



QUOTATION NOTICE

TU/11-24/Pur/Qtn/2017-18/4927-A Dated 5.2.2018

Tezpur University, Napaam, Tezpur, Dist: Sonitpur, Assam invites sealed quotation/offers in **Two (02) Bid System (Technical & Price Bid)** for supply, installation & commissioning of **Field Emission Scanning Electron Microscope (FESEM)** at Department of Physics, Tezpur University.

Technical Specification of High Resolution Field Emission Gun Scanning Electron Microscope based on Schottky emitter:

Principal: Single unit consisting of fully automated field emission (FE) scanning electron microscope, operated in adequate vacuum modes with anti-contamination trap, capable of surface imaging and morphological analysis of non-conducting/conducting samples, magnetic/magnetic oxide samples, soft-matter (i.e. emulsion), nanoparticles, polymers, polymer coated nanoparticles and surfactant assisted nanoparticulate film, ceramics, other hard materials and wet biological samples specimens with following as the minimum requisite specifications.

Electron gun: Schottky Field emitter (mention life time), accelerating voltage: 100V - 30 KV or better providing high brightness/high current for noise free imaging, Probe current: 1 pA-300 nA or higher, magnification: Image magnification: $\times 25$ to $\times 1,000,000$ or better.

Specimen Stage: Eucentric 5- Axis Motorized with X/Y movement of specimen size of 100 mm or more dia through airlock mechanism, Z= 5 to 40 mm or better, Tilt= -5 to 70 degrees or better and R- 360 deg Continuous (computer controlled), suitable for all applications.

Chamber: Specimen exchange through Air lock / load lock mechanism, Minimum 7 ports for future expansion of accessories, Air lock size must be compatible with specimen size. Chamber should be equipped with an IR-CCD camera or any suitable device to view the sample & stage inside the analysis.

Detector: In-Lens/In-Column Secondary Electron (SE) Detector for Ultra high Resolution imaging in High Vacuum with automatic brightness & contrast adjustment. In Chamber SE Detector for studies of surface morphology and Topography of the samples. Retractable Back Scattered Electron Detector for studies of composite samples.

Resolution: 1 nm or better at 20 KV, 2 nm or better at 1 KV (mention resolution at optimum working distance and coincident point).

Accelerating Voltage: 100 V to 30 kV.

Standard Functions: Raster Rotation, Tilt correction, Image acquisition, Image Processing and Image data management.

Vacuum system: Suitable vacuum system having ion pump, Turbo Pump & Rotary Pump.

Electron Optics: Gentle Beam Mode / Beam De-acceleration / Beam Booster must be available for high resolution imaging at low kV. Energy filtering technology is built in with capability of simultaneous acquisition and display of images.

Power Supporter: Dedicated back-up power supply for ion pumps which provides power for at least 200 hrs continuously in case of power failure.

Control and Data acquisition: Fully computer-controlled system with window based operating software, basic image processing, Keyboard, mouse, control panel with multifunction for control and adjustment of frequently used SEM parameters, manual joystick control for stage axis (option), thumbnail viewing and report generation capability, user friendly and multi-licensed provision.

Computer system: Computer system: Microsoft Windows 10 Professional based work station.

User Interface: Keyboard, Mouse, Control Panel with multifunction for the control and adjustment of frequently used SEM parameters, Manual Joystick control for stage axis.



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Display: 24" LCD display. Live conditions of operating parameters, holder graphics and airlock status are visible on GUI

Safety devices: Safety devices against power/vacuum/water/air/gas failures.

Anti-Contamination Device: FE-SEM must be equipped with an anti-contamination device.

Accessories:

1. Ion sputter coater
2. **EDS system:** LN2 free SDD detector, active area 30 mm² or higher with 129 eV resolution at Mn K, Detection Limits: Be to Am; Must have mapping, quantitative, qualitative analysis. Complete with hardware and software.
3. **Safety devices:** Suitable online UPS systems
4. Carbon Tape
5. STUB, electrostatic tweezers for handling specimen stub
6. Aperture Set
7. RP Oil
8. High resolution printer.
9. Chiller.
10. Compressor.
11. Infrared chamber scope (IRCCD)
12. Interface between SEM and EDS
13. Joystick/Track ball or equivalent device for stage motor control.

