

**Notice Inviting Open Tender for:
Supply, Installation, Commissioning & Training of a High-resolution Field Emission SEM
with optional dual large EDS detector and mineral/resource mapping facility at the Indian
Institute of Science, Bangalore**

(Tender from Domestic Vendor and Suppliers)

Bids are invited from domestic OEM / authorized distributor of domestic OEM

(Last date of Submission May 16, 2023)

Date: May 02, 2023

Dear Sir/Madam:

Please send your tender documents valid for 180 days from the actual date of opening the technical bid, for the supply of equipment described below. Your documents/quotation should clearly indicate the terms and conditions of the quotations, delivery schedule, entry tax, payment terms, warranty coverage etc. The tender should be submitted in two separate sealed envelopes – one containing the “Technical bid” and other containing the “Commercial bid”, both of which should be duly signed and must reach the undersigned on or before 17:00 hours May 16, 2023. Please provide your contact details so that we can get in touch with you and set-up appointments for opening the bids.

The primary interest of the Centre is the procurement of a **High-resolution Field Emission SEM with optional dual large EDS detector and mineral/resource mapping facility**. Any vendor(s) who are not manufacturers of **High-resolution Field Emission SEM with optional dual large EDS detector and mineral/resource mapping facility** should NOT quote for optional items independently. However, such vendor(s) are allowed to quote the optional components along with a compatible a **High-resolution Field Emission SEM** quotation. The pricing for the instrument(s) must be a stand-alone purchase and as a bundle-purchase should be clearly indicated in the financial bid.

Mailing Address:

The Convener,
Advanced Facility for Microscopy and Mircoanalysis (AFMM)
Indian Institute of Science,
Bangalore 560012,
Karnataka, India.

Email Addresses:

office.afmm@iisc.ac.in

Cc: rajeev@iisc.ac.in

Section 2 - Eligibility Criteria:

With respect to this tender, the rules laid out by the Government of India in order No. P-45021/2/2017-PP (BE-II) issued by the Public Procurement Section, Department of Promotion of Industry and Internal Trade, Ministry of Commerce and Industry, dated 16th September 2020, will be followed. Per this order, only Class-I and Class-II local suppliers as defined below are eligible to participate in this open domestic tender. Non-local suppliers are ineligible to participate in this tender.

Relevant definitions as per Government of India order:

- Class-I local supplier - a supplier or service provider, whose goods, services or works offered for procurement, has local content equal to or more than 50%
- Class-II local supplier - a supplier or service provider, whose goods, services or works offered for procurement, has local content more than 20% but less than 50%.
- Non-local supplier - a supplier or service provider, whose goods, services or works offered for procurement, has local content less than 20%.
- Local content – the amount of value added in India which shall, unless otherwise prescribed by the Nodal Ministry, be the total value of the item procured (excluding net domestic indirect taxes) minus the value of imported content in the item (including all custom duties) as a proportion of the total value, in percent.

Only Local Suppliers are eligible to participate in the bid. The bidders must go through the Government of India order stated above and follow all the rules and regulations therein. The covering letter Should clearly indicate whether the vendor is a Class I or class II local supplier failing which the vendor will automatically be disqualified.

SECTION 3 – Technical Specifications:

Features	Specification
Resolution	0.7 nm or better @15 kV in high vacuum 1.1 nm or better @ 500 V in high vacuum
Electron Gun	High Stability Schottky Field Emission Electron Source with automated filament cut-off safety device
Magnification	Lower mag. ×30 or less Higher Mag. ×1,000,000 or more
High Tension	Lower limit: 200 V or lower, Higher limit: 30 kV and any chosen intermediate value. All the kV settings should be varied through software
Chamber	a) Chamber should have sufficient number accessory ports, b) Integrated plasma cleaner, c) Infrared chamber scope (IRCCD) for real time view
Stage	5 axis motorized eucentric stage with X and Y of 100 mm or more and Z-axis = 20 mm or more, Tilt = -3° to +70° or better. Manual Joystick as well as software control for stage movement
Sample holder	a) SEM should be able to handle at least 50 mm wafer; b) Multiple sample holder to be provided which accommodates different varying sample sizes in the range 1 mm to 20 mm or larger c) sample holder for STEM imaging d) Sample holder for holding thin sections e) Sample holder for holding one large sample slabs (15x 10 cm)
Electron Optics, Lenses	The system must have electromagnetic/electrostatic objective/compound lens or equivalent lens assembly for high resolution imaging of ferromagnetic and other materials at a lower working distance(to be specified by the vendor). The lenses should be thermally stabilized.

