Vikram University, Ujjain
962	Ms. Kanchan Rao/ Dr. Ankush Vij	CUH, Mahendragarh
963	Ms. Aruna Verma / Dr. Uma sharma	Vikram University, Ujjain
964	Ms. Poonam nain/ Dr. Ravi kumar,	NIT Hamirpur
965	Ms. Sneha Wat/ Dr. Jitendra Bhawsar	ABVHV Bhopal
966	Ms. Deepik Pathak/ Dr. Arpan Bhardawaj	SVV, Ujjain
967	Ms. Garvisha Vyas	Davv, SOCS,Indore
968	Mr.Bilal Ahmad/ Dr. Bhawna	Holkar Sci College ,Indore

969	Ms. Deepa Yadav / Dr. M.K. Gora	Ms. Deepa Yadav / Dr. M.K. Gora
970	Mrs. Aruna Verma/ Dr. Uma Sharma	Vikram University Ujjain,
971	Ms. Kanchan Rao/ Prof.Ankush Bij	Central University Haryana, Mahendragarh

LTHM-XRD

972	Mr. Annab Kanti Jana	RKMVERI, Howrah
973	Dr. AGA Shahee	Kashmir university
974	Prof. Kiran Singh	NIT Jalandhar
975	Prof. Amiya Ranjan Sahoo	VNIT Nagpur
976	Dr Shashi Bhusan singh	IIISER BERHAMPUR
977	Mr. Annab Kanti Jana C/o. Dr.S.B.Roy	RKMVERI, Howrah
978	Dr. Debakant	IOP Bhubaneswar

Nabertherm Furnace

979	Vishnu C/O Dr. Sandip Chatterjee	IIT BHU
980	Amiya Ranjan Sahu	NIT Nagpur
981	Vishnu C/O Dr. Sandip Chatterjee	IIT BHU
982	Vilas C/O Dr. Koteswara Rao Bommiseti	IIT Tirupati
983	Vilas C/O Dr. Koteswara Rao Bommiseti	IIT Tirupati
984	Ashutosh	GGSIU, Delhi

Tube Furnace

985	Akash	Sant Gadge Baba Amravati University
986	Deepak Pandey	Mahatma Gandhi Central University
987	Samanta Pal	CSIR-Central Glass & Ceramic Research Institute

Muffle Furnace Carbolite Furnace

988	Arbab Kanti jana	RKMVERI, Belur, W.B.
989	Vilas C/O Dr. Koteswara Rao Bommiseti	IIT Tirupati

Kolkata Centre

S.No.	Name of User	Affiliation
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X-ray Powder Diffractometer

1	Subhadeep Sen (17), C/o: Dr. Goutam Biswas	Cooch Behar Panchanan Barma University
2	Dr. Munmun Midya Chowdhary (06)	Vidyasagar University
3	Dr. Susmita Singh (05)	Amity University Kolkata
4	Dr. Esa Bose (03)	Amity University Kolkata
5	Dr. Debajyoti De (02)	Sukumar Sengupta Mahavidyalaya
6	Dr. Sukhdev Dolai (05)	Ramsaday College
7	Dr. Lakshman Dhal (02)	Dumdum Motijheel College
8	Dr. Soumya Mukherjee (09)	Kazi Nazrul University
9	Prof. Jayanta Kumar Biswas (04)	University of Kalyani
10	Dr. Moni Baskey Sen (05)	Vidyasagar University
11	Tanushree Mallick, C/o: Dr. Dibyarupa Pal	JIS University
12	Dr. Swarup Kumar Neogi (02)	Sambhu Nath College
13	Dr. Ruma Banerjee Roy (03)	Jadavpur University
14	Dr. Soumabha Bag (06)	Mizoram University
15	Dr. Subhojit Sarkar (02)	West Bengal State University
16	Dr. Muklesur Rahman (02)	Aliah University
17	Dr. Tapas Ghosh	Jadavpur University
18	Dr. Mahasweta Nandi (02)	Visva Bharati University
19	Prof. Manish Pal Chowdhary (01)	Indian Institute of Engineering Science and Technology, Shibpur
20	Dr. Swati Dey (05)	University of Kalyani
21	Dr. Moni Baskey Sen (04)	University of Burdwan
22	Dr. Tapas Ghosh (03)	Jadavpur University
23	Dr. Sudip Kumar Saha (02)	Diamond Harbour Womens University
24	Dr. Kanailal Barman (09)	Sri Ramakrishna Sarada Vidyapitha, Hooghly
25	Dr. Arvind Maurya (03)	Mizoram University
26	Prof. Amit Kumar Chakraborty (01)	NIT Durgapur
27	Dr. Rajnish Nath Tiwari (04)	M.G. Central University
28	Prof. Sanjay Mondal (01)	SKBU Purulia
29	Minjanul Islam (03), C/o: Dr. Arindam Karmakar	Surya Sen Mahavidyalaya
30	Debajana Biswas (02) C/o: Prof. Paramita Biswas	Jadavpur University

Cryogenic 15 Tesla System

31	Sudip Shaw (03), C/o: Prof. S. Giri	Indian Association for the Cultivation of Science
32	Priyanka Saha (04), C/o: Prof. Sanjay Kumar	Jadavpur University
33	Dr. Sukdev Dolai (01)	Ramsaday College
34	Shovan Dan (01), C/o: Prof. A. Thamizhavel	TIFR Mumbai

35	Doyel Rakshit (01), C/o: Dr. Ajay Kumar Ghosh	Jadavpur University
36	Dr. Soumya Mukherjee (01)	Kazi Nazrul University
37	Md. Numan (02), C/o: Prof. Subham Majumdar	Indian Association for the Cultivation of Science
38	Prasanta Chowdhury, C/o: Prof. Subham Majumdar	Indian Association for the Cultivation of Science
39	Tamali Roy, C/o: Prof. Subham Majumdar	Indian Association for the Cultivation of Science

Resistive Furnace

40	Dr. Lakshman Dhal (09)	Dumdum Motijheel College
41	Shivani Kulasari (07), C/o: Dr. Sanjay K. Upadhyay	Hemvati Nandan Bahuguna Garhwal University
42	Dr. Sudipta Chakraborty (02), C/o: Prof. Subash Thala	IIT Guwahati
43	Arpita Mondal, C/o: Dr. Pabitra K. Chakraborty	University of Burdwan
44	Dr. Soumya Mukherjee (01)	Kazi Nazrul University
45	Mijanul Islam (07), C/o: Dr. Arindam Karmakar	Surya Sen Mahavidyalaya
46	Pradip Manna, C/o: Dr. Sudipta Bandyopadhyay	University of Calcutta
47	Debabrata Sarkar, C/o: Dr. Sudipta Bandyopadhyay	University of Calcutta

Pelletizer

48	Dr. Sukdev Dolai (04)	Ramsaday College
49	Mijanul Islam (08), C/o: Dr. Arindam Karmakar	Surya Sen Mahavidyalaya
50	Suchi Shuvra Datta Roy (01), C/o: Dr. Sudipta Bandyopadhyay	University of Calcutta

Tri-Arc Furnace

51	Shiv Shankar Chandra (09), Pradip Das	Guru Ghasidas Vishwavidyalaya (CG)
52	Arbaz Khan (02), C/o: Dr. Suvendu Manna	Medinipur City College (Vidyasagar University)
53	Dr. J. P. Bora (02)	NIT Nagaland

Planetary Ball Mill

54	Dr. Soumya Mukherjee (15)	Kazi Nazrul University
55	Prof. Amit K. Chakraborty (06)	NIT Durgapur
56	Papi Sarkar (05), C/o: Dr. Kaustav Das	Jadavpur University

