IISER THIRUVANANTHAPURAM

INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH THIRUVANANTHAPURAM [IISERTVM]

PH.-0471 2778019,
EMAIL: purchasestores@iisertvm.ac.in

MARUTHAMALA.P.O VITHURA. P.O
THIRUVANANTHAPURAM 695551,
KERALA, INDIA
GST NO.32AAAJI0299R1ZS

IISER/PUR/2125/SG/SEESS/24-25

तारीख/ Date: 08 May 2025

CORRIGENDUM TO TENDER NO
No: IISER/PUR/2125/SG/SEESS/24-25

Sub: Supply, Installation, and commissioning of Petrological Polarizing and Stereo Zoom Microscope: reg

Ref: Tender Enquiry No. 2025_IISRT_854749_1

1. Since there is no qualified offers were received, the above mentioned tender is re-tendered with revised technical specification at Annexure 1.

2. The due date and date of opening will be as follows:-

1.	Date of Issue/Publishing	08 May 2025
2.	Document Download/Sale Start Date	08 May 2025
3.	Document Download/Sale End Date	30 May 2025
4.	Clarification End Date	20 May 2025
5.	Last Date and Time for Uploading of Bids	30 May 2025 (1500 Hrs)
6.	Date and Time of Opening of Technical Bids	31 May 2025 (1530 Hrs)
7.	Date of Opening of Price Bid	Will be intimated later
8.	Tender Fee (INR)	Nil
9.	EMD Amount (INR)	Rs.50000/- (Rupees Fifty Thousand only)
100	Detailed Specifications	As per annexure 1

3. All other Terms and Conditions remain the same as per the tender document dated 27.03.2025. Bidders may quote accordingly.

Thanking You,

Yours Faithfully

Anwar Sadath
8/5/25

Assistant Registrar (P&S)

IISER THIRUVANANTHAPURAM

INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH THIRUVANANTHAPURAM [IISERTVM]

PH.-0471 2778019,
EMAIL: purchasestores@iisertvm.ac.in

MARUTHAMALA.P.O VITHURA. P.O
THIRUVANANTHAPURAM 695551,
KERALA, INDIA
GST NO.32AAAJI0299R1ZS

Annexure 1 to tender
No: IISER/PUR/2125/SG/SEESS/24-25

Annexure I: Technical specification and general conditions for petrological microscope

Name of the equipment: Petrological Polarizing and Stereo-Zoom Microscope

Intended use/Purpose: Microstructural and mineralogical characterization of rocks and mineral aggregates.

A. Technical Specification and requirements for Upright Polarizing Microscope with High-Resolution Camera

Microscope Stand and Optical System

1. **Microscope Type**: Upright polarizing microscope suitable for transmitted and reflected light microscopy, capable of orthoscopic and conoscopic observations. The microscope should have the facility of height-adjustable focus knobs. Stage micrometer for transmitted light. Anti-microbial treatment proof should be provided with proper documents.
2. **Frame**: Robust stand with integrated focus drive system (manual or motorized), capable of coarse and fine focusing adjustments.
3. **Nosepiece**: Revolving nosepiece with at least 4 or more positions, centerable, and suitable for polarizing objectives.
4. **Stage**: Circular, rotatable polarizing stage (360° graduation) with graduations and brake, with a diameter of 170 mm or above, including stage clamps, click sound after a certain degree of rotation, and centering tools.
5. **Trinocular Tube**: Trinocular observation head with adjustable viewing angle (20°–30°), capable of 50:50 or better light split for camera integration.
6. **Eyepieces**: Pair of widefield eyepieces, minimum 10x magnification, minimum field number (FN) ≥ 22 mm or more, eye-guard, cross-hair reticule, one eyepiece with crosshair reticle, and focusing capability.

Illumination

7. **Transmitted Light**: LED illumination with Koehler illumination system for uniform light distribution. The strength of the reflected light illuminator (Voltes and Watts) should be of international standard.
8. **Reflected Light**: LED illumination with brightfield and polarizing capabilities.
9. **Power Supply**: Power supply compatible with Indian standards, with country-specific power cord.

Polarizing Components

10. **Polarizer**: Rotatable polarizer (90° or 360°) for transmitted and/or reflected light, removable or slider-based.
11. **Analyzer**: Rotatable analyzer (minimum 180° rotation, ideally 360°), with an option for clear aperture or filter slot.
12. **Condenser**: Polarizing condenser with numerical aperture, swing-out type.
13. **Compensators**:
    a. Tint plate (Gypsum, 530 nm Lambda) for full wavelength retardation.
    b. Quarter wavelength plate (Mica, Lambda/4) for phase difference analysis.
    c. Quartz Wedge compensator for advanced polarizing studies.
    d. Focusable Bertrand lens module

Objectives

14. **Objective Lenses**: Strain-free, cover glass corrected, plan achromatic or better polarizing objectives with the following magnifications and specifications:
    - 1.2x to 1.5x

Anwar Sadath
8/5/25

PH.-0471 2778019,
EMAIL: purchasestores@iisertvm.ac.in

MARUTHAMALA.P.O VITHURA. P.O
THIRUVANANTHAPURAM 695551,
KERALA, INDIA
GST NO.32AAAJI0299R1ZS

- 2x to 2.5x
- 4x to 5x
- 10x
- 20x
- Optional 40x, 50x, and 100x should be quoted separately.