	Electron channeling contrast imaging (ECCI) should be possible with the supplied optics
Lens correction	Astigmatism, wobbling, aberration correction etc. should be controllable through software as well as manual control panel for proper adjustment of focusing.
Probe Current	Adjustable range from Minimum: 3pA or less and Maximum 100nA or higher Noise < 1%, Drift < 0.2%/hour
Detectors	Secondary electron (SE) imaging detector or equivalent. In-lens SE detector or equivalent for high resolution imaging in high vacuum. Pneumatically retractable backscattered detector.
User Interface	Computer controlled user friendly interface for the smooth routine operation of microscope
Display computer and operation software	A computer system with 24 inch or more display with latest Windows OS and all the necessary supporting software to run the FESEM and all the other accessories. The software should have function like auto-focusing, drift correction, dynamic focus, auto-contrast/brightness etc.
Spare parts and consumables	One set of spare parts and consumables for the FE-SEM and all accessories must be included along with the delivered equipment
Accessories	The offer should include all of the required accessories/ spares/ consumables for seamless performance of the system and its peripherals. A list of spares and consumables should be provided. Examples: <ul style="list-style-type: none"> • Vibration and noise free chiller • Compressor for pneumatic systems of the microscope • Vibration isolation system, EMI active cancellation system
Documentation	Vendor should specify the model number of the FESEM and accessories including optional items submit the brochure that supports all the quoted specifications
Warranty	Warranty (from the date of full installation and acceptance) for 5 years along with free software upgrades for the entire system including all the attachments
Operation & maintenance manuals	Hardcopy and Soft copy of the operation & maintenance manuals for the FESEM and all accessories and supporting peripheral equipment should be provided
Availability of spare parts and consumables	The vendor must guarantee that all the spare parts and consumable for the offered FESEM and attachments will be available for at least next 10 years
Installation & training	Unpacking to the complete installation of the supplied INSTRUMENT system should be carried out by the factory engineers. All the expenses including travel, accommodation etc. (if any) towards this should be included in the quote. It is the responsibility of the vendor to ensure that all of the required accessories and ancillary items are included in the quotation for carrying out the installation, standardization, optimization and calibration of the instrument. The supplied system should be complete in itself in all respect to take up the sample analysis at

	<p>the IISc premises.</p> <p>It is the responsibly of the factory engineers to demonstrate all specifications quoted to the users before acceptance; this may not be considered as part of training.</p> <p>Training for 5 persons in the operation of the FESEM-EDS for 7 days. The cost of an on-site training session (if any) should be part of the quotation.</p>
Pre-installation requirement (civil& electrical EMI and gas, etc.)	Should be mentioned along with offer. Free survey of vibration and EMI at site and provide the results of the survey and the necessary modifications if required for achieving best results
Specification	The technical specs listed above should be demonstrated on samples sent by us preferably in an installation within the country. The technical committee reserves the right to qualify/disqualify vendors based on imaging quality.
<p>Optional</p> <p><i>All optional items must be quoted separately</i></p>	
Double EDS integrated system	<p>The state-of-the-art double EDS-SEM integrated system should work on the same user interface.</p> <p><u>EDS detectors:</u> Should be easily retractable to a safe position when not in use. Peltier cooled silicon drift detector (SDD) with pulse processor, Each active detector window area 30mm² or larger, energy resolution of 125eV or better at Mn K alpha. Detection of elements down to Beryllium and quantification from Boron onwards, Robust EDS detector window with Silicon nitride.</p>
EDS and related Software	<p>EDS detector – give possible options for single/multiple, minimum total 60 mm² area and ability to access raw signal by user.</p> <p>Qualitative and quantitative spectrum analysis for accurate peak identification, background subtraction and automatic peak evaluation</p> <p>Deconvolution of spectra for separate element contributions</p> <p>Quantification software must have options for ZAF and similar corrections.</p> <p>Fast mapping capability on larger samples</p> <p>User interactive qualitative and standardless quantification with K, L, M, N line database. Quantification of elements from Boron in point, Line Scan, Mapping. Real time elemental mapping with auto elemental identification, quantification based on ZAF or similar correction algorithms.</p> <p>Quantification of phases.</p> <p>Spectral imaging with up to 4096 x 4096 pixel resolution, online deconvolution and pseudo color mapping. Storing of</p>

