



भारतीय विज्ञान शिक्षा एवं अनुसंधान संस्थान कोलकाता

INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH KOLKATA

(An Autonomous Institute under Ministry of HRD, Deptt. of Higher Education, Govt. of India)

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EOI Ref. No: IISERK/EOI/811/G/DoRD/2025-26

Date: 27/08/2025

EXPRESSION OF INTEREST (EOI) – NON-COMMITTAL

Indian Institute of Science Education Kolkata (hereafter referred to us Institute) invites online Expression of Interest (EOI)-Non-Committal from Original Equipment Manufacturer (OEM) or their Authorized Agent for the equipment “**High Resolution Field Emission Scanning Electron Microscope (FESEM) with EDS attachment**”.

The Institute intends to finalize the proposed purchase for “Supply, installation, and commissioning of High-Resolution Field Emission Scanning Electron Microscope (FESEM) with EDS attachment” taking into account the specifications and any other relevant aspects, based on admissible feedback from all the interested suppliers. The suppliers are requested to attend a meeting as stated below in this respect.

The EOI can be downloaded from Central Public Procurement (CPP) Portal <https://eprocure.gov.in/epublish/app> OR Institute Schedule of Dates:

SR. NO	PARTICULARS	DATE	TIME
1	Date of Online Publication/Download of EOI	27/08/2025	AFTER 6.00 P.M.
2	EOI Submission Start Date	27/08/2025	AFTER 6.00 P.M.
3	EOI Submission Close Date	12/09/2025	UP TO 2:00PM
4	Date Of Opening of EOI	12/09/2025	AFTER 3.00 P.M
5	Date of meeting at IISER Kolkata The participating suppliers may send representatives with authorization letters or any other relevant Documents.	15/09/2025	AT 11.00 A.M. (Reporting Time)

All the interested suppliers can submit their EoI through CPP portal. No bid received through email or manual EoI will be accepted.

SUPPLY, INSTALLATION, AND COMMISSIONING OF HIGH-RESOLUTION FIELD EMISSION SCANNING ELECTRON MICROSCOPE (FESEM) WITH EDS ATTACHMENT

Detailed specifications for Field Emission Scanning Electron Microscope (FESEM) along with Energy-dispersive spectroscopy detector (EDS) and other detectors:

Sl.	Features	Specifications	Bidder's Offer
1	Electron Gun type	Thermal Schottky Emitter (the lifetime of the Emitter should be at least 3 years or	
2	Resolution In High Vacuum	a) 0.5 nm guaranteed or better b) 0.7 nm guaranteed or better @1 kV - In the High Vacuum. c) The above mentioned resolution must be demonstrated at the given acceleration voltages at the time of installation. Also it should be mentioned in the brochure.	
	Resolution In Low Vacuum	a) 1.3 nm at 15 KV - High and Low Vacuums must be controlled automatically.	
3	Magnification range	10 X to 20,00,000 X or better.	
4	Acceleration voltage range	0.02 - 30 kV.	
5	Probe Current	4 pA - 100nA or more.	
6	Electron Optics & Aperture system	a) Magnetic and electrostatic objective/super hybrid lens/compound or an equivalent lens assembly that can perform high-resolution imaging of samples, including magnetic types. b) Water-cooled lens system c) The system should have either a motorized or an electrically aligned aperture. d) Booster technology/Gentle Beam technology or equivalent for high-resolution imaging at low KV. All the recommended options for working on the above-mentioned options must be included. e) Appropriate technology for SE, BSE signal, and their signal mixing.	
		f) The system should have an additional lens to minimize spherical aberration and optimize the convergence angle to ensure minimum focus change at all beam currents. This lens should be computer-	

