IITM

भारतीय उष्णदेशीय मौसम विज्ञान संस्थान
(पृथ्वी विज्ञान मंत्रालय, भारत सरकार का एक स्वायत्त संस्थान)
डॉ. होमी भाभा मार्ग पाषाण, पुणे – ४११ ००८
INDIAN INSTITUTE OF TROPICAL METEOROLOGY
(An Autonomous Institute of the Ministry of Earth Sciences, Govt. of India)
Dr. Homi Bhabha Road, Pashan, Pune - 411 008. India

150 YEARS OF CELEBRATING THE MAHATMA

सं. पीएस/ **PS/125/40/2025** दिनांक – 04 फ़रवरी 2026

सेवा में / To,

विषय - माइक्रो/नैनो स्ट्रक्चरल और एलिमेंटल एनालिसिस के लिए एनर्जी डिस्पर्सिव एक्स-रे स्पेक्ट्रोस्कोपी (ईडीएक्स) के साथ इंटीग्रेटेड एडवांस्ड फील्ड एमिशन स्कैनिंग इलेक्ट्रॉन माइक्रोस्कोप (एफई-एसईएम) की आपूर्ति, इंस्टॉलेशन और कमीशनिंग – मात्रा: 1 सेट के संदर्भ में।

Sub.: Supply, Installation & Commissioning of Advanced Field Emission Scanning Electron Microscope (FE-SEM) integrated with Energy Dispersive X-ray Spectroscopy (EDX) for micro/Nano structural and elemental analysis – Qty: 1 Set.

संदर्भ - इस संस्थान का दिनांक 01/01/2026 समसंख्यक निविदा जांचपत्र
Ref - This Institute's Tender enquiry of even number dated 01/01/2026

प्रिय महोदय/ Dear Sirs,

यह संस्थान उपरोक्त विषयानुसार सामग्री की खरिद करना चाहता है। इसलिए इच्छुक बोलीदाताओं से अनुरोध है कि अपनी तकनिकी तथा कीमत बोली निम्नलिखित निर्देशानुसार प्रस्तुत करें।

This Institute wishes to procure goods as per subject cited above. Therefore, interested bidders are requested to submit their Technical and Price bids as per the instructions given below;

बोली प्रस्तुत करने की अंतिम तिथि 29 जनवरी, 2026 से 11 फ़रवरी, 2026 को 1500 बजे तक बढाई जाती है।

The last date of submission of bids is extended from **29th January, 2026** to **11th February, 2026** upto 1500 hrs.

तकनिकी बोली उसी दिन 1530 बजे ऑनलाइन पद्धती व्दारा खोली जाएगी ।

Technical Bids will be opened on the same day at 1530 hrs. through online mode only.

तकनिकी विशिष्टीकरण और अन्य सभी विनिमय एंव शर्ते अपरिवर्तित रहेंगी।

Technical specifications and all other terms and conditions will remain unchanged.

बोलीदाता जो उपर्युक्त निविदा में भाग लेना चाहते हैं, उन्हें वेब पोर्टल https://moes.ewizard.in पर उपलब्ध सूचना के अनुसार पंजीकृत करना होगा।

Bidders willing to participate for the above tender, has to get registered themselves on web portal https://moes.ewizard.in as per the instruction available at there.

धन्यवाद / Thanking you

इ. अ. पठाण
04/02/2026

आय.आय.टी.एम.
I.I.T.M.
Pune-8
पुणे-8

(इ. अ. पठान/ I. A. Pathan)
अनुभाग अधिकारी / Section Officer
कृते निदेशक / for Director
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भारतीय उष्णदेशीय मौसम विज्ञान संस्थान, पुणे
INDIAN INSTITUTE OF TROPICAL METEOROLOGY, PUNE
Minutes of the Technical Evaluation Committee (TEC) meeting held on 16.01.2026

The Director, IITM Pune, has constituted a technical evaluation committee (TEC) for processing proposals related to the "Aerosols, chemistry, Cloud Lightening & electricity" Instruments Vide No. Comm./2025/68 date 04 Aug 2025. The primary mandate of the committee was to finalize specifications for various instruments and to evaluate the technical bids received. Accordingly, TEC meeting was convened to finalize the specification and to evaluate the technical bid for various instruments on 16 January 2026 at 11:00 AM in the Aryabhatta hall, IITM Pune. The following members were present during this meeting.

Reference to Pre-Bid Meeting: The Committee noted that a Pre-Bid Meeting was held on 12 January 2026, wherein prospective bidders raised technical and operational queries related to the Advanced Field Emission Scanning Electron Microscope (FE-SEM) integrated with Energy Dispersive Xray Spectroscopy (EDX) for micro/nano structural and elemental analysis.

