






List of Facilities of Beam Technology Development Group, BARC to Share with UGC-DAE-CSR (Mumbai)

Sr. No.	Instrument	Research Area	Contact Person	Phone No. (Extn)/email	Photograph of the system
1.	<u>12kW 80kV Electron Beam Welding Machine</u> Maximum thickness of plate which can be welded together in a single pass: SS 304L: 12 mm Copper: 8 mm	Electron Beam Welding of similar, dissimilar and reactive metals	Dr. M. N. Jha	022-25593824 mnjha@barc.gov.in	
2.	<u>10kW, 15kV Electron Beam Melting Machine</u> Button size mould: 25mm(Diameter)x12mm(thick)	EB Melting and production alloys of reactive and refractory metals	Dr. M. N. Jha	022-25593824 mnjha@barc.gov.in	
3.	<u>30kJ-70kJ, 15-25 kV Electromagnetic Pulse Welding System</u>	EM Pulse Welding of similar and dissimilar metals	Shri. M. R. Kulkarni	022-25594701 srkj@barc.gov.in	
4.	<u>6/4 MeV Dual Energy Indian Cargo Scanner</u> Energy: 6/4 MeV Dose: 1Gy/m @ 1m X-ray Spot Size: 2mm	X-Ray imaging and identification of material of thick objects, Contrabands etc.	Shri. R. I. Bakhtsingh Dr. Jayanta Mondal	022-25592055 022-25593355 rib@barc.gov.in jmondal@barc.gov.in	

5.	Pulsed Electro-Magnetic Field Facility: at BARC Vizag & Mumbai Sample 5-30mm diameter Field: 10T-50T Pulse Duration: 10µs-1ms	Basic Physics Material properties Magnetic diagnostics	Dr.Rishi Verma Dr.Surender Sharma Shri R.I.Bakhtsingh	08374512797(V) rishiv@barc.gov.in 09290436459(V) surender@barc.gov.in 022-25592055 rib@barc.gov.in	  40 KJ Capacitor 200 kJ Capacitor
6.	Pulsed neutron generator (DPF based) Max. n-flux: 2x10⁹n/pulse(τ ~ 50ns) Continuous N-source: n-flux: 4x10⁴n/cm²/kW at ECIL n-flux: 4x10⁶ n/cm² at Vizag (IEC)	n-diagnostics calibration; damage studies; shielding studies;	Dr. Rishi Verma Dr.Surender Sharma	08374512797(V) rishiv@barc.gov.in 09290436459(V) surender@barc.gov.in	  Dense Plasma Focus IEC Neutron Source
7.	Magnetic Pulsed Welding for Dissimilar Metal Welding/forming	Mechanical Metallurgical Electromagnetic application; Impact studies High strain rate: modelling & simulation validation	Dr. Surender Sharma	9290436459(V) surender@barc.gov.in	  Electrochemical Impedance Analyser V Hardness m/c Optical Microscope
8.	Intentional Electromagnetic Interference (IEMI); for vulnerability threshold and hardening of critical electronics At S-band and X-band	Electronics vulnerability; Antenna design, probe development	Dr. Rishi Verma	8374512797(V) rishiv@barc.gov.in	  BHAIRAV-1.0 300 MW, 3.0 GHz BHAIRAV-2.0 850 MW, 9.2 GHz

<p>9.</p>	<p><u>Electromagnetic Axial Rail Gun</u> Mass: up to 8gm; Impact speed: up to 1000m/s (equivalent to AK47, without explosive)</p>	<p>Target shield withstanding capacity; Penetrating capacity, Material development</p>	<p>Dr. Rishi Verma</p>	<p>8374512797(V) rishiv@barc.gov.in</p>	  <p>An 1.2m long EM Railgun and Projectiles</p>
<p>10.</p>	<p><u>Electron beam accelerators:</u> 1MeV-10MeV, DC to RF</p>	<p>Food; Medical, Agricultural Semi-conductors; Gem-stone coloration/ defect creation; hydro-gel; comparison with gamma vs EB effect; photo fission</p>	<p>P. C. Saroj Dr. Nishant Choudhary</p>	<p>022-27524562 09969827679 psaroj@barc.gov.in 022-27524571 09920712184 nishantc@barc.gov.in</p>	   <p>10 MeV, 3 kW RF Acc 1-3 MeV, DC Acc 10 MeV, 5 kW RF Acc</p>