15. **Objective Compatibility**: Suitable for use with or without cover glass, low strain for quantitative polarization.

Camera and Imaging System

16. **Camera**: High-resolution digital color camera with:
    a. Minimum resolution of 8 to 12 MP or higher (including 4K capability or higher).
    b. CMOS sensor with pixel size > 1.8 µm x 1.8 µm or higher quality. Vendors need to sufficiently explain why their quoted pixel size density is good for spatial resolution under high and low magnification.
    c. USB 3 interface for fast data transfer; optional Ethernet connectivity.
    d. Exposure time range: 1 ms to 1 s or higher. Camera gain 1x to 255x.
    e. Dynamic range ≥ 70 dB or higher.
    f. Frame rate >15 fps at full resolution or higher.
17. **Camera Adapter**: Latest C-mount adapter (0.5x–0.55x) compatible with the trinocular tube.
18. **Software**: Imaging software compatible with Windows 11 (64-bit) or the latest version available, supporting:
    a. Images should be saved in the format of JPEG/JPG/PNG/TIFF with annotation, and scale bar.
    b. 2D measurements (XY) (length, area, orientation, etc.). In case the vendors can provide Z-axis measurements, the additional technical requirement (if any) should be quoted separately.
    c. Image enhancement (contrast, brightness, etc.), stitching of multiple overlapping images.
    d. Extended focal imaging (EFI) for depth-of-field stacking.
    e. Grain size, orientation analysis per industrial standards
    f. Exportable report generation (Excel/Word templates).

Accessories

19. **Mechanical Stage**: Attachable mechanical stage for precise sample (XY) movement and rotation. The addition of Z-axis measurements will be preferred.
20. **Filters**: Interference green contrast filter (diameter ≥ 45 mm) or equivalent polarizing filter.
21. **Dust Cover**: Protective dust cover for the microscope.
22. **PC System**: Compatible PC with latest configurations:
    a. Intel Core i7 processor or the latest available processor
    b. 16 GB RAM
    c. 1 TB SSD hard drive
    d. 2 GB graphics card
    e. 27-inch or larger monitor
    f. Windows 11 (64-bit) OS
    g. USB 3.0 ports and basic productivity software (e.g., MS Office)

23. It should be mentioned whether the microscope is suitable for additional third-party accessories like spectrometers, etc. to expand the utility in the future.

Amar Sadath
8/5/25

PH.-0471 2778019,
EMAIL: purchasestores@iisertvm.ac.in

MARUTHAMALA.P.O VITHURA. P.O
THIRUVANANTHAPURAM 695551,
KERALA, INDIA
GST NO.32AAAJI0299R1ZS

24. All the components like the microscope, camera, and software related to microscopy should be from the same manufacturer.

B. Technical Specification and requirements for Stereo Zoom Microscope with High-Resolution Camera

The following technical specifications are required for a stereo zoom microscope with an integrated high-resolution camera system and an ergonomic arm clamp attachment, intended for geological research and education purposes.

Microscope Optics and Body

1. **Microscope Type**: Fully apochromatic stereo zoom microscope suitable for three-dimensional observation of geological samples. Anti-microbial treatment proof should be provided with proper documents.
2. **Zoom Ratio**: 5:1 to 9:1 or higher zoom range (for example, 6x to 55x or better with 10x eyepieces and 1x objective), featuring continuous zoom functionality to ensure smooth, seamless magnification adjustments without lag or delay in the software when observing live images on a computer monitor.
3. **Magnification Range**: Total magnification range of approximately 6x to 55x or higher (using, for example, with 10x eyepieces and 1x objective or higher). Vendors should clearly state which objective they are providing. If the magnification range is expanded using additional objectives (e.g., 1.5x), it should be clearly mentioned. In such a scenario, it should be clearly and separately explained what the magnification range with the 1x and 1.5x objectives will be.
4. **Eyepieces**: Pair of widefield eyepieces, 10x magnification, field of view (FOV) ≥ 23 mm or higher, with one eyepiece featuring adjustable focus and optional eyecups for comfort.
5. **Working Distance**: Minimum >80 mm or higher free working distance with the standard 1x objective, ensuring ample space for sample manipulation. If the vendors are providing multiple objectives, then it should be clearly mentioned what the working distance will be, for example, with the 1x and 1.5x objectives, separately.