All queries received during the pre-bid meeting were: Examined in detail by the Indenting Division, and addressed through scientifically justified clarifications and revisions, wherever required. SEM-EDX System: Final revised technical specifications finalized after the Pre-Bid Meeting (12 January 2026), including: Resolution requirements, Sample stage configuration, Low-kV performance, EDX analytical capability Scientific justification for:

i. Resolution specification (≤1.0 nm at 15 kV; ≤1.5 nm at 1 kV)
ii. EDX Detector: requirement
iii. Sample stage requirement (5-axis motorized; tilt -10° to +90°)
iv. Cryo-Microtome from the scope (Optional)

Summary of bidder queries and IITM's responses

Committee Deliberations and Decisions

i. Resolution Specification: The Committee noted that the specified resolution (≤1.0 nm at 15 kV and ≤1.5 nm at 1 kV) reflects real analytical operating conditions relevant to environmental and aerosol studies.
ii. EDX Detector: amendment-ed of <48eV (C-Ka). The lower the energy resolution number, better is the resolution to support precise EDX analysis at low accelerating voltages
iii. Sample Stage Configuration: The Committee agreed that the specified 5-axis motorized stage with tilt range -10° to +90° is essential for advanced imaging and EDX analysis.
iv. Cryo-Microtome: The Committee noted that the Cryo-Microtome is a non-essential sample preparation accessory for filter-based environmental particle analysis (optional).

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v. Training: The total training duration shall be approximately one month, which may be divided into two to three phases conducted at different time intervals after installation and commissioning. All training shall be provided by a factory-certified engineer.

Accordingly, the specifications were recommended for further processing of the tender.

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Advanced Field Emission Scanning Electron Microscope (FE-SEM) integrated with Energy Dispersive X-ray Spectroscopy (EDX) for micro/nano structural and elemental analysis.

1.	**Name of the Instrument**	Advanced Field Emission Scanning Electron Microscope (FE-SEM) integrated with Energy Dispersive X-ray Spectroscopy (EDX) for micro/nanostructural and elemental analysis.
3.	**Quantity**	01 nos.
5.	**Purpose of the instrument**	To conduct high-resolution imaging and elemental composition analysis of airborne particles including micro- and nanoplastics, bioaerosols, environmental dust, and engineered nanomaterials. Enables particle morphology, size, elemental mapping, and identification. Suitable for non-conductive environmental and biological specimens using low-vacuum modes and sputter-coating.
6.	**Brief details about instrument**	A high-end field emission SEM system with integrated Silicon Drift Detector (SDD)-based EDX system capable of automated, high-resolution morphology and multi-element analysis. The system will be equipped with low-vacuum modes, automated particle recognition software, and all required accessories for seamless workflow, including advanced manual and auto sample preparation systems.
7.	**Technical specifications including accessories**	• Electron Source: Field Emission Gun (FEG), Thermal Schottky or / Cold Type • Acceleration Voltage: 0.1 – 30 kV • Resolution: ≤1.0 nm at 15 kV, ≤1.5 nm at 1 kV • Magnification Range: 10× to ≥1,000,000× • Detectors: SE, BSE, In-Lens, Low Vacuum Detector • EDX Detector: SDD, ≥60 mm², ≤127 eV, ≤48 eV resolution, full spectrum mapping. EDX detector movement should be motorized having manual as well as software control. • Sample Stage: 5-axis motorized (X, Y ≥100 mm; Z ≥50 mm; tilt -10° to +90°; rotation 360°) • Imaging Modes: High vacuum, low vacuum/environmental • Mapping: Real-time EDX spectral, line scan, and mapping • Software: Automated particle detection, shape-size-color classification, EDX quantification, data correlation • Accessories: • Anti-vibration SEM and EDX workstation tables • Sputter coater (Gold/Pd/Carbon) in single instrument. • Precision hot plate, vacuum desiccator • Cryo-microtome (optional)

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		• 100+ sample stubs and holders for filter samples • High-performance PC workstation with licensed analysis software • UPS (≥5 kVA, 30 mins) • Oil-free turbomolecular vacuum pump • Chiller for column cooling • Calibration standards for imaging and EDX (C, Cu, Mn, Si, Ag…etc) • Supply of 50 boxes of PTFE membrane filter papers (47 mm diameter, 0.2 µm pore size; 100 pieces per box) and 50 boxes of quartz membrane filter papers (47 mm diameter; 100 pieces per box), along with 100 boxes of acrylic Petri dishes and sample slide holders (100 pieces per box). • Anti-vibration tables for sample preparation. • Data Output: Report in .tiff, .csv, .pdf with particle-wise morphology, image, spectrum, elemental ID • Imaging Camera: High-res CMOS color camera (optional) • Operating System: Fully integrated software-controlled navigation, alignment, and analysis. • System Controller and Operating System: (all Software controls & future upgrade controls with Instrument software), including desktops. • Require Power backup (UPS and batteries): Require power back up system along with the whole instrument set up and cost of batteries should include for the next 5 years.
8.	**Installation, Testing of equipment and calibration, details of training, etc.**	Complete onsite installation, calibration, and testing. The total training duration shall be approximately one month, which may be divided into two to three phases conducted at different time intervals after installation and commissioning. All training shall be provided by a factory-certified engineer.
9.	**Warranty**	01-year warranty
10.	**Post Warranty Services - Extended Warranty, Annual Maintenance Contract (AMC), Comprehensive Annual Maintenance Contract (CAMC), Operations Maintenance Contract (OMC) etc.**	1-year extended warranty 5-year CMC with full spares, application support, software upgrades, preventive maintenance, and performance validation.
11.	**Specific requirement, if any**	The system should be able to perform morphology and elemental analysis on micro- and nano-plastic particles on PTFE, quartz, and glass fiber filters. Automated classification of particles (plastic types, dust, minerals, metals) is required. Should include all necessary safety features and analytical standards.

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		Procurement of critical spares, consumables for 1000 samples/year, stocked for 5 years.

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