4K CCR System

57	Mukul Biswas (03), C/o: Dr. Abhijit Chowdhary	SNBNCBS, Kolkata
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58	Subhadeep Sen (04), C/o: Dr. Goutam Biswas	Cooch Behar Panchanan Barma University
59	Vivekananda Saha, C/o: Dr. Goutam Biswas	Cooch Behar Panchanan Barma University
60	Partha Sarathi Mandal (12), C/o: Dr. Manish Pal Chowdhary	IEST Shibpur
61	Subhojit Dutta (12), C/o: Dr. Soumyaditya Sutradhar	Jadavpur University
62	Tanmay Chakraborty, C/o: Dr. Soumyaditya Sutradhar	Jadavpur University
63	Dr. Arunangshu Banerjee (02), C/o: Dr. Subhojit Sarkar	West Bengal State University
64	Jhilik Roy (10), C/o: Dr. Ruma Basu	Jogamaya Devi College
65	Sumana Lakshman, C/o: Prof. Sukhen Das	Jadavpur University
66	Soumik Kundu (02), C/o: Dr. G. S. Taki	Institute of Engineering and Management, Kolkata

Digital DAQ & IUCPIX

67	Dr. Tumpa Bhattacharjee	VECC, Kolkata
68	Prof. Tarkeshwar Trivedi	University of Allahabad, Prayagraj
69	Dr. Somsundar Mukhopadhyay	BARC, Mumbai
70	Prof. Ajay Deo	IIT, Roorkee
71	Prof. Sujit Tandel	Shiv Nadar University, New Delhi
72	Prof. Abhijit Bisoi	IEST, Shibpur
73	Prof. A. K. Singh	IIT, Kharagpur
74	Prof. R. Gowrishankar	SSSIHL, Prasanthi Nilayam
75	Dr. Gopal Mukherjee	VECC, Kolkata
76	Dr. S. Bhattacharyya	VECC, Kolkata
77	Prof. Sukalyan Chattopadhyay	SINP, Kolkata
78	Prof. Rudrajyoti Palit	TIFR, Mumbai

Codes for Lifetime Measurements using DSAM

79	Prof. Tarkeshwar Trivedi	University of Allahabad, Prayagraj
80	Prof. Sukalyan Chattopadhyay	SINP, Kolkata
81	Dr. Gopal Mukherjee	VECC, Kolkata

Low Background Counting Facility

82	Dr. Chiranjib Barman	Sidho-Kanho-Birsha University, West Bengal
83	Prof. J. J. Das	Cotton University, Guwahati

Flow cytometer

84	Suhasini Mallick (8), c/o-Dr. Rina Rani Ray	Maulana Abul Kalam Azad University of Technology, Kolkata, WB
85	Sreejita Ghosh (54), c/o/-Dr. Rina Rani Ray	Maulana Abul Kalam Azad University of Technology, Kolkata, WB
86	Niladri Sarkar (34), c/o-Dr. Rina Rani Ray	Maulana Abul Kalam Azad University of Technology, Kolkata, WB

87	Bandita Dutta (20), c/o-Dr. Rina Rani Ray	Maulana Abul Kalam Azad University of Technology, Kolkata, WB
88	Arimdam Halder (150), c/o-Dr. Jatirendranath Bhakta	Kalyani University, Nadia, WB
89	Shaurya Tiwari (20), c/o-Dr. Hui Tag	Rajib Gandhi Central University, Itanagar, AP
90	Nahid Sultana (17), c/o-Prof. Sanghamitra Sengupta	University of Calcutta, Kolkata, WB
91	Sanchita Nandy (6), c/o-Prof. Tarak Basu	Kalyani University, Nadia, WB
92	Debarchan Mondal (08), c/o-Dr. Pubali Dhar	University of Calcutta, Kolkata, WB
93	Mandira Das (18)	Jadavpur University, Kolkata, WB
94	Malabika Ghosh (4), c/o-Dr. Ankan Dutta Chowdhury	Amity University, Kolkata, WB
95	Pousali Bag (3), c/o-Dr. Ankan Dutta Chowdhury	Amity University, Kolkata, WB
96	Pousali Bag (3), c/o-Dr. Ankan Dutta Chowdhury	Amity University, Kolkata, WB
97	Anjini Bellai (15), c/o-Dr. Hui Tag	Rajib Gandhi Central University, Itanagar, AP
98	Dr. Chandan Ghosh (3)	Jadavpur University, Kolkata, WB
99	Sweta Kundu (2), c/o-Dr. Avik Acharya	JIS University, Kolkata, WB
100	Suvodeep Saha (2), c/o-Dr. Avik Acharya	JIS, Kolkata, WB

UV-Vis spectrophotometer

101	Tanusree Panigrahi (1)	GITAM University, Visakhapatnam, AP
102	Sreejita Ghosh (3), c/o-Dr. Rina Rani Ray	Maulana Abul Kalam Azad University of Technology, Kolkata, WB
103	Tridib Banerjee (3), c/o-Dr. Kamalika Sen	University of Calcutta, Kolkata, WB
104	Dhritiman Chowdhury (2), c/o-Dr. Kamalika Sen	University of Calcutta, Kolkata, WB
105	Anjini Bellai (3), c/o-Dr. Hui Tag	Rajib Gandhi Central University, Itanagar, AP
106	Udita Baroi (3)	Kalyani University, Nadia, WB
107	Megha Roy (3)	Kalyani University, Nadia, WB
108	Md. Rizwan (6)	Aliah University, Kolkata, WB
109	Divya Jain (1)	JIS University, Kolkata, WB
110	Tanisha Saha (3)	Presidency University, Kolkata, WB
111	Soumyadeep Mondal (2)	Presidency University, Kolkata, WB
112	Bandita Dutta (3), c/o-Dr. Rina Rani Ray	Maulana Abul Kalam Azad University, Kolkata, WB
113	Sreejita Ghosh (3), c/o-Dr. Rina Rani Ray	Maulana Abul Kalam Azad University, Kolkata, WB
114	Rounak Atha (1)	Presidency University, Kolkata, WB
115	Ashik Mondal (2) (1)	Presidency University, Kolkata, WB
116	Soumik Kumar Kundu (1) (1)	Institute of Engineering and Management, Kolkata, WB

Cell Culture facilities (Biosafety, CO2, incubator)

117	Sanchita Nandy (4), c/o-Prof. Tarak Basu	Kalyani University, Nadia, WB
118	Sreejita Ghosh (10), c/o-Dr. Rina Rani Ray	Maulana Abul Kalam Azad University of Technology, Kolkata, WB
119	Tridib Banerjee (4), c/o-Dr. Kamalika Sen	University of Calcutta, Kolkata, WB
120	Dhritiman Chowdhury (3), c/o- Dr. Kamalika Sen	University of Calcutta, Kolkata, WB
121	Arimdam Halder (1), c/o-Dr. Jatirendranath Bhakta	Kalyani University, Nadia, WB
122	Anjini Bellai (15), c/o-Dr. Hui Tag	Rajib Gandhi Central University, Itanagar, AP
123	Udita Baroi (22)	Kalyani University, Nadia, WB
124	Megha Roy (21)	Kalyani University, Nadia, WB
125	Niladri Sarkar (10), c/o-Dr. Rina Rani Ray	Maulana Abul Kalam Azad University of Technology, Kolkata, WB
126	Nahid Sultana (33), c/o-Prof. Sanghamitra Sengupta	University of Calcutta, Kolkata, WB
127	Tanisha Saha (6)	Presidency University, Kolkata, WB
128	Soumyadeep Mondal (6)	Presidency University, Kolkata, WB
129	Divya Jain (4)	JIS University, Kolkata, WB
130	Shaurya Tiwari (4), c/o-Dr. Hui Tag	Rajib Gandhi Central University, Itanagar, AP
131	Bandita Dutta (7), c/o-Dr. Rina Rani Ray	Maulana Abul Kalam Azad University of Technology, Kolkata, WB
132	Suhasini Mallick (1), c/o-Dr. Rina Rani Ray	Maulana Abul Kalam Azad University of Technology, Kolkata, WB
133	Debarchan Mondal (1), c/o-Dr. Pubali Dhar	University of Calcutta, Kolkata, WB

