



**INDIAN INSTITUTE OF SCIENCE EDUCATION AND  
RESEARCH THIRUVANANTHAPURAM [IISERTVM]**

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KERALA, INDIA  
GST No.32AAAJI0299R1ZS

IISER/PUR/2244/TSM/SP/25-26

04 Mar 2026

**CORRIGENDUM**

**Sub:** Supply, installation and commissioning of **Dual Beam Focused Ion Beam–Field Emission Scanning Electron Microscope (FIB–FESEM: reg**

**Ref:** Tender ID: 2026\_IISRT\_897994\_1

1. The changes in the technical specifications are added as corrigendum to the above mentioned tender. The changes are placed at Annexure 1.
2. All other Terms and Conditions remain the same. Bidders may quote accordingly

Thanking You,

Yours Faithfully

*Anwar Sadath*  
4/3/26

Assistant Registrar (P&S)





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Annexure 1 to corrigendum

| Item No. | Tender Spec  | Modified Spec  |
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| 1.11     | <p>Warranty:<br/>The system shall be supplied with a minimum two (2) years comprehensive warranty covering all parts and labour. The warranty period shall commence from the date of successful installation and commissioning of the instrument at IISER TVM.</p> <p>The electron source (FEG) shall be covered by a minimum five (5) years warranty or better.</p> <p>The ion source and deposition sources/instrumentation (including but not limited to Ca ion source and gas injection systems for Pt and C deposition) shall be covered by a minimum three (3) years warranty or better.</p> | <p>Warranty:<br/>The system shall be supplied with a minimum two (2) years comprehensive warranty covering all hardware parts, software and labour. The warranty period shall commence from the date of successful installation and commissioning of the instrument at IISER TVM.</p> <p>The electron source (FEG) shall be covered by a minimum one (1) years warranty. In addition, one (1) extra FEG shall be quoted separately. This spare FEG will be supplied for replacement by the vendor in the event that the original (first) FEG becomes non-operational after warranty period.</p> <p>The ion column hardware and gas injection system (GIS) instrumentation shall be covered by a minimum warranty of three (3) years or better. Consumables are excluded from this three-year system warranty. Please see separate conditions for that.</p> |
| 1.9      | A suitable compressor and chiller shall be included in the scope of supply.  | A suitable compressor and chiller (if required) shall be included in the scope of supply.  |



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| 2.3  | Beam current range: 5 pA to 300 nA for SFEG gun and 5 pA to 10 nA for CFEG gun or better (Continuously variable)  | Beam current range: 5 pA to 300 nA for SFEG gun and 5 pA to 10 nA for CFEG gun or better (Continuously variable). The system should support stable EDS mapping at high probe current without beam instability artifacts. |
| 3.4  | Resolution: $\leq 3.0$ nm or better at 30 kV. Use statistical average edge method   | Resolution: $\leq 4.0$ nm or better at 30 kV. Use statistical average edge method  |
| 3.8  | Minimum ion beam deposition line width: 10 nm or lower  | Minimum ion/electron beam deposition line width: 10 nm or lower  |
| 3.9  | Gas injection sources for deposition: Pt deposition using both electron beam and ion beam.  | Gas injection sources for deposition: Pt deposition using both electron beam and ion beam. Provision to add 2 more gas injection sources should be available.  |
| 3.10 | The system shall support low-energy ion beam operation down to $\leq 500$ eV for final surface cleaning and damage minimization.  | The system shall support low-energy ion beam operation for final polishing and damage minimization, with demonstrated capability for high-quality TEM sample preparation.  |
| 5.2  | Stage:<br>(i) 5-axis motorized eucentric stage<br>(viii) Stage movement should be controlled through mouse or joystick<br>(xi) Specimen exchange must be through airlock or load lock mechanism | Stage:<br>(i) 5-axis motorized eucentric stage (X, Y, Z, Tilt, Rotation)<br>(viii) Stage Movement should be controlled through mouse or Joystick or Trackball<br>(xi) airlock or load lock not required                  |

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| 8.2 | The vendor must have a minimum of two successful FIB-SEM installations in India in the last five years.  | The vendor must have successfully installed at least two FIB-SEM systems in government academic institutions and/or R&D laboratories in India within the last ten (10) years. The name and contact details of the end users where the supplier's equipment has been installed shall be provided. Copies of at least two purchase orders may be attached, if available. IISER Thiruvananthapuram reserves the right to inspect the equipment at any of the listed institutes to <u>verify its performance.</u> |
| 8.7 | Supplier must replace the emitter at no additional cost if it fails or its performance degrades below factory specifications at any point during the warranty period. The replacement should be carried out at site whenever required. | Supplier must provide a new emitter at no additional cost if it fails or its performance degrades below factory specifications at any point during the warranty period. The replacement should be carried out at site whenever required.  |
| 9.9 | Additional Gas injection sources for deposition: Au GIS, Pd and C deposition using both electron beam and ion beam.  | Additional gas injection sources for Au, Pd, W, and C deposition using both electron beam and ion beam shall be provided. Each gas injection source shall be quoted separately.<br><br>Each supplied GIS shall include at least one (1) full, unused, standard OEM precursor cartridge/cylinder suitable for commissioning and initial operation. The precursor supplied shall be new and from the latest manufacturing batch.  |



