

INDIAN INSTITUTE OF SCIENCE EDUCATION AND
RESEARCH-THIRUVANANTHAPURAM
[IISER-TVM]

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IISER/PUR/PT/15/10

Date: 12th November 2010

INVITATION TO TENDER

Dear Sirs,

SUB: AMBIENT SCANNING PROBE MICROSCOPE.

Sealed **TWO - PART** Tenders are invited for above item as per **SCHEDULE** attached. **Instructions to Tenderers [Indigenous & Imports]** are also attached.

The due date for receipt of Tenders is 7TH DECEMBER 2010 [3 PM]. Late and delayed offers will not be considered under any circumstances.

Thanking You,

Yours Faithfully


CONSULTANT
(PURCHASE & STORES)

IISER-TVM
PUBLIC TENDER NO. IISER/PUR/PT/15/10
SCHEDULE

I. TENDER No. IISER/PUR/929/10

AMBINET SCANNING PROBE MICROSCOPE

An ambient Scanning Probe Microscope (SPM) capable of operating as a Scanning Tunnelling Microscope (STM) and an Atomic Force Microscope (AFM) with the following specifications. Beyond standard STM/AFM operations the STM will be used to conduct STM Tunnelling Induced Light Emission studies, necessitating efficient optical input and photon collection from the tip -sample junction.

A. General:

1. Minimum XV scan range: $1\mu\text{m} \times 1\mu\text{m}$; $10\mu\text{m} \times 10\mu\text{m}$; $100\mu\text{m} \times 100\mu\text{m}$
2. Z range $\sim 2\mu\text{m}$
3. Selectable imaging resolution - 128, 512, 1024, 2048 pixels
4. Typical sample size 10 mm x 10 mm x 5 mm
5. Access to various input and output signals to/from the SPM controller, e.g. data signals (STM tunnel current, feedback voltage, etc) and analog inputs for control and/or simultaneous recording of user processed/generated signals (typically 4 independent A/D channels with 16 bit AD converter)
6. Data Acquisition/Control Computer + Software + GUI
7. Optical imaging of tip/cantilever -sample area: Video observing facility during probe -sample approach.
8. Active Vibration Isolation Table, typical dimension 1.5 x 1.0 m.

B. STM Specifications:

9. Atomic resolution imaging capability in the ambient (to be demonstrated by imaging either in constant current or constant height feedback mode).
10. Tip sample approach/engagement at small currents (~ 10 pA or lower).
11. Capable of stable imaging with tunnel current set points in the range pA -30 nA range
12. Sample bias range from few mV -10 V (smallest step size ~ 5 mV preferable).
13. I -V converter Amplification factor $10^8 - 10^{10}$ V/A (preferably selectable)
14. Point Spectroscopy (I-V and I-d) capability at single points and at a matrix of predefined points (Bias resolution of 1.25 mV or lower for I-V preferable).
15. Conductance Mapping Capability (2D dI/dV plots) at fixed DC bias.
16. Linear and Logarithmic feedback modes. Note: The latter implemented digitally rather than by analog circuits.
17. Open and easy front access to the tip -sample junction area ($\theta \geq 180$ deg and $90 \geq \phi \geq 0$ deg); for positioning and alignment of user implemented optical attachments (e.g. optical fibres, small lenses etc). Access to within 1 mm of the tip-sample junction for 800 μ core optical fibres.
18. Closed loop imaging capability (optional). Drift correction and feature tracking option.

C. AFM Specifications:

- 1) Basic Contact, Non-Contact and Tapping Mode Operations
- 2) Conductive AFM mode
- 3) Force Modulation imaging capability
- 4) Electrostatic Force Microscopy
- 5) 2D Phase and lateral force imaging capability
- 6) 2D surface potential mapping

- 7) 2D Resistance mapping
- 8) Tunnelling AFM mode
- 9) Z noise < 0.2 angstrom
- 10) Closed Loop tracking facility

D. OPTIONAL ITEMS:

A second scanner stage such that the STM and AFM heads can remain permanently mounted to each stage. The single common controller + interface to be shared by the two SPMs (STM or AFM). A vibration isolation table for the second scanner stage. Acoustic Isolation Hood for the AFM. Vendor should include all attachments and accessories required to implement the various modes of the STM and AFM specified above.

Other Specifications:

- a) Onsite Installation of Equipment and demonstration of all modes purchased on typical samples.
- b) Demonstration of the XVZ calibration with calibration samples for STM and AFM.
- c) Hardcopy of all manuals
- d) Undertaking of Service and Support.
- e) Comprehensive Warranty for 3 years.

SPECIAL CONDITIONS

1. COMPLIANCE STATEMENT

Along with the technical details provide a tabular column indicating whether the equipment quoted by you meets the specifications by indicating 'YES' or 'NO'. If 'YES', support the claim by providing original brochures.

2. REFERENCES:

Names of Institutes with contact person and telephone/ email where similar equipment supplied by you in India [Preferably south] shall be mentioned in the bid.

3. TWO - PART TENDER

PART I - TECHNICAL BID:

Consisting of all Technical details alongwith commercial terms and conditions.

PART II - PRICE BID:

Showing item-wise prices for the items mentioned in the Technical Bid.

The technical bid and the Price bid should be in separate sealed and superscribed covers. Both these covers are to be put in a sealed bigger cover superscribing Tender No and due date. Technical bids will be opened first and after evaluation, price bids of only the shortlisted bidders will be opened.

4. RELOCATING THE EQUIPMENTS

This equipment is to be initially installed at IISER Transit Campus [CET] and later, when permanent campus of IISER is ready at Vithura [40 Km from Trivandrum], the same is to be relocated there. Prices quoted for the equipment shall be either inclusive of relocating the equipment or a separate quote shall be shown in the Price Bid for the same [dismantling, transporting, installation and demonstration at the new location].

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IISER – TVM
INSTRUCTIONS TO TENDERERS [INDIGENOUS].

1. Tenders should be sent in sealed envelopes superscribing the relevant tender no. and the due date of opening. Only one tender should be sent in each envelope.
2. Late tender and Delayed Tenders will not be considered under any circumstances.
3. Sales Tax and /or other duties/levies where legally levies and intended to be claimed should be distinctly shown separately in the tender.
4. (a). Your quotation should be valid for a minimum period of 60 days from the date of opening of the Tender. Quotation with firm prices will be preferred.
(b). