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

सं. पीएस/ **PS/125/39/2025** दिनांक – 04 फ़रवरी 2026

सेवा में / To,

विषय - ऑटोमैटिक माइक्रोप्लास्टिक और नैनोप्लास्टिक पार्टिकल आइडेंटिफिकेशन के लिए फ्लोरेसेंस, टीईआरएस, और एएफएम के साथ इंटीग्रेटेड कन्फोकल रमन माइक्रोस्कोप की आपूर्ति, इंस्टॉलेशन और कमीशनिंग। मात्रा: 01 नग के संदर्भ में।

Sub.: Supply, Installation & Commissioning of Integrated Confocal Raman Microscope with Fluorescence, TERS, and AFM for Automatic Microplastic and Nanoplastic Particle Identification Qty. 01 No.

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 ।

Techical 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

(इ. अ. पठान/ I. A. Pathan)
अनुभाग अधिकारी / Section Officer
कृते निदेशक / for Director
ई-मेल /e-mail : psu.iitm@tropmet.res.in

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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 Integrated Confocal Raman Microscope for Automatic Microplastic and Nanoplastic Particle Identific ation. 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.

The final revised technical specifications, incorporating the outcomes of the pre-bid meeting dated 12 January 2026, were placed before the TEC for consideration.
Scientific justification for:

I. Spectrometer Focal Length
II. Software and format
III. TERS-AFM Module resolution
IV. Training

Summary of bidder queries and IITM's responses

Committee Deliberations and Decisions

Raman Microscope: After detailed deliberation, the Committee observed that the technical specifications finalized after the pre-bid meeting dated 12 January 2026 are:

I. Spectrometer Focal Length: It would be better to mention Focal Length ≥200 mm or better. Shorter focal length means broader spectral range and better signal, which will be important to identify all peaks present in the spectrum. This is particularly recommended since airborne particles maybe of an unknown nature, with varying peak positions.
II. Software and format: It would be ok to mention acceptable software and other formats
III. TERS-AFM Module resolution: Better AFM resolution will increase the possibility of locating nanoplastic particles which are in ≤60nm range, and they can be identified with Raman colocalisation.
IV. 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. The

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TEC approved the final revised technical specifications of the Integrated Confocal Raman Microscope.

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

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Integrated Confocal Raman Microscope for Automatic Microplastic and Nanoplastic Particle Identification.

1.	**Name of the Instrument**	Integrated Confocal Raman Microscope with Fluorescence, TERS, and AFM for Automatic Microplastic and Nanoplastic Particle Identification.
3.	**Quantity**	01 nos.
5.	**Purpose of the instrument**	To enable comprehensive identification and characterization of airborne microplastics (1–5000 µm) and nanoplastics (1–1000 nm), including their chemical identity, morphology (shape, size/color), and automated particle count. The system will provide particle-wise visible image, Raman spectrum, and high-resolution optical and topographical images. The system must include an integrated module for automatic detection, classification, and reporting of each micro and nano plastic particle.
6.	**Brief details about instrument**	This hybrid analytical system integrates a high-end Confocal Raman Microscope with a (PL) Fluorescence Imaging module, Tip-Enhanced Raman Spectroscopy (TERS), and Atomic Force Microscopy (AFM). The system enables high-resolution chemical and morphological analysis of particles down to 10–20 nm.
7.	**Technical specifications including accessories**	• Confocal Raman Microscope - Spectrometer: ≥200 mm focal length, quadruple grating turret (600, 1200gr/mm. 1800 gr/mm, 2400g/mm) - Detectors: Thermoelectrically cooled CCD (<-60 °C) - Laser Sources: 532 nm/633nm/638 nm/785 nm. - Objectives: 5X,10x, 100x (air / oil) and 50XLWD long working distance -20X Dark Field and 50X LWD Dark Field Objectives - Microscope Body: BX-series upright confocal microscope (reputed brands like Olympus/Leica/Niko…etc will be acceptable). -Motorized Confocal Pinhole adjustable through software -Bright field imaging, dark field reflected & transmission imaging - Motorized XYZ Stage with Auto-focus - Visible Imaging: High-resolution color CMOS camera - Software: Acceptable software with Particle Finder module for automated mapping, particle detection, size, shape/color, and classification - Raman Spectral Libraries: Extended polymer and additive reference spectra (>22000 entries) - Z-scanning module for 2D/3D morphology

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		– Calibration standards (Raman shift and intensity) - Environmental enclosure with temperature and humidity control (optional) - Laser safety: Interlocks, enclosures, goggles - Computer workstation with licensed software (including automatic library). -PL Imaging Capability • Fluorescence Imaging Module (Optional) Fluorescence filter sets for Nile Red and DAPI staining LED-based excitation source Camera: High sensitivity CMOS for fluorescence detection Software: Fluorescence overlay with Raman maps. • TERS-AFM Module Resolution: ≤60nm (TERS imaging) Compatible with Raman system; Free space coupled with Raman. AFM Modes: Contact, non-contact, tapping AFM Topography Range: X-Y: 100 × 100 µm, Z: 15 µm or better Probe Types: Metal-coated TERS tips, standard AFM tips Software: Integrated control with Raman imaging and particle analysis Both the micro-spectrometer and the SPM systems must be able to run as stand-alone on a separate computer if desired, to allow two users to use the equipment independently but simultaneously. • Integrated Workflow Features • Acquisition of correlated Raman Chemical ID, PL Image, AFM Topography & TERS Spectra • Output: Particle-wise report (size, shape/color, visible image, Raman spectrum, TERS image, AFM topography, polymer ID) • Format: .csv, .tiff, txt, spc /others • Sample Preparation Units/Kits • Aerosol Sample Prep Kit: Oil Free Vacuum Pump, Total 25 numbers of Si Filters with different pore sizes like 1 µm, 2.5µm,5-6 µm will be very much required for preparing particle samples for analysis. Filtration Unit: Vacuum-assisted filtration system with multi-filter holders 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).

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		• Optical Lab Tables: Anti-vibration tables for Raman-AFM-TERS systems, sample preparation units and including PC. • Power Backup System UPS/ Batteries. • Provide a minimum 5 kVA UPS with 1-hour backup capable of supporting the entire instrument setup, including the Raman system, controller, and computing workstation. • System Controller & Operating System: Supply the instrument control computer with all required software for operation, along with provisions for future software upgrades and compatibility with instrument control systems.
9.	**Installation, Testing of equipment and calibration, details of training, etc.**	Complete onsite installation and standard calibration. 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.
10.	**Warranty**	01-year warranty
11.	**Post Warranty Services - Extended Warranty, Annual Maintenance Contract (AMC), Comprehensive Annual Maintenance Contract (CAMC), Operations Maintenance Contract (OMC) etc.**	01-year extended warranty 5 years CMC Coverage with full technical support, all spares, and maintenance. Software updates and application support. Annual performance validation and refresher training. Two preventive maintenance visits per year.
12.	**Specific requirement, if any**	• Particle-level analysis on standard air filters (PTFE, quartz, glass fiber) • Capability to identify polymer chemistry, morphology, and Raman & AFM image of micro- and nanoplastics • Automated reporting of count, shape/color, size, morphology, visible image, Raman, TERS, AFM images • Integrated automatic micro and nano-plastic detection module • All safety and calibration accessories are to be included.

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