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| 6.1 | <p>(i) EDS should be a state of art system designed to work in compliance with ISO 15632:2012</p> <p>(ii) The EDS detector should be LN<sub>2</sub> free type SDD sensor based having sensor area of at least 60 mm<sup>2</sup> or more with the following published energy resolution to be guaranteed at site:</p> <ul style="list-style-type: none"> <li>▪ Mn-ka : &lt;127eV at count rate of 100,000cps</li> <li>▪ F-ka : &lt; 65eV at count rate of 100,000cps</li> <li>▪ C-ka : &lt; 58eV at count rate of 100,000cps</li> </ul> <p>(iii) The EDS Detector and associated electronics should be so stable that the shift in peak Position and Resolution should &lt;1eV over 100,000cps.</p> <p>The EDS detector should have motorized slide having manual as well</p> | <p>(i) The EDS system shall be a state-of-the-art energy dispersive X-ray spectroscopy system compliant with relevant international standards (e.g., ISO 15632:2012 or equivalent).</p> <p>(ii) The EDS detector shall be LN<sub>2</sub>-free, Silicon Drift Detector (SDD) based, with an active sensor area of ≥ 60 mm<sup>2</sup>. The detector shall guarantee the following energy resolution performance at a count rate of approximately 100,000 cps (or equivalent practical operating count rate):</p> <ul style="list-style-type: none"> <li>• Energy resolution ≤ 130 eV at Mn-Kα (at optimal count rate as specified by the manufacturer).</li> <li>• Good light element detection capability down to at least B or C, with manufacturer-specified resolution for low-energy X-rays.</li> </ul> <p>All performance specifications shall be supported by published technical data and demonstrated at site.</p> <p>(iii) The EDS detector and associated electronics shall ensure high spectral stability, with peak position drift and resolution variation within ±1 eV at high count rates (~100,000 cps or equivalent operational conditions).</p> <p>(iv) The EDS detector shall be mounted on a</p> |
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| as software control  | motorized retractable slide, with both manual and software control for insertion and retraction.  |
| <p><b>Installation, Training, Service Support, and Demonstration Requirements:</b><br/>Installation and commissioning of the system shall be carried out at IISER Thiruvananthapuram (IISER TVM). The supplier shall provide comprehensive on-site installation and operational training. In addition, the supplier shall provide 10 working days of advanced technical training for one technical staff member of IISER TVM at the supplier's application centre.</p> <p>The supplier must have successfully installed minimum two dual-beam FIB systems in government academic institutions and/or R&amp;D laboratories in India within the last five (5) years. Documentary evidence in the form of installation/commissioning reports issued by the respective institutions shall be submitted. The supplier shall also provide the names and contact details of the institutions where such systems have been supplied and installed, to enable verification by the Technical Committee of IISER TVM.</p> <p>The supplier shall have an established</p> | <p><b>Installation, Training, Service Support, and Demonstration Requirements:</b><br/>Installation and commissioning of the system shall be carried out at IISER Thiruvananthapuram (IISER TVM). The supplier shall provide comprehensive on-site installation and operational training. In addition, the supplier shall provide 10 working days of advanced technical training for one technical staff member of IISER TVM at the supplier's application centre.</p> <p>The supplier must have successfully installed minimum two (2) dual-beam FIB systems in government academic institutions and/or R&amp;D laboratories in India within the last ten (10) years. Documentary evidence in the form of installation/commissioning reports issued by the respective institutions shall be submitted. The supplier shall also provide the names and contact details of the institutions where such systems have been supplied and installed, to enable verification by the Technical Committee of IISER TVM.</p> <p>The supplier shall have an established service centre in India, and a trained service engineer shall be available within the country for a minimum period of three (3) years to support the system.</p> |



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| <p>service centre in India, and a trained service engineer shall be available within the country for a minimum period of three (3) years to support the system.</p> <p>The supplier shall arrange the following sample preparation and imaging demonstrations (if required, through video files) for evaluation by the Technical Expert Committee appointed by IISER TVM. The benchmarking criteria specified below shall be used for comparison of the systems offered, and bids may be rejected if any of the criteria are not met. The demonstrations may be carried out at any laboratory chosen by</p> | <p>All claims made in the technical specifications, including but not limited to image resolution, EDS resolution, lamella quality, nanoscale deposition capability, milling resolution, low-kV performance, stage accuracy, and analytical performance, shall be supported by documentary evidence (e.g., images, videos, test reports, or application notes) clearly demonstrating the stated performance capability.</p> <p>The benchmarking criteria specified above shall be used for evaluation of the systems offered, and bids may be rejected if any of the performance criteria are not substantiated with supporting documents. The supplier shall repeat the same demonstrations of benchmarking criteria after installation at IISER TVM, if awarded the</p> |
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| <p>the supplier but must be performed using the exact system model quoted in this bid. The supplier shall repeat the same demonstrations after installation at IISER TVM, if awarded the contract.</p> | <p>contract. Further, the required sample preparation and imaging demonstrations (<b>Demonstration-1 &amp;2</b>) shall be carried out after installation at IISER TVM using the exact system model quoted in this bid, and shall be evaluated by the Technical Expert Committee appointed by IISER TVM.</p> <p>Note: Demonstration-1 &amp;2 are mentioned in original tender specification.</p> |
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