High speed Cold centrifuge

134	Sanchita Nandy (2), c/o-Prof. Tarak Basu	Kalyani University, Nadia, WB
135	Nahid Sultana (15), c/o-Prof. Sanghamitra Sengupta	University of Calcutta, Kolkata, WB
136	Sangsaptak Dutta, Subarna Bhattacharyya (3)	Jadavpur University, Kolkata, WB

Inverted Bright Field Microscope and Cell Counter

137	Sanchita Nandy (4), c/o-Prof. Tarak Basu	Kalyani University, Nadia, WB
138	Sreejita Ghosh (10), c/o-Dr. Rina Rani Ray	Maulana Abul Kalam Azad University of Technology, Kolkata, WB
139	Tridib Banerjee (4), c/o-Dr. Kamalika Sen	University of Calcutta, Kolkata, WB
140	Dhritiman Chowdhury (3), c/o-Dr. Kamalika Sen	University of Calcutta, Kolkata, WB
141	Arimdam Halder (1), c/o-Dr. Jatirendranath Bhakta	Kalyani University, Nadia, WB
142	Anjini Bellai (15), c/o-Dr. Hui Tag	Rajib Gandhi Central University, Itanagar, AP

143	Udita Baroi (22)	Kalyani University, Nadia, WB
144	Megha Roy (21)	Kalyani University, Nadia, WB
145	Niladri Sarkar (10), c/o-Dr. Rina Rani Ray	Maulana Abul Kalam Azad University of Technology, Kolkata, WB
146	Nahid Sultana (33), c/o-Prof. Sanghamitra Sengupta	University of Calcutta, Kolkata, WB
147	Tanisha Saha (6)	Presidency University, Kolkata, WB
148	Soumyadeep Mondal (6)	Presidency University, Kolkata, WB
149	Divya Jain (4), c/o-Dr. Avik Acharya	JIS University, Kolkata, WB
150	Shaurya Tiwari (4), c/o-Dr. Hui Tag	Rajib Gandhi Central University, Itanagar, AP
151	Bandita Dutta (7), c/o-Dr. Rina Rani Ray	Maulana Abul Kalam Azad University of Technology, Kolkata, WB

Fluorescence Microscope

152	Sreejita Ghosh (7), c/o-Dr. Rina Rani Ray	Maulana Abul Kalam Azad University of Technology, Kolkata, WB
153	Tridib Banerjee (1), c/o-Dr. Kamalika Sen	University of Calcutta, Kolkata, WB
154	Niladri Sarkar (5), c/o-Dr. Rina Rani Ray	Maulana Abul Kalam Azad University of Technology, Kolkata, WB
155	Divya Jain (4), c/o-Dr. Avik Acharya	JIS University, Kolkata, WB
156	Bandita Dutta (7), c/o-Dr. Rina Rani Ray	Maulana Abul Kalam Azad University of Technology, Kolkata, WB
157	Sweta Kundu (2), c/o-Dr. Avik Acharya	JIS University, Kolkata, WB
158	Suvodeep Saha (2), c/o-Dr. Avik Acharya	JIS University, Kolkata, WB
159	Mrinmoy Dey (2), c/o-Dr. Avik Acharya	JIS University, Kolkata, WB
160	Shilpa Ghosh (2)	Bidhannagar Govt. College, Kolkata, WB
161	Dhritiman Chowdhury (2), c/o-Dr. Kamalika Sen	University of Calcutta, Kolkata, WB
162	Shalmali Basu (2), c/o-Dr. Kamalika Sen	University of Calcutta, Kolkata, WB

Dynamic Light Scattering

163	Dr. Dona Sinha	Chittaranjan National Cancer Institute
164	Prof. Joydeep Chowdhury	Jadavpur University
165	Dr. Debjyoti Paul	Amity University Kolkata
166	Dr. Satish Kumar Pandey	Mizoram University Aizawl
167	Dr. Pritam Dutta	The Neotia University
168	Dr. Abu Jahid Akhtar	Diamond Harbour Women's University
169	Dr. Debosreeta Bose	Amity University, Kolkata
170	Mr. Asif Seikh (02), C/o Prof. Kamalika Sen	University of Calcutta
171	Mr. Tridib Banerjee (03), C/o Prof. Kamalika Sen	University of Calcutta
172	Ms. Malabika Ghosh (03), C/o Dr. Ankan Dutta Chowdhury	Amity University Kolkata

173	Mr. Biswarup Gourd, C/o Dr. Arnab Ghosh	University of Engineering and Management, Kolkata
174	Ms. Sreemoyee Saha, C/o Dr. Samudra Prosad Banik	Maulana Azad College
175	Ms. Bandita Dutta, C/o Prof. Rina Rani Ray	MAKAUT, West Bengal
176	Mr. Dhritiman Chowdhury, C/o Prof. Kamalika Sen	University of Calcutta
177	Mr. Souvik Ghosal, C/o Dr. Sudipta Bhowmik	MGMARI, SBV
178	Dr. Soumya Mukherjee	Kazi Nazrul University
179	Dr. Sankar Narayan Patra	Jadavpur University
180	Mr. Mangal Deep Burman, C/o Dr. Sudipta Bhowmik	MGMARI, SBV
181	Dr. Mainak Mukhopadhyay	JIS University

UV-Vis NIR Absorption Spectrophotometer

182	Dr. Soumya Mukherjee	Kazi Nazrul University
183	Mr. Mahammad Rizwan Khan, C/o Dr. Mustafa Jahir Raihan	Aliah University

Time Correlated Single Photon Counting (TCSPC)

184	Ms. Sreejita Ghosh, C/o Prof. Rina Rani Ray	MAKAUT, West Bengal
185	Mr. Sagar Bag, C/o Dr. Sudipta Bhowmik	MGMARI, SBV
186	Mr. Dhritiman Chowdhury, C/o Prof. Kamalika Sen	University of Calcutta
187	Mr. Asif Seikh (02), C/o Prof. Kamalika Sen	University of Calcutta
188	Ms. Monisha Nayak (03), C/o Dr. Sudip Kumar Saha	Diamond Harbour Women's University
189	Dr. Arunabha Thakur	Jadavpur University
190	Ms. Laboni Ghosh (02), C/o Dr. Jayanta Nanda	University of North Bengal
191	Ms. Tiyasa Ray (04), C/o Prof. Kamalika Sen	University of Calcutta
192	Mr. Souvik Ghosal, C/o Dr. Sudipta Bhowmik	MGMARI, SBV
193	Dr. Abu Jahid Akhtar	Diamond Harbour Women's University
194	Dr. Debabrata Jana	Ramakrishna Mission Vivekananda Centenary College
195	Prof. Dulal Senapati	SINP
196	Dr. Prasanta Karmakar	VECC
197	Ms. Aswathi M, C/o Dr. Sabyasachi Chakraborty	SRM University AP
198	Ms. Rituparna Dutta, C/o Dr. Sabyasachi Chakraborty	SRM University AP
199	Dr. Avijit Chowdhury	SNBNCBS
200	Dr. Ananya Baksi	Jadavpur University
201	Dr. Samudra Prosad Banik	Maulana Azad College

