



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.

