



Department of Electrical Engineering, Indian Institute of Technology, Delhi

Hauz Khas, New-Delhi -110016, India

NIQ no. IITD/EE/PLN03-BEEN

Due Date: **28.06.2013, 5 PM**

Notice inviting quotations for a Atomic Force Microscope and Scanning Tunneling Microscope (Optional)

Sealed quotations are invited for a Atomic Force Microscope and Scanning Tunneling Microscope (Optional). The purchase will be made through a two part bidding process. Technical and Financial bids have to be made separately. Complete technical information should be provided along with the Technical bid. Please refer to the page on Terms and Conditions for details on how and when to submit the Technical and Financial bids.

Required Specifications for the Atomic Force Microscope and Scanning Tunneling Microscope (Optional)

AFM Specifications

1. Operating Modes:

- Static
- Dynamic Force Modes
- Phase Contrast
- MFM (Magnetic Force Microscope)
- Spectroscopy

2. Scan Range of the AFM Scanner: 70 μm (X-direction) by 70 μm (Y-direction) by 14 μm (Z-direction)

3. Integrated controller and fixed scan head

4. High resolution digital color top view camera

5. Camera to view sample from side

6. Cantilevers Provided: At least 10 for Contact Mode AFM, At least 5 for Tapping Mode AFM, and At least 5 for Conductive AFM

7. Technical Support/Consultancy for customization of the AFM at customer discretion

STM (Optional) Specifications

1. Scanner

Range: XY – should be at least 0.5 μm

Z – should be at least 0.2 μm

Resolution: should be 16 Bits

2. Electronics

Tunneling Current preamp: Gain: 100 mV/nA

Noise: 0.02 nA rms

Sample Bias: ± 10 V

3. Sample

Horizontal Sample placement

Up to 10 mm dia, 12 mm thick

4. Imaging modes – Constant current (topography), constant height (current)

5. Spectroscopy modes – Current voltage, current distance

6. Lithography – Should allow lithography

7. Camera System – Camera to view sample from side and High resolution digital color top view camera

Asst. Prof. A. Dhawan

(Principal Investigator)

Terms and Conditions

1. Please submit the TECHNICAL and FINANCIAL bids in separate sealed envelopes. Mark the two envelopes clearly as "Technical Bid" and "Financial Bid" respectively. Both the sealed envelopes should be sent in a single sealed envelope, clearly marked as "Quotations for a Atomic Force Microscope and Scanning Tunneling Microscope (Optional)". The quote should reach the following address (all mails should be sent only to the following address) on or before **28.6.2013, 5 PM:**

Sandeep Arora,
MS-204, Department of Electrical Engineering,
IIT Delhi, Hauz Khas,
New Delhi, 110016, India
2. Please quote prices in rupees (only rupee quotes will be accepted) at FOB New Delhi, inclusive of all taxes and duties (all customs duties and VAT should be included in the quoted price. No custom duty exemption or VAT exemption certificate will be provided by IIT).
3. Quote should valid for at least three months.
4. Attach all the technical literature and a list of similar installations done in India.
5. If the quote is being submitted by a representative of the manufacturer, a valid agency-ship or dealership certificate authorizing the agent to quote to IIT Delhi on behalf of the manufacturers should be enclosed.
6. Complete set of manuals for the operation of the equipment should be given.
7. Clearly specify the installation requirements – such as space, power, frequency, environment etc.
8. If the item quoted is proprietary in nature, please enclose proprietary certificate from the principals stating, "Certified that _____ is a proprietary of M/s _____ and no other manufacturer makes this item."
9. Please attach a signed and stamped compliance chart for the specifications. The format of the compliance chart is attached to this document.
10. Please specify all of your terms and conditions clearly, including delivery period.
11. Preferred modes of payment for foreign agents are through letter of credit, or as payment on delivery. For Indian agents, typically payment is on delivery.
12. The Institute reserves the right to accept or reject any or all quotations without assigning any reasons thereof.

Asst. Prof. A. Dhawan
(Principal Investigator)

Compliance Chart

AFM Specifications

	Parameter	Requirement	Model Spec	Complies
1	Operating Modes:	<ul style="list-style-type: none"> - Static - Dynamic Force Modes - Phase Contrast - MFM (Magnetic Force Microscope) - Spectroscopy 		
2	Scan Range of the AFM Scanner	70 μm (X-direction) by 70 μm (Y-direction) by 14 μm (Z-direction)		
3	Controller and fixed scan head	Should have an Integrated controller and fixed scan head		
4	Camera	<ul style="list-style-type: none"> - High resolution digital color top view camera - Camera to view sample from side 		
5	AFM Cantilevers Provided	At least 10 for Contact Mode AFM, At least 5 for Tapping Mode AFM, and At least 5 for Conductive AFM		
6	Technical Support/Consultancy for customization of the AFM	At customer discretion		

STM Specifications

	Parameter	Requirement	Model Spec	Complies
1	Scanner XY Range Z Range Resolution	Should be at least 0.5 μm Should be at least 0.2 μm Should be 16 Bits		
2	Electronics Tunneling Current preamp: Gain: Noise: Sample Bias:	100 mV/nA 0.02 nA rms $\pm 10 \text{ V}$		
3	Sample Horizontal Sample placement	Up to 10 mm dia, 12 mm thick		
4	Imaging modes	Constant current (topography), constant height (current)		
5	Spectroscopy modes	Current voltage, current distance		
6	Lithography	Should allow lithography		
7	Camera System	Camera to view sample from side and High resolution digital color top view camera		