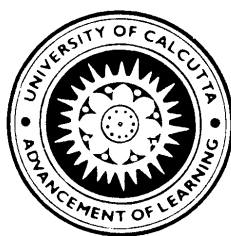


University of Calcutta

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**TENDER DOCUMENT FOR
INTEGRATED AFM, SNOM AND RAMAN
MICROSCOPE
FOR
THE CENTER FOR RESEARCH IN
NANOSCIENCE AND NANOTECHNOLOGY**

Tender No.:- Dir/187/Notice/Microscope/CRNN (2011)

Date:- 26/12/11

NOTICE INVITING TENDERS

Quotations including full Technical Specifications / literature/ catalogue are invited in sealed envelopes in two parts (Technical + Financial) for the supply, installation and commissioning of the following instruments at the Centre for Research in Nanoscience and Nanotechnology, University of Calcutta, on or before February 28, 2012 in Tender Box kept at the office of the Centre for Research in Nanoscience and Nanotechnology, JD-2, Sector-III, Salt Lake City, Kolkata – 700098.

Cost of tender papers – Rs. 5000/- (Five Thousand only) (Non refundable), to be paid through DD infavour of “Director, Centre for Research in Nanoscience and Nanotechnology” payable at Kolkata, India with each tender.

The technical bid should include the following:

- 1) Service facilities in eastern India
- 2) Pre and Post Warranty Service conditions
- 3) List of customers within India
- 4) One week in-house factory training for the integrated system before shipment and application training after installation as and when required

Prof. D.J.Chottopadhyay

Director

Centre for Research in Nanoscience and Nanotechnology

and

Pro-Vice Chancellor (Academic)

University of Calcutta

87/1 College Street, Kolkata 700073.

“INTEGRATED AFM, SNOM AND RAMAN MICROSCOPE”

Technical Specification for AFM – SNOM:

- Scanner resolution – $Z < 0.5$ Angstrom, $X, Y < 1.5$ Angstrom
- Range – $X, Y = 100$ micron, Z range 7 micron or better
- Samples – insulating, conducting, magnetic, biological (in liquid environment)
- Microscope for sample observation with objectives – 5X, 20X, 50X
- Requires hard & soft cantilevers for different samples
- Tips – Si, Si₃N₄ or glass fiber
- NSOM modes – Transmission, reflection, collection & illumination, also system should provide NSOM fluorescence using 532nm & other lasers for biological samples
- Sample environment chamber
- **MUST** – in built active anti-vibration isolation stage

Additional Requirements (OPTIONAL with AFM - SNOM)

- Multiprobe AFM capability of working more than one probe simultaneously on a single sample
- Electric force/ conductivity imaging/ I-V measurement
- Simultaneous AFM & Raman imaging & Spectroscopy in air as well as in liquid environment & TERS
- Controlled nanoscale deposition of suspended nanoparticles such as Au nanoparticles, proteins, polymers or CNT
- Variable magnetic field in SNOM for studying fluorescence

Computer control

Complete software and computer facility should be supplied by the manufacturer

Technical Specification for Raman Spectrometer:

- Lasers – 325nm (He – Cd), 514 (Ar ion), 785 nm (diode)
- Scope should be there in the system to add more lasers in future

Confocal Raman Microscope

- Upright with manual turret
- Objectives – 5X, 20X, 50X (LWD) & 100X (LWD)
- Spatial resolution – 1micron (for Tip enhanced Raman Spectroscopy imaging – 50nm – 150 nm, in case Raman is integrated with AFM)
- Spectral resolution – 0.4 cm^{-1} at 514 nm
- Range from 50 to 4000 cm^{-1} continuous scan
- Confocality 2 micron or better
- Fully automatic software driven for entire operation including alignment & Calibration
- TE cooled CCD
- Fast Raman mapping with 785 nm laser
- System should be capable to use for high resolution PL for all lasers

All the devices are integrable; however, each can be used separately.

Computer control

Complete software and computer facility should be supplied by the manufacturer