The instrument should have the upgradability of following features as option:

- (1) Cryogenic arrangement
- (2) STEM detector
- (3) Specimen holder kit

Kindly Note:

The quotation should be submitted in 03 separate envelopes clubbed in one main envelope containing the:

- **Technical Bid.**
- **Price Bid**
- **Requisite Fees (EMD & Quotation Fee)**

Only those parties Price Bid who qualifies in the Technical Bid and Presentation (if called for) will be opened.

GENERAL TERMS & CONDITIONS:

1. No separate tender paper will be issued from the office; one should only download the specifications/List from the website.
2. **The rates should be preferably quoted in Indian Rupee and FOR Tezpur University, Napaam basis. Charges for clearing and transportation should be incurred by the supplier.**
3. **Quotations should be accompanied by i) An EMD (in the form of Demand Draft/Call Deposit/TDR) of ₹. 50000/- (Rupees Fifty Thousand) only drawn/pledged in favor of Registrar, Tezpur University, payable at Tezpur. No request for consideration of earlier deposited EMD will be considered. ii) A non-refundable application (quotation) fee of ₹.5000.00 (Rupees Five Thousand) only must be paid only by Demand Draft drawn in favour of Registrar, Tezpur University payable at Tezpur.**
4. The rates should be exclusive of taxes and applicable tax % should be clearly indicated.
5. Applicable levies, surcharge and discounts should be clearly indicated itemwise.
6. Quoted rates should be valid at least for a period of 01 year.
7. The rates should be quoted along with supporting documents of specifications and technical features and list of users.



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8. The system must be installed at the laboratory, and after installation a basic training must also be provided by the supplier or their Indian counterpart without any additional costs.
9. All the quotations must be accompanied with supporting documents and / or literature.
10. Presentation may be sought from the vendors for authentication of quoted specification.
11. Details of availability of after sales support will have to be furnished. After sales support, directly from manufacturer and from Assam (Guwahati / Tezpur) will be preferred.
12. The University is exempted from paying Custom and Excise duty.
13. Proprietary items should be quoted with sole Manufacturer/Distributorship certificate.
14. Warranty/Guarantee period should be specifically mentioned in the quotation.
15. No Advance payment will be made. However, for foreign supplier, advance payment will be made either by FDD/Wire Transfer/LC. In such cases 10% Performance Bank Guarantee should be submitted before issuing FDD/Wire Transfer/LC, covering the warranty period.
16. Performance Bank Guarantee also has to be submitted for Major equipments of Indian origin, covering the warranty period.
17. Items of Foreign origin should have Insurance up to installation on site.
18. The University reserves the right to accept or reject any or all the quotations without assigning any reason.
19. **Quoted price should be inclusive of essential accessories and should be FoR Tezpur University, Tezpur.**
20. Applications for release of EMD should be submitted to the Registrar/ Joint Registrar.
21. Apart from the above terms and conditions the University has the right to include any other terms and conditions as and when felt necessary in the Purchase Order.
22. **Quotation should be submitted in the DROP BOX placed in the reception of the Administrative Building of the University within 30 days from the date of publication of this notice. If posted/couriered, should reach within 30 days addressed to "The Joint Registrar, Tezpur University". The Quotation Notice No. and date should be clearly super scribed in the envelope/packet containing the quotation.**


Joint Registrar
Tezpur University

Memo No, TU/11-24/Pur/Qtn/2017-18/.....4927-A

dated:-.....5.2.2018

Copy for information to:

1. Webmaster, Tezpur University for uploading the notice in the website.
2. Head, Department of Physics, Tezpur University.
3. Dr. P. Deb, Coordinator, DST-FIST Programme, Department of Physics, Tezpur University.
4. File


Joint Registrar