6. **Optics Quality**: Infinity-corrected or distortion-free optics, anti-fungus treated, and anti-reflection coated for maximum light throughput and image clarity.
7. **Resolution**: Minimum 200-line pairs per mm (Lp/mm) with 10x eyepieces and 1x objective, ensuring crisp and detailed imaging.
8. **Tube Inclination**: Viewing angle ≥ 35° with adjustable interocular distance (e.g., 55–75 mm) for ergonomic observation.

Stand and Ergonomic Attachment

9. **Robust Stand**. Ergonomic Arm Clamp Attachment; freely rotating (360 degrees) adjustable arm clamp. Table clamp mechanism for secure attachment to workbenches, with flexibility in positioning.
10. **Focus Mechanism**: Coarse and fine focusing unit, adjustable via knobs or handles, with a lifting range of at least 145 mm.
11. **Power Supply**: Power supply compatible with Indian standards, with country-specific power cord.

Illumination

12. **Reflected Illumination**: LED (possibly ring) light (segmentable with at least 4 modes: full, half, quarter-circle, and two opposite quarters) for shadow-free and variable oblique illumination. Double-spot LED illuminator. Polarizer and rotatable analyzer compatible with reflected double-spot illuminator or ring light for enhanced contrast in geological samples.

Anwar Sadath
8/5/25

PH.-0471 2778019,
EMAIL: purchasestores@iisertvm.ac.in

MARUTHAMALA.P.O VITHURA. P.O
THIRUVANANTHAPURAM 695551,
KERALA, INDIA
GST NO.32AAAJI0299R1ZS

Camera and Imaging System

13. **Integrated Camera:** High-resolution digital color camera with:

    a. Minimum resolution of 8 MP or higher
    b. CMOS sensor with pixel size > 1.5 µm x 1.5 µm or higher quality. Vendors need to sufficiently explain why their quoted pixel size density is good for spatial resolution under high and low magnification.
    c. USB 3 interface for fast data transfer; optional Ethernet connectivity.
    d. Exposure time range: 1 ms to 1 s to higher.
    e. Dynamic range ≥ 70 dB or higher.
    f. Frame rate ≥ 30 fps at full resolution or higher.

14. **Camera Adapter:** Integrated camera port compatible with a trinocular tube or C-mount adapter (e.g., 0.5x).

15. **Software:** Imaging software compatible with Windows 11 (64-bit), supporting:
    a. Images should be saved in the format of JPEG/JPG/PNG/TIFF with annotation, and scale bar.
    b. 2D measurements (XY) (length, area, etc.).
    c. Image enhancement (contrast, brightness, etc.), stitching of multiple overlapping images.
    d. Exportable report generation (Excel/Word templates).

Accessories

16. **Stage Plate:** Black/white reversible stage plate for versatile sample contrast.
17. **Dust Cover:** Protective dust cover for the microscope.
18. **PC System:** This can be the same as mentioned above (as shown in A22).

19. **ESD Compatibility:** The microscope body, eyepieces, and stand should be ESD-compatible with antistatic surfaces and grounding provision.

20. All the components like the microscope, camera, and software related to microscopy should be from the same manufacturer.

Warranty and Annual maintenance:

1. The entire unit, including hardware, software, and other accessories, should have a minimum of 3 or more years of warranty from the installation date.

General conditions:

1. Copies of publications from other academic and research institutions of national importance in standard scientific journals related to Structural Geology, Mineral Physics, Mineralogy, and Petrology should be provided using the quoted microscope. Performance certificates of the quoted model from govt research institutions should be added. A user list of the quoted model with contact details should also be provided.
2. All the vendors should clearly explain how they are complying with the above-mentioned technical specifications in their compliance certifications.
3. A technical offline demonstration should be done to understand the functionality, quality assessment, and comparative evaluation.

Amar Sadath
31/5/25

PH.-0471 2778019,
EMAIL: purchasestores@iisertvm.ac.in

MARUTHAMALA.P.O VITHURA. P.O
THIRUVANANTHAPURAM 695551,
KERALA, INDIA
GST NO.32AAAJI0299R1ZS

4. A proper training session should be conducted after installation in which all the technicalities (both the hardware and software) should be explained.
5. The equipment should be supplied to the School of Earth, Environmental and Sustainability Sciences, Indian Institute of Science Education and Research Thiruvananthapuram, Maruthamala P.O., Vithura, Thiruvananthapuram 695551, Kerala.
6. Both the hard and soft copies of operating manuals for the operation of hardware and software should be provided.
7. The equipment supplied should be of the latest model from the manufacturer and the spare parts for the entire unit should be made available for at least the next 10 years.
8. The OEM should be the same for both the Petrological Polarizing (A) and Stereo-Zoom Microscope (B).
9. Only the original OEM should participate in the tender or else their authorized dealers or representatives with an authorization letter or proof of supply from OEM should be included at the time of tender.
10. The bidder should have supplied instruments to other educational institutes in India. The purchase copies from those institutes should be attached as documentary evidence.
11. An undertaking from OEM is required stating that they would facilitate the bidder regularly with technology/product updates and extend support for the warranty as well.

Amar Sadath
8/5/25