Luminescence Spectrophotometer

202	Mr. Mangal Deep Burman, C/o Dr. Sudipta Bhowmik	MGMARI, SBV
203	Mr. Asif Seikh (02), C/o Prof. Kamalika Sen	University of Calcutta
204	Ms. Sreejita Ghosh, C/o Prof. Rina Rani Ray	MAKAUT
205	Mr. Niladri Sarkar, C/o Prof. Rina Rani Ray	MAKAUT
206	Ms. Shalmali Basu, C/o Prof. Kamalika Sen	University of Calcutta
207	Prof. Jayanta Kumar Biswas	University of Kalyani
208	Mr. Aakash Hossain, C/o Dr. Papita Das	Jadavpur University
209	Mr. Rajkumar Mandal, C/o Dr. Biswanath Mukherjee	SKBU
210	Mr. Apurba Kumar Nayek	Dumdum Motijheel College
211	Ms. Munmun Midya Chowdhury	Vidyasagar University
212	Dr. Shubhankar Samanta	Bidhannagar College
213	Dr. Mijanur Rahaman Molla	University of Calcutta
214	Mr. Subhendu Biswas (02), C/o Dr. Sudipta Pal	University of Kalyani
215	Mr. Ranik Konar, C/o Dr. Sudipta Mondal	NIT Durgapur
216	Mr. Avik Mukherjee, C/o Dr. Saswta Bose	Jadavpur University
217	Ms. Tiya Ray (03), C/o Prof. Kamalika Sen	University of Calcutta
218	Dr. Sonjoy Mondal	SKBU
219	Dr. Subhas Samanta	University of Calcutta
220	Ms. N. B. Chanu (02), C/o Dr. Bibhu Prasad Swain	NIT Manipur
221	Dr. Subhajit Sarkar (03)	WBSU
222	Mr. Paritosh Barik, C/o Dr. Shubhankar Samanta	University of Calcutta

Lyophilizer / Freeze Dryer

223	Mr. Asif Seikh (02), C/o Prof. Kamalika Sen	University of Calcutta
224	Ms. Shalmali Basu, C/o Prof. Kamalika Sen	University of Calcutta
225	Ms. Tiya Ray (02), C/o Prof. Kamalika Sen	University of Calcutta
226	Mr. Tridib Banerjee, C/o Prof. Kamalika Sen	University of Calcutta

Tube Furnace

227	Dr. Prasanta Karmakar (02)	VECC
228	Dr. Joy Mukherjee	VIT Vellore
229	Ms. Sunaina, C/o Dr. Prasanta Karmakar	VECC

230	Ms. Mitali Patra, C/o Prof. Amit K. Chakraborty	NIT Durgapur
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Fourier Transform Infrared Spectrometer

231	Prof. Jayanta Kumar Biswas (03)	University of Kalyani
232	Ms. Malabika Ghosh (03), C/o Dr. Ankan Dutta Chowdhury	Amity University Kolkata
233	Ms. N. B. Chanu, C/o Dr. Bibhu Prasad Swain	NIT Manipur
234	Mr. Sagar Bag, C/o Dr. Sudipta Bhowmik	Mahatma Gandhi Medical Advance Research Institute (MGMRI), SBV
235	Dr. Soumya Mukherjee (04)	Kazi Nazrul University
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241	Dr. Satish Kumar Pandey	Mizoram University Aizawl
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243	Mr. Mangal Deep Burman, C/o Dr. Sudipta Bhowmik	MGMRI, SBV
244	Ms. Monisha Nayak, C/o Dr. Sudip Kumar Saha	Diamond Harbour Women's University
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248	Dr. Debosreeta Bose	Amity University, Kolkata
249	Dr. Pritam Dutta	The Neotia University
250	Ms. Tiyasa Ray (04), C/o Prof. Kamalika Sen	University of Calcutta
251	Mr. Mrinmoy Dey (03), C/o Dr. Suparna Ghosh	JIS University
252	Dr. Bipan Tudu	Jadavpur University
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254	Dr. Sandipan Chatterjee	CSIR-Central Leather Research Institute
255	Dr. Pranabi Maji	JIS University
256	Dr. Joydeep Das	Mizoram University
257	Dr. Rajeswar Panja	Techno India University
258	Prof. Runu Banerjee Roy (04)	Jadavpur University
259	Dr. Susmita Singh	Amity University, Kolkata
260	Ms. Aheli Choudhury, C/o Dr. Suparna Ghosh	JIS University
261	Ms. Srija Das, C/o Dr. Suparna Ghosh	JIS University
262	Dr. Rachna Jain	CSIR-NEERI
263	Prof. Parama Dasgupta	Bidhannagar College

264	Dr. Sonjoy Mondal	Sidho-Kanho-Birsha University
265	Mr. Surajit Karmakar, C/o Dr. Dipanjali Majumdar	CSIR-NEERI Kolkata Zonal Centre
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MICRO-EDXRF

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288	Prantica Saha, C/o: Dr. Susmita Singh	Amity University
289	Tanushree Panigrahi, C/o: Dr. Anima S. Dadhich	GITAM University
290	Kaushik Basu, C/o: Dr. Amitabha Das	Jadavpur University, Kolkata

EDXRF USER

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37	Dr. Kiran Singh	Dr. B. R. Ambedkar NIT, Jalandhar

Mini-Arc Melter

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53	Dr. S. P. Pati	NEHU, Shillong
54	Dr. Kiran Singh	NIT Jalandhar
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62	Prof. S. Patnaik	JNU, New Delhi
63	Dr. A. K. Bera	BARC, Mumbai
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65	Dr. V. Ganesan	Medi-caps University, Indore
66	Prof. Nandakumar Kalarikkal	M. G. University, Kottayam
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High temperature furnace

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82	Dr. A. K. Bera	BARC, Mumbai
83	Sh. Anuj Shinde	Pillai College, Panvel
84	Sh. Shailendra K. Gupta	CSJM University, Kanpur
85	Dr. Sashwati Sen	BARC, Mumbai
86	Dr. Tathamay Basu	RGIPT, Amethi
87	Dr. S. Bhattacharya	BARC, Mumbai

Spark Plasma Sintering furnace

88	Sh. Shailendra K. Gupta	CSJM University, Kanpur
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94	Dr. Rohini Garg	BARC, Mumbai
95	Dr. S. Bhattacharya	BARC, Mumbai
96	Dr. Sanjay Saini	BARC, Mumbai

Vibrating Sample Magnetometer

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AC-Susceptibility

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34	Sangita Mukherjee	Tripura University
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36	Karabi Chatterjee	DHWU , Kolkata
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45	Ms. Imaculate J Imaculate	Mother Teresa Womens University
46	Dr. Parimaladevi R	Mother Teresa Womens University
47	Dr. Alesh Kumar	Gautam Buddha University
48	Ms. Shivani Khanna	SCHOOL OF PHYSICS DAVV
49	Dr. Ashutosh Mishra	SCHOOL OF PHYSICS DAVV
50	Ms Margarette Goretti	Mother Teresa Women's University
51	Ms. Vivya DEVI E	Mother Teresa Women's University
52	Ms. Banupriya DEVI M	Mother Teresa Women's University
53	Dr. shilpa jain	Jai hind college, university of mumbai
54	Ms. Monisha Nayak	Diamond Harbour Women's University
55	Dr. Abu Jahid Akhtar	Diamond Harbour Women's University
56	Mr. Gemin Modi	Mizoram University
57	Dr. Sudip Kumar Saha	Diamond Harbour Women's University
58	Dr. Soumabha Bag	Mizoram University
59	Ms. Plabana Phukan	Mizoram University
60	Dr. Harunar Rashid	Rajiv Gandhi University, Arunachal Pradesh
61	Mr. Mukesh Kumar M	VIT-AP University
62	S Venkatesan	Sri Sairam Engineering College
63	Dr. Alesh Kumar	Gautam Buddha University
64	Sabina Parvin	Diamond Harbour Women's University
65	Ms. Karabi Chatterjee	Diamond Harbour Women's University
66	Ms. Sakthi Devi B	Madurai Kamaraj University
67	Dr. Jayanthi S	Madurai Kamaraj University
68	Ms. Dhruvi B	MANIT Bhopal
69	Dr. Sudagar J	VIT AP
70	Dr. Sk Imran Ali	University of Kalyani, Kalyani
71	Prof. Ramesh Chandra Srivastava	GB Pant University, Pantnagar
72	Dr. Shilpa jain	Jai Hind College, University of Mumbai
73	Ms. Samyuktha BS	Sri Sai Ram Eengineering College
74	Sk Manirul Islam	Kalyani University
75	Mr. Prabhakaran	Anna University CEG
76	Mr. Mukesh Kumar M	VIT-AP University
77	Mr. Karan Kashinath Rathod	Swami Ramanand Tirtha Marathwada University, Nanded
78	Dr. Joji Kurian	Nirmalagiri College
79	Ms. Nivethika Desiappan	Anna University
80	Ms. Hima Bindu Bandlamudi	VITAP University
81	Dr. Sivakumar N.	Sairam Engineering College
82	Mr. Dhanaraj Shivaji Nilegave	B.K. Birla College Kalyan, Kalyan
83	Dr. Ratnesh Kumar	Jai Hind College, University of Mumbai
84	Ms. Indhumathi R	Sri Sairam Engineering College
85	Ms. Imaculate J Imaculate	Mother Teresa Women's University
86	Athira Joseph	Kerala University
87	Md. Arul Hameeth	CUSAT
88	K Ravichander	Univ. of Madras
89	Dr. Vijay SaktharamJadhav	Mumbai University
90	Dr.Avdhut Deshmukh	CSMSS, Chh.Sambhajinagar