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Sl.	Features	Specifications	Bidder's Offer
		controlled and fully automatic to provide the smallest probe diameter at low beam currents and the optimum probe geometry for high-resolution analytical performance at high beam currents.	
7	Stage	Multi-axis (X,Y,Z,R&T) Eucentric (over the entire working distance & tilt) stage with the following stage movements: X = 100 mm or more, Y = 100 mm or more, Z = 50 mm or more, Rotation (R) = $\pm 360^\circ$, Tilt : lower limit: -4° or lower, Tilt: Upper limit: 70° or higher.	
8	Detectors	a) In Chamber Secondary Electron detector or equivalent b) In Chamber Retractable Pneumatic Backscattered Detector or equivalent. This Backscattered Detector must work in both high vacuum (10 ⁻⁵ Pa) and low vacuum (10 to 300 Pa). c) In -Lens /In-column Secondary Electron Detector or equivalent. d) Separate dedicator detector for In-Lens BSE/In-Column BSE to provide simultaneous in-lens SE and in-lens BSE Imaging. e) Low-Vacuum Secondary Electron Detector. (Low Vacuum Pressure Range must be 10 to 300 Pa or better)	
9	EDS Detector	a) LN2 free SDD detector, with minimum resolution of 127 eV @ Mn K alpha or better. Carbon resolution of 50 eV or better. b) Detector area of 70mm ² or more. Silicon/Polymer based window. c) Detection range should be from Be (4) to U (92) or higher. The detector must guarantee the Al L and Si L line detection. Throughput 700 kcps or better d) EDS must have Spectrum Acquisition/ Quantitative/Qualitative Analysis & Phase Mapping with Real Time Analysis. Complete Set with Hardware & Software.	

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Sl.	Features	Specifications	Bidder's Offer
10	Chamber Camera	Chamber-mounted Infrared camera for visualization of the sample and stage in chamber	
11	Software	<p>a) All original licensed latest software for stage control, IR camera, vacuum interlocks and capable of capturing SE/BSE image.</p> <p>b) A compatible software package with full features for online and offline analysis, with free upgradation for next 10 years</p> <p>The EDS software must offer quantitative and qualitative analysis facilities, along with software features like line Scan, Point ID, multipoint, mapping, phase mapping, and drift correction.</p>	
12	Control panel, display and PC/workstation	<p>a) Control panel for adjustment of various SEM functions like</p> <p>focus, magnification etc. Interface between SEM and EDS (if applicable), Keyboard, Mouse, Control Panel with multifunction for the control and adjustment of frequently used SEM parameters, Manual Joystick/trackball control for stage axis.</p> <p>a) 02 separate monitors and 02 separate PC/workstation where one for FESEM and one for EDS system with the latest specification. PCs should be able to handle the microscope function and run the software packages smoothly.</p> <p>c) Minimum 27" LED screen, min 16 GB RAM, Min 250 GB SSD, and min. 1TB hard disk with the latest and compatible processor) for offline (post) analysis. Windows-based OS version 10 Pro or above with MS Office 2019 or above.</p> <p>d) All peripherals should be integrated properly with the main console.</p>	
13	Vacuum System	Suitable vacuum system having an ion pump, turbo molecular pump, backed with a roughing pump to achieve the desired vacuum for various studies. Vacuum ranges from 10 to 300 Pa or more, adjustable in steps of 1 Pa or less.	

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Sl.	Features	Specifications	Bidder's Offer
14	Chiller	Recirculating water chiller for lens and peripheral cooling.	
15	Compressor	Compatible compressor for air supply for the operation of pneumatic parts.	
16	Power backup	Suitable branded 10 KVA online UPS system with all accessories (including input/output cable, battery interlink cable, Battery rack, MCCB, etc. as per site requirement for installation of the UPS) & minimum 30 min backup on full load (10KVA)	
17	Essential consumable supply	<p>Following essential consumable must be supplied with the system:</p> <p>a) 1 nos complete aperture-sets and 1 set of o-ring.</p> <p>b) 5 nos of carbon tape</p> <p>c) 30 nos of stub</p> <p>d) One Extra FEG-Emitter as and when required.</p> <p>e) Necessary tools and tackles should be supplied</p> <p>f) Sufficient spares, accessories and consumables should be provided for trouble free operation during the warranty period.</p> <p>g) Peltier based Cool Stage for + 50 ° to - 50°C operation.</p>	
18	Warranty, Support and operation	<p>a) 2 years comprehensive on-site warranty and 1 year AMC for all parts of the entire</p> <p>system including accessories supplied with the instruments. If the system breakdowns during the warranty period, the warranty period will be extended for the full breakdown period after the expiry of the initial warranty. Warranty will commence from the date of successful installation, demonstration, training and commissioning.</p> <p>b) If any accessories/spare parts are found to be defective within the</p>	