	<p>spectrums at each point during mapping for online and offline analysis (1 offline license). Display of quantitative results as atomic and weight percentage. Color-coded concentration distributions (element maps, phase maps) for any number of elements within an arbitrary field of view.</p> <p>Mineralogical and resource mapping software with inbuilt capability of mineral identification dataset and mode percentage calculations False colour mapping capability Export of results to Tiff, Jpeg, MS® Word, Excel and pdf.</p>
Calibration standard samples	Standard samples to be provided for SEM-EDS
HAADF/BF detector	pneumatically retractable STEM detector for BF / DF and HAADF imaging
Optional Accessories	Carbon sputter coater with consumables for one year UPS for 1 hour of back up.

NOTE / Pre-Qualification criteria:

A) Equipment offered must be a model from the current serial production range of the manufacturer. Customized or One-off Manufactured Model will not be accepted. Offer should be supported with printed catalogue / depiction on company website.

B) The local vendor of OEM must have supplied at least 10 FESEMs to IISc, IITs, IISERs and other Govt. of India organizations. Please attach a reference list of supplies in last 2 year with contact details (Name, Phone, email address) of users.

C) The company should be original equipment manufacturers (OEMs) of the FESEM-EDS-Mineral/resource software systems. Please attach exclusive authorization certificate(s) specific for this tender with quote without which bid will be rejected.

D) The manufacturer must be an ISO9001 company & equipment model must be with CE compliance. Please attach relevant certificates.

ADDITIONAL REQUIREMENTS:

- List of other installations in India with contact details of scientist / individual in-charge.
- The technical specifications listed above are a minimum indicative. The ease of operation and maintenance, the ability to integrate latest technology, and after sales service facilities are some of the key factors in the evaluation process.
- The details, credentials, and experience of individuals who are factory trained service engineers of the quoted model of FE-SEM with EDS and mineral/recourse software and is currently on roll in India or at the nearest service hub should be submitted with the offered quotation.**
- Quotation should include all cost including logistics required to complete the installation at IISc.
- The Vendor should certify and confirm availability of spares, service support and, both hardware and software upgradation for at least 10 years from the year of installation.
- Any equipment of component procured locally and supplied with the instrument should be quoted in Indian Rupees.
- List of select user laboratories of an instrument of similar configuration and scientific application must be provided with the contact details (e-mail) of the person-in-charge of the instrument, model and date of installation.

8. IISc may opt for demonstration of any technical specifications and performance of the quoted model on the samples provided by us, at any available user site in India or at the factory / preferred demonstration site for the company, as a part of technical evaluation.

Section 4–Terms and Conditions:

