

Field Emission Electron Scanning Microscopy (FESEM) facility



Instrument details

Model : JEOL JSM 7610f

Electron gun : Schottky type field emission (T-FE) gun (Zr/o tungsten emitter)

Electron Beam resolution (secondary electron image)

1.0 nm at accelerating voltage 15 kV

1.5 nm at accelerating voltage 1kV in GB mode

2.5 nm at accelerating voltage 1kV in SEM mode

Magnification

LM (low magnification) mode : x25 to x19000

High magnification mode : x130 to x1000000

Specimen stage : Fully eucentric goniometer stage

X-axis : 70 mm , Y-axis: 50 mm, Z-axis : 1.0 to 40 mm, Tilt: -5 to + 70, Rotation : 360

Image modes

Secondary electron image (SEI)

Accelerating voltage

SEM mode : 0.5 to 30 kV

GB mode : 0.1 to 3.9 kV

Probe-current : Order of 10^{-13} to 2×10^{-7}

Detectors Available:

EDS detector : EDAX make LN2 free, peltier cooled, Octane plus model, (30mm^2 and 127 eV resolution) with TEAM software support for live spectral, lines scan and mapping data collection facilities.

Sample Preparation / coating facilities

		
Sputter Coater : JEOL JEC 3000FC auto fine coater	Carbon Coater : JEOL EC-32010CC	Critical Point Drying (CPD): Bal-Tec 030

Instructions / Sample preparation guidelines:

The size of sample should be less than 12.0 mm x 12.0 mm x 10 mm (height). and side opposite should be flat (to enable sample mounting). The small sample height is better.

The samples should be dry and should withstand high vacuum (10^{-5} pa).

The surface of the samples should be clean and contamination free for the better results.

Wet biological samples cannot be done in FESEM. Biological samples will be accepted only after primary fixation and dehydration.

FESEM user charges:

S.No	Facilities	Research scholar of University /Intuitions / R & D labs		Remark
		*Unpaid Research scholar/PG student	Institutions / Paid Research Scholar /sponsored project /MedicalUniversities	
1	Sample processing and mounting	Rs. 250/-	Rs. 250/-	per stub
2	Stub (Au/Pd/C/Pt) coating	Rs. 150	Rs. 300/-	per stub
3	FESEM- Imaging	Rs. 100/-	Rs. 300/-	per exposure
3	EDAX spectra	Rs. 1000/-	Rs.1000/-	per spectrum
4	CPD drying	Rs. 500/-	Rs. 500/-	per sample

Note :

*Rates of unpaid research scholar will be applicable subject to production of certificate from the Head of the Department of the user.

Kindly Sent your request to The Director, BSIP or Convener FESEM through letter pad of your organization or guide for FESEM utilization. Request may send through email or by post.

**Email : director@bsip.res.in, hukam_singh@bsip.res.in, subodh_kumar@bsip.res.in
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