91	Dr. N Murugesan	VIT-AP
92	Dr. P Raji	MEPCO-SCHLENK University, Sivakasi
93	Dr. Sudagar J	VIT-AP
94	Chandrasekaran	Anna University, Chennai
95	Hina Aksh Khan	Jai Hind College, Mumbai
96	Dr. T S Shyju	Sathyabama Inst of Science and Technology
97	R S Devika	Sathyabama University
98	R. Kannan	Vivekananda College Chennai
99	Md. Jeeyauddin	BSAU, Chennai
100	Dr. Mini Krishna K	Vimala College, Thrissur
101	Prof. K. Vishishtha	Anna University Chennai
102	Rosemy A.	Bishop Moore College Kerala
103	Alex P John	Kerala University
104	S Jacob	Sathyabama University

200 kV Ion Accelerator

105	Ms. Manjubashini D C/o Dr. Subramanian B	CSIR CECRI, Karaikudi, TN
106	Mr. GUNASEKARAN S C/o Dr. Subramanian B	CSIR CECRI, Karaikudi, TN
107	Dr. Jayalakshmi G.	AMET, Chennai
108	Ms. Beulah R C/o Dr. SABA-REESH K P V	Karunya Institute, Coimbatore
109	Mr. Perarasan T C/o Dr. Jaivardhan Sinha	SRM Institute, Chengalpattu, TN
110	Dr. Raghavendra K G	Manipal Academy Of Higher Education, KA
111	Dr. Hima Bindu Pitta	Osmania University, AP
112	Mr. Mitva Choudhary C/o Dr. Shikha Wadhwa	UPES, Dehradun

General information on staff position (As on 31/03/2026)

S.No.	Designation	A	B	C
01	Director of the Consortium	1	1	I (1)
02	Centre-Director	3	2	M (1), K (1),
03	Scientist	35	33	I (18), K (7), M (4), KN (4)
04	Engineer	6	4	I (3), K (1)
05	Junior Engineer / Scientific Assistant / Technician	44	38	I (20), K (13), M (5)
06	AO II [ON LIEN]	1	1	I (1)
07	AO I	7	7	I (3), K (2), M (2)
08	Section Officer	1	-	I (-)
09	PS (to Director)	1	-	I (-)
10	PA (to Centre-Director)	3	3	I (1), K (1), M (1)
11	Assistant -II	1	-	I (-)
12	Assistant; Grade-I	3	2	I (2)
13	Typist/Steno-Typist/ Typist-cum- Clark/ Clerk- Typist	7	5	I (2), K (2), M (1)
14	Scientific Assistant (Library)	2	2	I (1), K (1)
15	Caretaker	1	-	I (-)
16	Guest House Attendant	1	1	K (1)
17	Driver-cum-Aux. Staff	2	2	I (2)
18	Driver	4	3	I (1), M (1), K (1)
19	Attendant-cum-Auxiliary Staff	2	2	M (1), I (1)
20	Helper / Lab. Attendant / Aux. Staff / Attendant	12	11	I (8), K (3)
	TOTAL	137	117	

A	:	Approved
B	:	Filled-up as on 31-March-2026.
C	:	Present posting at Indore (I), Kolkata (K), Mumbai (M) and Kalpakkam (KP).

List of staff at UGC-DAE CSR (As on 31/03/2026)

S.No.	Title	Name	Designation
1	Prof.	Kaustubh R. S. Priolkar	Director
2	Dr.	P. D. Babu	Centre-Director
3	Dr.	S. S. Ghurge	Centre-Director
4	Mr.	P. Saravanan	Engineer G
5	Mr.	Tapas Kumar Mishra	Engineer G
6	Dr.	Rajeev Rawat	Scientist H
7	Dr.	V. R. Reddy	Scientist H
8	Dr.	Gautam Ghosh	Scientist G
9	Mr.	Sanjay Singh Thakur	Engineer G
10	Dr.	R. J. Choudhary	Scientist H
11	Dr.	Mukul Gupta	Scientist H
12	Dr.	S. Rayaprol	Scientist G
13	Dr.	Archana Lakhani	Scientist G
14	Dr.	Dileep Kumar Gupta	Scientist G
15	Dr.	Som Dutta Kaushik	Scientist G
16	Dr.	G. M. Bhalerao	Scientist - G
17	Dr.	Sujoy Chakravorty	Scientist- G
18	Dr.	Shamima Hussain	Scientist- G
19	Dr.	Devendra Kumar	Scientist- F
20	Dr.	Rajarshi Raut	Scientist- G
21	Dr.	Souvik Chatterjee	Scientist- F
22	Dr.	Sudip Mukherjee	Scientist- F
23	Dr.	Dinesh Kumar Shukla	Scientist- F
24	Dr.	R. Venkatesh	Scientist- F
25	Mr.	U. P. Deshpande	Scientist- F
26	Mr.	Bhushan Jain	Engineer- F
27	Dr.	Rajamani Raghunathan	Scientist- E
28	Dr.	Goutam Pramanik	Scientist-E
29	Dr.	Rajib Mondal	Scientist-E
30	Dr.	Arvind Kumar Yogi	Scientist-E
31	Dr.	K. Saravanan	Scientist-D
32	Dr.	Praveen Kumar Velpula	Scientist-E
33	Dr.	Debalaya Sarkar	Scientist-D
34	Dr.	Rajib Batabyal	Scientist-D
35	Dr.	Sanjoy Kr Mahatha	Scientist-D
36	Dr.	Sumanta Chattopadhyay	Scientist-D
37	Dr.	Ujjal Das	Scientist-D
38	Dr.	Gunjan Verma	Scientist-D
39	Dr.	Soumen Nandi	Scientist-D
40	Dr.	Sudip Pal	Scientist-D
41	Mr.	J.B.M. Krishna	SA-F/JE-F
42	Mr.	Suresh Bhardwaj	SA-F/JE- F
43	Mr.	J.V. Joshi	SA-F/JE- F
44	Mr.	B. R. Mendole	Scientific Assistant-F
45	Mr.	P. V. Rajesh	SA-F/JE-F
46	Mr.	Pinaki Das	SA-F/JE-F
47	Mr.	M. K. Verma	SA-F/JE-F
48	Mr.	N. Vijayakumar	Junior Engineer-F
49	Ms.	Aparna Datta/Basu	Scientific Assistant-F
50	Mr.	S. Selvaraj	Scientific Assistant-F