1. The tender document should be in English and be submitted in **two bid system, i.e., Technical bid, and Commercial bid in two sealed envelopes with commercial or technical bid clearly indicated on the envelope.** These two sealed envelopes should be placed within a larger sealed envelope.
2. The technical bid must include all details of technical specifications of the instrument along with commercial terms and conditions masking only the price component. Bill of materials, brochures, technical datasheets, and any other document may be enclosed to help the evaluation of the technical bid. Please also include warranty terms and any other information on upgradation terms/extra accessories in the technical bid.
3. The technical bid must clearly state the specifications of the main instrument (A) along with the accompanying standard items and all other details including the warranty terms (B-I) as specified in section 3 of this document.
4. The commercial bid must include the base price of the instrument, optional additions plus all components including accessories, and taxes.
5. The commercial bid must indicate detailed component-wise and itemized price breakup and must include optional items/accessories.
6. Bidder should have well established own establishment. Enclose Company Registration Certificate, PAN, 3 years of audited balance sheets and turnover.
7. **The covering letter in the technical bid should clearly mention whether the vendor is a Class I or Class II local supplier, failing which the vendor will be automatically disqualified.**
8. In the technical bid include the complete details all components of the main instrument and the accessories as to whether they are sourced locally or foreign made/imported along with the manufacturer and sourcing details.
9. The ‘Class-I local supplier/Class-II local supplier’ is required to indicate the percentage of local-content and provide self-certification that the item offered meets the local content requirement for ‘Class-I local supplier/Class-II local supplier’ as the case may be. They shall also give details of the location(s) at which the local value addition is made.
10. The vendor should provide detailed cost breakup for the Indian and foreign content of the bid in the commercial bid proving their status as a Class I or Class II local supplier. Vendors who do not provide such justification in the commercial bid will be automatically disqualified.
11. In case if there are any imported/foreign made components, the commercial bid must indicate procurement price from the manufacturer and any import duties incurred. IISc will not be responsible for any import duties.
12. The vendor should have a good track record of having previously supplied similar equipment in India or elsewhere in the world (Please furnish complete details including names and contact addresses). Reference letters may be sought by the committee to arrive at the decision.
13. The vendor should have qualified technical service personnel for the instrument based in Bengaluru.
14. Bidder should have executed at least three order of similar instrument in India in the last 2 years. (Please provide copy of purchase orders and details).
15. The bidder should provide a list of national and international publication resulting from the data of the instrument.

16. The Bidder should not be currently blacklisted by any institution, bank in India or abroad (Please provide self-declaration).
17. No advance payment will be made, the payment will be made after delivery and installation of equipment.
18. Agency commission (not encouraged) if any should be clearly mentioned and detailed in the commercial bid.
19. The lead time for the delivery of the equipment should be less than two months from the date of receipt of purchase order and must be mentioned in the technical bid.
20. If the equipment or any parts/accessories are found to be defective, they must be replaced or rectified at the cost of the supplier within 30 days from the date of receipt of written communication from us. If there is any delay in replacement or rectification, the warranty period needs to be extended by a year and/or face a penalty equal to the valuation of the equipment.
21. The technical bid will be opened first and evaluated.
22. Bidders meeting the required criteria as stated in Sections 2 and 3, of this document as well as the terms and conditions shall only be considered for Commercial Bid opening. Further, agencies not furnishing the documentary evidence as required will not be considered.
23. Following the opening of technical bid, a presentation may be sought from the bidder.
24. During the warranty period, the bidder shall be fully responsible for the manufacturer's warranty in respect of proper design, quality, and workmanship of all the systems supplied. If there is any delay in replacement or rectification, the warranty period needs to be extended by a year and/or face a penalty equal to the valuation of the equipment.
25. During the warranty period, the bidder shall attend to all the hardware problems on site and shall replace the defective parts at no extra cost to the purchaser.
26. The bids should be valid for at least 180 days from the last date of submission of the quotation.
27. The price should be quoted in INR only. The cost should be inclusive of delivery till the IISc campus. Price offer must be on FOR-IISc Bangalore basis.
28. The decision of the purchase committee will be final.
29. IISc, Bangalore reserves the right to accept or reject any bid and to annul the bidding process and reject all bids at any time to award of construct without thereby incurring any liability of the affected bidder or bidders.
30. Tender documents that do not satisfy the "Terms and Conditions" listed herein will be disqualified.
31. Order will be placed on lowest bid from technically qualified vendor.
32. All the attached annexures should be signed and enclosed with the technical and commercial bids
33. The tender documents should be sent to the following address no later than 16/May/2023 5:00 PM IST.

