

INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY
Sophisticated Analytical Instrument Facility (SAIF)

Focused Ion Beam - Scanning Electron Microscope (FIB-SEM)

NOTE:

PART A : To be filled if user requires FIB Milling, FIB-patterning / TEM sample preparation (Lamella) / Slice & View

PART B : To be filled if user requires SEM imaging & EDS Analysis

PART A

Request Form for **FIB Analysis** for internal IITB users
(Details required for FIB Milling, patterning / TEM sample preparation / 3D Slice & View)

Applicant Details:

User Name:

Email ID: Mobile No.:

Gmail ID: Intercom No.:

Name of Guide/PI:

Guide/PI Email ID: Guide/PI Mobile No.:

Sample information :

| | |
|--|--|
| Number of samples | |
| Sample code | |
| Sample Composition & Sample dimensions (The sample size should be less than 10 mm x 10 mm x 4mm and base of the sample should be flat for mounting on sample holder) ** Sample Height/ Thickness should not exceed 4mm) | |

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|--|---|
| <p>Analysis Required (Tick the relevant analysis required)</p> | <p>FIB Milling / TEM sample preparation / Slice & View</p> <p>If FIB Milling / Slice & View is ticked then, What feature size (estimated) are you looking to mill / image?</p> <hr/> <hr/> <p>If TEM sample preparation is ticked then, What are the dimensions required for TEM lamella?</p> <hr/> <hr/> <p>Any additional information</p> <hr/> |
| <p>Sample type (you can select multiple options)</p> | <p>Powder (Not for Milling) / Solid / Solid but porous / Magnetic (Highly magnetic samples not possible) / Thin film / Other (Please specify)</p> <hr/> <hr/> |
| <p>Detailed description of the sample. (Briefly describe the method used to prepare or fabricate your sample before bring it for FIB related preparation)</p> | |
| <p>Nature of the sample</p> | <p>Non-Conducting / Conducting / Semi-Conductor</p> |
| | <p>Magnetic /Non Magnetic</p> |
| | <p>Is it electron beam sensitive? Yes/No → (Explain if Yes)</p> <hr/> |
| | <p>Is it volatile? Yes/No →</p> |
| | <p>Is it flammable? Yes/No →</p> |
| | <p>Is the material loosely bound under vacuum condition? (Yes/No) (Explain if Yes)</p> <hr/> |
| | <p>If YES</p> <ol style="list-style-type: none"> Has sticky tape test been done by the user in case of solid / thin film on substrate? (Yes/No) (Explain if No) <hr/> <hr/> |

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| | <p>2. Has compressed gas blow test been done by the user in case powder on carbon tape? (Yes/No) (Explain if No)</p> <hr/> <hr/> |
| <p>Please explain your reason behind preferring FIB (Milling / Cross section imaging / TEM lamella preparation) over other characterisation tools for sample preparation (Maximum 50 words)</p> | |
| <p>Have you prepared lamella using FIB earlier? If Yes, please provide details of preparation method and sample dimensions <i>If No, then</i> in case of TEM Lamella preparation, Request user to attach a ppt (please prepare a PPT describing your sample detail. Make a diagram describing the details requires for lamella preparation.)</p> | |
| <p>Is site specific sample preparation mandatory? If so, mention the specific area in the sample. (Publication related to this work would help):</p> | |
| <p>Note:</p> <ul style="list-style-type: none"> • Please share results that may be helpful for sample preparation and analysis • Samples for FIB related preparations should be well-polished / Uniform • The sample size should be less than 10 mm x 10 mm x 4 mm (height) in case of bulk samples and base of the sample should be flat for mounting on sample holder | |

PART B

Request Form for SEM-EDS Analysis for internal IITB users (Details required for SEM & EDS Analysis)

Applicant Details :

User Name:

Email ID: Mobile No.:

Gmail ID: Intercom No.:

Name of Guide/PI:

Guide/PI Email ID: Guide/PI Mobile No.:

Sample information:

| | |
|---|--|
| Number of samples | |
| Sample code | |
| Sample type | Biological / Composite Material / Thin Film / Crystalline Solid / Metal/Polymer/Ceramic/Composite/ Other (Please specify): *biological samples should be submitted after primary fixation |
| Detailed description of the sample (Refer Annexure I before filling) | |
| Sample form | Powder/Pellet/Suspension/On glass substrate/Film/Others..... |
| If sample is Pellet, thin film (Refer Annexure II before filling) | Mention sample dimensions..... |
| If sample is powder, Dispersion required (Refer Annexure II before filling) | Yes/No If Yes, Medium for dispersion..... |
| Nature of the sample | Non-Conducting / Conducting / Semi-Conductor |
| Sample is | Magnetic /Non Magnetic |

Type of Analysis & Details of the Analysis required (Kindly tick):

| | | |
|--------------|-------------------------------------|---|
| SEM Image | Mode | Secondary Electron Image / Back Scattered Electron Image |
| | Analysis requirement | Surface Imaging / Cross Section Imaging / Surface + Cross Section imaging (*For powder and suspension samples only surface imaging is possible*) |
| | Sample to be mounted | Planar/Cross Section/ Powder directly loaded on sample holder/ Drop cast for liquid or suspension samples |
| | Expected Morphology | Brief description about shape |
| | Expected Particle Size | |
| EDS | Analysis requirement | Point EDS /area EDS/EDS mapping/ line scan |
| | List of expected elements (for EDS) | |
| STEM Imaging | | Please mention the sample thickness(Should be < 100nm) |