51	Mr.	Kranti Kumar Sharma	Junior Engineer-F
52	Mr.	Vinay K. Ahire	Junior Engineer-F
53	Mr.	Mohd. Imran	Junior Engineer-F
54	Mr.	Munshi Venugopal	Junior Engineer-F
55	Mr.	Kaushik Basu	Scientific Assistant-F
56	Mr.	Mohan Kumar Gangrade	Scientific Assistant-F
57	Mr.	Mukesh Kumar	Scientific Assistant-F
58	Mr.	A. K. Rathore	Scientific Assistant-F
59	Ms.	Preeti Mahajan/ Bhradwaj	Junior Engineer-F
60	Mr.	Anil Gome	Junior Engineer-F
61	Ms.	Mahua Kar (Ghosh)	Scientific Assistant-F (Library)
62	Mr.	Vinod Savaner	Scientific Assistant-F
63	Mr.	Jaganmoy Biswas	Scientific Assistant-F
64	Mr.	Rakesh Kumar Sah	Scientific Assistant-F
65	Mr.	Layanta Behera	Scientific Assistant-F
66	Smt.	Madhulika Sinha	Scientific Assistant-D (Library)
67	Mr.	S. Thilakaraj Kumar	Scientific Assistant-F
68	Mr.	C. K. Modak	Junior Engineer-E
69	Mr.	Sachin Kumar	Junior Engineer-F
70	Mr.	Manoj Kumar	Junior Engineer-F
71	Mr.	B. K. Behera	Junior Engineer-F
72	Mr.	Sharad Karwal	Junior Engineer-E
73	Mr.	Ashish K. Deshmukh	Junior Engineer-E
74	Mr.	Md. Ziaul Haque	Junior Engineer-C
75	Mr.	K. Dey	Technician K
76	Mr.	Nitin Patil	Technician K
77	Mr.	D.H. Raju	Technician K
78	Mr.	Prabir Kumar Das	Technician J
79	Mr.	Sanjay Srivastava	Technician K
80	Mr.	Ravindra P. Bhimgade	Technician-H
81	Dr.	AshishUpadhayaya[ON LIEN]	Administrative Officer II
82	Mr.	Rajeev Bhagwat	Administrative Officer I
83	Mr.	Devendra Singh	Administrative Officer I
84	Mr.	Pawan Kumar	Administrative Officer I
85	Mr.	Sourav Sarkar	Administrative Officer I
86	Mr.	Nariyan Kumar Lengay	Administrative Officer I
87	Mr.	Nitin Virajibhai Katara	Administrative Officer I
88	Mrs.	Gagan Arora	Administrative Officer I
89	Mr.	Abhay Kumar Seth	PA (to Centre-Director)
90	Ms.	Rupali Sahu	PA (to Centre-Director)
91	Mr.	Kumud Narayan	PA (to Centre-Director)
92	Mr.	C.L. Dwivedi	Assistant I
93	Mr.	Vishnu Kaushal	Assistant-I
94	Ms.	Meenakshi Gupta	Clerk-Typist
95	Ms.	Pranita Anant Bandarkar	Clerk-Typist
96	Ms.	Himanshi Shukla	Clerk-Typist
97	Mr.	Shubham Pal	Clerk-Typist
98	Mr.	Akshay Goyal	Clerk-Typist
99	Mr.	Bireswar Pradhan	Guest House Attendent
100	Mr.	Arun Yadav	Driver
101	Mr.	Dilip Kaushal	Driver-cum-Aux. Staff
102	Mr.	Anil Rao Jadhav	Driver-cum-Aux. Staff
103	Mr.	Namdev Suryavanshi	Driver

104	Mr.	Shiv Kumar Burnwal	Driver
105	Mr.	T. B. Thapa	Helper
106	Mr.	Iqbal Hussain	Lab Attendent
107	Mr.	Ram Chandra Baniya	Lab Attendent
108	Mr.	Kapil Nayak	Lab Attendent
109	Mr.	N.K. Reddy	Lab Attendent
110	Mr.	Prafulla Chandra Das	Aux. Staff
111	Mr.	Nitin J. Patil	Attendent/Aux.Staff
112	Mr.	B. R. Behra	Attendent
113	Mr.	Manoj Kumar Sarwan	Attendent
114	Mr.	Sushil Kumar Sharma	Attendent
115	Mr.	Prakash Shinde	Attendent
116	Mr.	Kamlesh Verma	Attendant/Aux.Staff
117	Smt.	Shobha Yadav	Auxiliary Staff

Appointments



Prof. Kaushtubh R. S. Priolkar has taken over as a director of UGC-DAE Consortium for Scientific Research, Indore on 1st August 2026. He is also a Senior Professor at the School of Physical and Applied Sciences, Goa University. He received his M. Sc. And Ph.D. degrees from Goa University. His PhD work on inelastic neutron scattering studies of cerium-based Kondo systems was funded by UGC-DAE Consortium (then known as IUC-DAEF). His research activities are concentrated around studying different functional materials using x-ray absorption fine structure spectroscopy. The unifying feature of his work is highlighting the importance of local structural distortions and structural defects in functional properties of such materials. Prof. Priolkar has several awards to his credit. He was a visiting professor at the Chimie Paris-Tech, Paris, France and University of Duisburg-Essen, Duisburg, Germany. Presently, he serves as a member of several national level committees including the National Steering Committee of DST-DESY Programme of Cooperation for Petra III utilization.



Dr. Soumen Nandi joined the Kolkata Centre on 1st April 2025 as a Scientist-D in the Nuclear Physics Division. Dr. Nandi holds a Masters degree from the National Institute of Technology (NIT), Durgapur. He obtained his Ph.D. from the Variable Energy Cyclotron Centre, Kolkata, under the Homi Bhabha National Institute, Mumbai. His research is primarily focused on Nuclear Structure studies using Gamma-ray Spectroscopy, as well as on β -decay investigations employing Total Absorption Gamma-ray Spectroscopy (TAGS). Dr. Nandi pursued his postdoctoral research at the Argonne National Laboratory, Lemont, IL, USA, as an Argonne Fellow, and at SUBATECH, Nantes, France as the Centre national de la recherche scientifique (CNRS) Fellow. Since his appointment, he has played a pivotal role in advancing the divisions research activities and is spearheading the development of a new programme focused on the β -decay of atomic nuclei. He has over a decade of experience in experimental nuclear physics, working across various national and international collaborations.



Dr. Sudip Pal joined the Indore Centre on 3rd October 2025 as Scientist-D. Dr. Pal has an educational qualification of Master Degree from IIT Delhi and Ph.D in Condensed matter physics, from UGC DAE Consortium for Scientific research, Indore center. His research work is focussed on the experimental condensed matter physics particularly in the field of magnetism in strongly correlated electron systems. Before joining the Indore Centre, Dr. Pal pursued first postdoctoral research work from 1. Physikalisches Institut at the University of Stuttgart, Stuttgart, Germany for 2 years and second postdoctoral research work from Max Planck Institute for Solid state research, Stuttgart, Germany for 1.5 years.



Prof. Amlan J. Pal (FNA, FNAE, FASc, FNASc) has joined UGC-DAE Consortium for Scientific Research, Kolkata Centre as DAE - Raja Ramanna Chair. The research interest of Prof. Pal includes fabrication and characterization of a range of electronic and opto-electronic devices, such as organic photovoltaic (OPV) devices, light-emitting diodes (LEDs), solar cells based on inorganic nanocrystals, perovskite solar cells, organic memory, molecular rectifiers, organic spintronics etc. Before taking up this position, he was Director of UGC-DAE CSR, Indore during November 2020 to May 2025.



Ms. Himanshi Shukla joined the Indore Centre on 9th June 2025 as a Clerk-Typist.



Shri Shubham Pal joined the Kolkata Centre on 12th June 2025 as Clerk-Typist.



Shri Akshay Goyal joined the Kolkata Centre on 20th June 2025 as Clerk-Typist. Prior to joining this Centre, he was employed with ICICI Bank Ltd. as Assistant Manager I.



Shri Shiv Kumar Burnwal joined the Kolkata Centre on 31st October 2025 as Driver.

Superannuations



Prof. Amlan J. Pal (FNA, FNAE, FASc, FNASc) superannuated on 26th May 2025 after serving for about five years as Director of UGC-DAE Consortium for Scientific Research. As a Director Prof. Pal made dedicated efforts to increase university participation in research based on Indus synchrotron radiation source at RRCAT Indore as well as in-house research facilities. In addition, he has taken steps for the improvement of infrastructure of all the centres. Under his leadership, the Consortium signed the MoU with SINP, Kolkata for user program management at BL-13 at RRCAT, Indore. During his tenure, Indore Centre hosted a few prestigious events, e.g. two international conferences (ICOPVS-2022 and IUMRS-ICA 2024) and Engineer's conclave 2023. His tenure highlights dedicated and continuous efforts resulting in the steady growth of the Consortium while fulfilling its mandate.



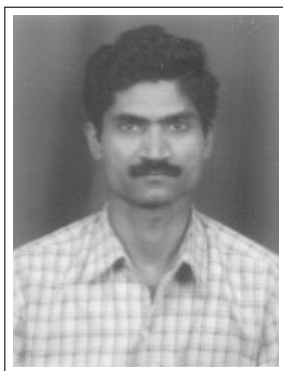
Dr. Vasant G. Sathe superannuated from the Consortium on January 31, 2026, after serving for about five years as Centre Director of Indore Centre. Prior to Centre Director, Dr. Sathe served Indore Centre as a Scientist for more than 25 years. He did his Ph.D. from UGC-DAE CSR, Indore. During his tenure he established PLD and Raman Spectroscopy laboratories. Dr. Sathe conceived the idea of using the polarized Raman scattering in detecting ionic displacements at the femtometer scale. These initiations have led to the understanding of the root cause of multiferroic behaviour in several materials. He is a recipient of Scientific Excellence Award of UGC-DAE Consortium for Scientific Research 2012 and MRSI medal award 2021.



Dr. Sadan Chandra Das superannuated from the Consortium on January 31, 2026, after serving for over thirty two years as Junior Engineer at Indore Centre. He was immensely involved with various instruments and electronic devices.



Sh. N. K. Ghodke superannuated from the Consortium on May 31, 2025, after serving for thirty years as Junior Engineer at Indore Centre. He was immensely involved with various instruments and electronic devices.



Mr. Avinash Wadikar superannuated from the Consortium on January 31, 2026, after serving for nearly three decades as Junior Engineer at Indore Centre. He was instrumental in the installation and function of AIPES beamline BL2@Indus-1 and SXAS beamline BL-1@ Indus-2 synchrotron source at RRCAT, Indore.



Mr. Utpal Sarkar superannuated from the Indore Centre as Section Officer on 30.11.2025 after serving the Consortium for about 32 years. He will be remembered for his efficient assistance in the purchase and store section.



Shri Jayanta Dhar superannuated on 31st May 2025 after serving at UGC DAE CSR Kolkata Centre since 15th June 1994 as a Driver. He served the Kolkata Centre for more than 30 years. Shri Dhar will be remembered for his contributions to the activities carried out at this centre.



Smt. Madhumita Pal (TechnicianK) superannuated on 30th June 2025 after serving at UGC DAE CSR Kolkata Centre since 1st April 1991. She served the Kolkata Centre for more than 34 years. Smt. M. Pal will be remembered for her contributions to the activities carried out at this centre.

Obituary



Dr. B.A. Dasannacharya, former Director of UGC-DAE Consortium for Scientific Research, Indore passed away on 15th February 2026 at his residence in Vashi, Navi Mumbai. Dr. Dasannacharya (1937-2026) was an eminent physicist known for his pioneering contributions to neutron scattering, spectroscopy, and molecular dynamics. Born on 6th October 1937, he earned his B.Sc. degree in Physics from Banaras Hindu University and later obtained his M.Sc. and Ph.D. degrees from the University of Bombay under the guidance of Dr. Raja Ramanna. He spent most of his career at BARC, where he played a leading role in developing neutron spectrometers and advancing neutron beam research at the Apsara, Cirus, and Dhruva reactors. In 1996, he joined UGC-DAE CSR (then IUC-DAEF), Indore, as Director. He actively promoted the use of national research facilities by university scientists and was instrumental in developing neutron and synchrotron radiation beamlines at the Dhruva reactor and the INDUS synchrotron source, respectively. A recipient of the Homi Jehangir Bhabha Medal (1999), Dr. Dasannacharya was an elected Fellow of the Indian National Science Academy and the Indian Academy of Sciences. He remained scientifically active even after his retirement in 2002, contributing to science outreach through popular articles and lectures. The UGC-DAE CSR family extends its deepest condolences to his family, friends, colleagues, and students. His contributions to Indian science and scientific infrastructure will be remembered with great respect and gratitude.

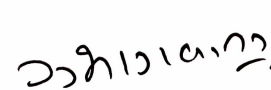
UGC-DAE CONSORTIUM FOR SCIENTIFIC RESEARCH, INDORE
BALANCE SHEET AS ON 31-3-2025

Source of Funds	Schedule	Current Year	Previous Year
Capital Fund	1	-33,64,51,504.35	-18,97,22,365.96
Designated/Earmarked Fund	2	6,07,49,537.88	5,68,57,037.28
Current Liabilities & Provisions	3	2,04,32,28,936.39	1,84,89,49,461.24
Total		1,76,75,26,969.92	1,71,60,84,132.56
Application of Funds			
Fixed Assets	4		
Tangible Assets		1,30,37,63,132.10	1,31,61,39,132.75
Intangible Assets		1,78,72,186.86	1,92,40,908.60
Capital Work-in-progress		-	18,17,196.00
Investments from Earmarked/ Endowment Funds	5		
Long Term			
Short Term		5,97,80,916.00	5,58,79,579.00
Investments - Others		-	
Current Assets	6	27,80,95,079.89	23,05,96,180.11
Loans, Advances & Deposits	7	10,80,15,655.07	9,24,11,136.10
Total		1,76,75,26,969.92	1,71,60,84,132.56
Notes on Accounts	20		

As per our report of even date attached
For V K Dafria & Co.
Chartered Accountants

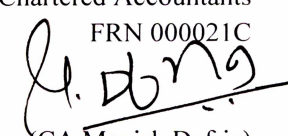
FRN 000021C


Administrative Officer - I
Administrative Officer-I (Accounts)
UGC-DAE CSR, University Campus,
Khandwa Road, INDORE


Administrative Officer - II
Administrative Officer-II
UGC-DAE CSR, University Campus,
Khandwa Road, INDORE


Sandeep G
Director

निदेशक/Director
यजीसी डीएई सीएसआर/ UGC-DAE CSR
भारतीय परिसर खण्डवा रोड, इन्दौर (म.प्र.)
Khandwa Road INDORE (M.P.)

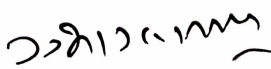

(CA) Manish Dafria
Partner
M.No.075591



UGC-DAE CONSORTIUM FOR SCIENTIFIC RESEARCH, INDORE
INCOME AND EXPENDITURE ACCOUNTS FOR THE YEAR ENDED 31-03-2025

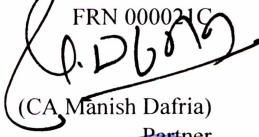
Particulars	Schedule	CURRENT YEAR			Previous year Total
		CAPITAL HEAD	REVENUE HEAD	TOTAL	
Income					
Grants/Subsidies	8	4,56,27,668.00	44,31,91,832.96	48,88,19,500.96	44,82,99,245.22
Income from Investments	9	-	-	-	-
Interest Earned	10	-	-	-	-
Other Income	11	-	-	-	-
Prior Period Income	12	-	-	-	-
Total (A)		4,56,27,668.00	44,31,91,832.96	48,88,19,500.96	44,82,99,245.22
Expenditure					
Staff Payments & Benefits	13	-	44,82,03,854.72	44,82,03,854.72	54,66,10,931.28
Academic Expenses	14	38,160.00	3,93,56,539.00	3,93,94,699.00	1,42,87,861.25
Administrative and General Expenses	15	-	6,31,12,990.44	6,31,12,990.44	6,09,65,501.83
Transportation Expenses	16	-	18,25,632.00	18,25,632.00	13,61,673.90
Repairs & Maintenance	17	-	2,40,90,963.80	2,40,90,963.80	3,21,33,520.96
Depreciation	4	9,69,40,845.94	12,69,188.99	9,82,10,034.93	10,04,00,848.71
Other Expenses	18	4,56,27,668.00	-	4,56,27,668.00	5,89,32,261.00
Prior Period Expenses	19	-	-	-	-
Total (B)		14,26,06,673.94	57,78,59,168.95	72,04,65,842.89	81,46,92,598.93
Balance being excess of Income over Expenditure (A-B)		(9,69,79,005.94)	(13,46,67,335.99)	(23,16,46,341.93)	(36,63,93,353.71)
Transfer to/from Designated fund					
a) CRS Fund		-	-	-	-
b) Capital Fund		-	-	-	-
c) Building Fund		-	-	-	-
d) Others (General Fund)		(5,183.43)	(13,35,21,317.67)	(13,35,26,501.10)	(26,61,30,299.36)
e) Corpus Standing Fund		-	-	-	-
Balance being surplus (Deficit) Carried to Capital Fund		(9,69,73,822.51)	(11,46,018.32)	(9,81,19,840.83)	(10,02,63,054.35)
Notes on Accounts	20				


Administrative Officer-I
Administrative Officer-I (Accounts)
UGC-DAE CSR, University Campus,
Khandwa Road, INDORE


Administrative Officer-II
Administrative Officer-II
UGC-DAE CSR, University Campus,
Khandwa Road, INDORE


Sandeep G
Director
निदेशक/Director
यूजीसी डीएई सीएसआर/ UGC-DAE CSR
विश्वविद्यालय परिसर खण्डवा रोड, इन्दौर (म.प्र.)
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For V K Dafria & Co.
Chartered Accountants
FRN 000021C

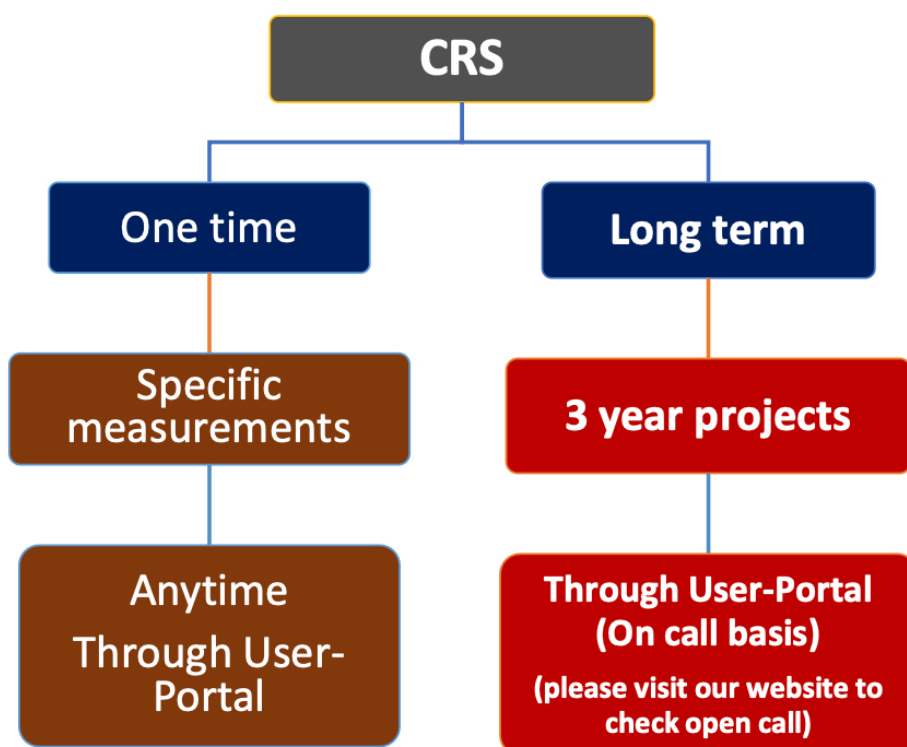

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CSR User Portal

<https://www.csruserportal.com>

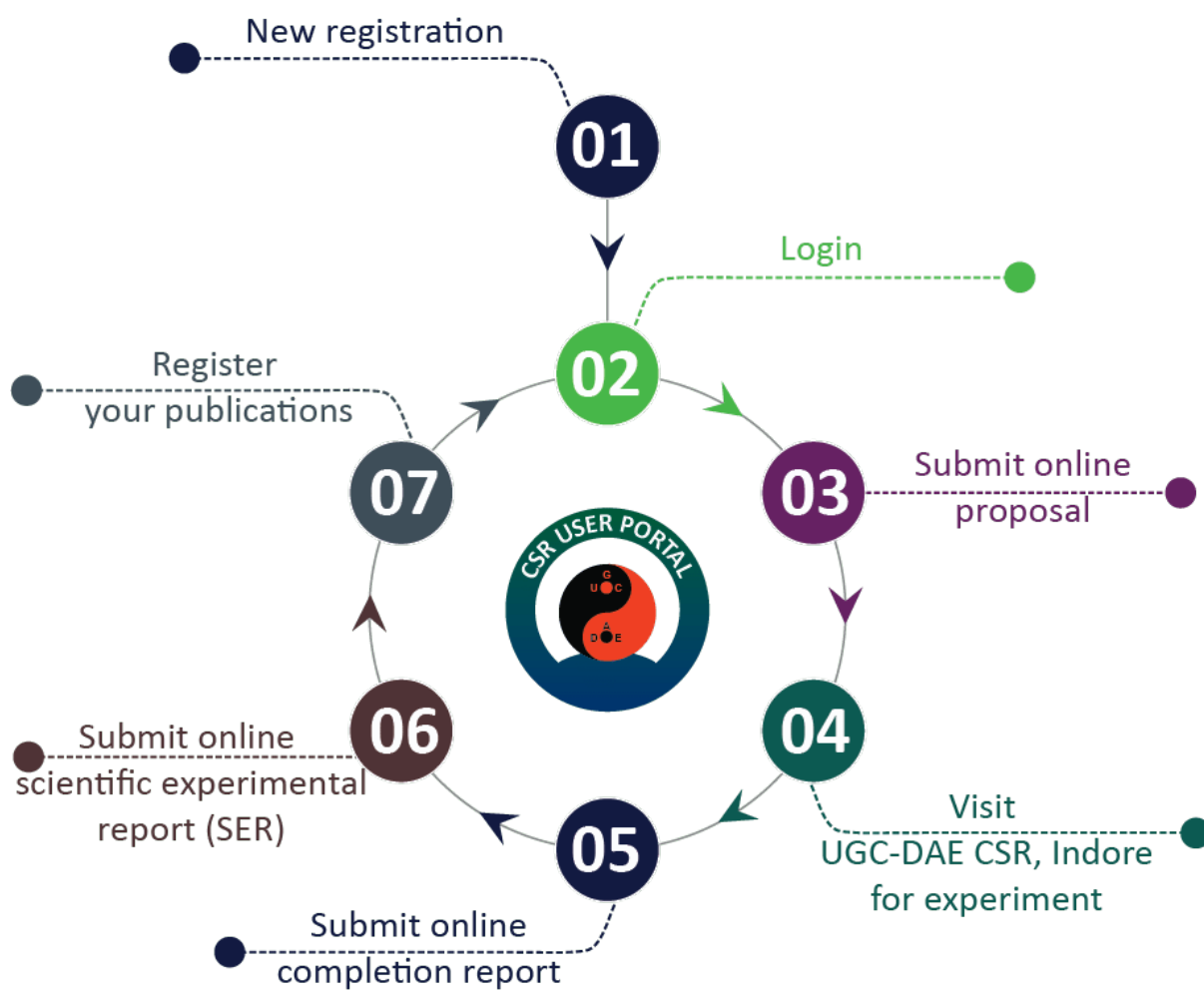
Collaborative research schemes (CRS) of UGC-DAE CSR



CSR User Portal

<https://www.csruserportal.com>

Steps to submit proposals through CSR User portal



Map of Geographical Distribution of CSR Users



■ Indore
Centre

■ Mumbai
Centre

■ Kolkatta
Centre

■ Kalpakkam
Centre

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