The Convener,
Advanced Facility for Microscopy and Mircoanalysis (AFMM)
Indian Institute of Science,
Bangalore 560012,
Karnataka, India

Annexure-1:

Details of the Bidder

The bidder must provide the following mandatory information & attach supporting documents wherever mentioned:

Details of the Bidder

Sl. No	Items	Details
1.	Name of the Bidder	
2.	Nature of Bidder (Attach attested copy of Certificate of Incorporation/ Partnership Deed)	
3.	Registration No/ Trade License, (attach attested copy)	
4.	Registered Office Address	
5.	Address for communication	
6.	Contact person- Name and Designation	
7.	Telephone No	
8.	Email ID	
9.	Website	
10.	PAN No. (attach copy)	
11.	GST No. (attach copy)	

Signature of the Bidder

Name
Designation, Seal

Date:

Annexure-2:

Declaration regarding experience

To,

The Convener,
Advanced Facility for Microscopy and Mircoanalysis (AFMM)
Indian Institute of Science,
Bangalore 560012,
Karnataka, India

Ref: Tender No: XXXXXXXXXX

Dated: XXXXX

Supply, Installation, Commissioning & Training of a High-resolution Field Emission SEM with optional dual large EDS detector and mineral/resource mapping facility at the Indian Institute of Science, Bangalore

Sir,

I've carefully gone through the Terms & Conditions contained in the above referred tender. I hereby declare that my company / firm has ---- years of experience in supplying and installing the equipment mentioned in the Tender.

(Signature of the Bidder)

Printed Name

Designation, Seal Date:

Annexure-3:

Declaration regarding track record

To,

The Convener,
Advanced Facility for Microscopy and Mircoanalysis (AFMM)
Indian Institute of Science,
Bangalore 560012,
Karnataka, India

Ref: Tender No: XXXXXXXX

Dated: XXXXXX

Supply, Installation, Commissioning & Training of a High-resolution Field Emission SEM with optional dual large EDS detector and mineral/resource mapping facility at the Indian Institute of Science, Bangalore

Sir,

I've carefully gone through the Terms & Conditions contained in the above referred tender. I hereby declare that my company/ firm is not currently debarred /blacklisted by any Government / Semi Government organizations / institutions in India or abroad. I further certify that I'm competent officer in my company / firm to make this declaration.

Or

I declare the following

Sl.No	Country in which the company is Debarred /blacklisted / case is Pending	Blacklisted / debarred by Government / Semi Government/Organizations /Institutions	Reason	Since when and for how long
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(NOTE: In case the company / firm was blacklisted previously, please provide the details regarding period for which the company / firm was blacklisted and the reason/s for the same).

Yours faithfully
(Signature of the Bidder)

Name
Designation, Seal

Date:

Annexure – 4:

Declaration for acceptance of terms and conditions

To,

The Convener,
Advanced Facility for Microscopy and Mircoanalysis (AFMM)
Indian Institute of Science,
Bangalore 560012,
Karnataka, India

Ref: Tender No: XXXXXX

Dated: XXXX

Supply, Installation, Commissioning & Training of a High-resolution Field Emission SEM with optional dual large EDS detector and mineral/resource mapping facility at the Indian Institute of Science, Bangalore

Sir,

I've carefully gone through the Terms & Conditions as mentioned in the above referred tender document. I declare that all the provisions of this tender document are acceptable to my company. I further certify that I'm an authorized signatory of my company and am, therefore, competent to make this declaration.

Yours faithfully,

(Signature of the Bidder)

Name

Designation, Seal

Date:

Annexure – 5:

Details of items quoted:

- a. Company Name
- b. Product Name
- c. Part / Catalogue number
- d. Product description / main features
- e. Detailed technical specifications
- f. Remarks

Instructions to bidders:

- 1. Bidder should provide technical specifications of the quoted product/s in detail.
- 2. Bidder should attach product brochures along with technical bid.
- 3. Bidders should clearly indicate compliance or non-compliance of the technical specifications provided in the tender document.

Section 6 – Commercial Bid

The commercial bid should be furnished with all requirements of the tender with supporting documents as mentioned under:

S.No	Description	Cat. Number	Quantity	Unit Price	Sub total
1.	Essential items noted in the technical specification				
1.a	... (details of essential items)				
1.b	...				
2.	Optional items noted in the technical specification				
2.a	... (details of essential items)				
2.b	...				
3.	Accessories for operation and installation				
4.	All Consumables, spares and software to be supplied locally				
5.	Warranty (3 years)				
6.	AMC 2 years beyond warranty				
7.	Cost of Insurance and Airfreight				
8.	CIP/CIF IISc, Bengaluru				

Any additional items

S.No	Description	Cat. Number	Quantity	Unit Price	Sub total