Sl.	Features	Specifications	Bidder's Offer
		warranty term (after commissioning), then the manufacturer/supplier will replace the items without any charges (including freight delivery, insurance, custom duty, transportation, etc.).	
		<p>c) The bidder should have service engineers stationed in East part of India, so as to ensure fast service response in case of system breakdown. Kindly provide the list of service engineers stationed in Kolkata or any nearby location.</p> <p>d) Service response time must be 48 hours or less. If there is a breakdown during the warranty term, a capable service engineer from the supplier should make as many visits as necessary to fix the issue and replace any defective parts, free of charge.</p> <p>e) After Installation, and demonstration, on-site training on the instrument and software to be provided for 2 weeks by trained personnel at free of cost.</p> <p>f) FESEM must have provision for online diagnosis of faults.</p>	
19	Make and Model	<p>(a) Offered FESEM and major subsystem (EDS model must be from latest series. Only the latest models launched that provide the latest technology must be quoted. The vendor must provide the release note from the principal of the Model launch date and supporting documents</p> <p>/Previous order copies should be provided, which should consist of a list of users in India with their phone numbers, email addresses, and installation reports. Make and model must be mentioned in the quotation.</p> <p>The model should be globally launched.</p> <p>b) All the features (emitter, aperture, detectors, chiller, compressor, resolution, stage size, etc) should be available globally.</p>	

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Sl.	Features	Specifications	Bidder's Offer
		The supplier/vendor has to guarantee the supply of the spare of the equipment for at least 10 years after the date of successful installation of the equipment.	
20	Operation and	An Operation Manual for User and a technical manual containing wiring,	
	technical manual	power, and control circuit diagram and a quick troubleshooting guide should be supplied with the equipment.	
21	Delivery and insurance coverage	All aspects of safe delivery till installation and commissioning, including loading and unloading of items at different locations, till its safe transfer to the site of installation at IISER-Kolkata shall be the full responsibility of the vendor. The package will be opened only in the presence of IISER-Kolkata user/representative and vendor representative. The supplier is to establish 'All Risk Transit Insurance' coverage till the installation site at IISER-Kolkata.	
22	Other requirements	<p>a) The supplier of the instrument must confirm in writing that spares for the entire instrument (including additional units and accessories) will be available for at least a period 10 years after the model of equipment supplied has been phased out. For frequently required spares, there should be adequate inventory available with the Indian agency of the company.</p> <p>b) The quoted system should be compatible with lifetime (free) software upgrade.</p> <p>c) The participating vendor should have successfully installed at At least 50 FESEM analyzers across India in the last 5 years. Details of those installations should be provided. Vendor should provide a satisfactorily certificate from the customer. The vendor should be able to demonstrate their model at the nearest available site if</p> <p>required, as per mutually convenient date and time.</p> <p>d) Suitable and essential tool kit is to be supplied with the instrument for required maintenance.</p> <p>e) The instrument should be installed and commissioned at site.</p>	

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Sl.	Features	Specifications	Bidder's Offer
		Complete technical details of pre-installation requirements should be furnished along with the technical bid. Vendor may conduct site survey prior to installation at no additional cost to IISER-Kolkata.	

ANNEXURE-1

BASIC INFORMATION FORM

PARTICULAR	BIDDER REMARKS
Name and address of the Company/Organization/Authorized Agent	
Details of the Signatory / Concern person Name, Contact no and Email ID	
Name and address of the foreign Principal/OEM with Contact no and Email ID	
Country of Origin of the OEM	
Details of service Centre available	
Whether the item/equipment is duty free (Upload proper documents / declaration in case of duty-free item)	
Details of user of similar items available in India	
Expected delivery period (From the issue of Purchase Order OR establishment of Letter of Credit as applicable)	

Signature of the Bidder

Contact Number

Signature of the Bidder with Company Stamp

Email ID:

Signature of the Bidder with Company Stamp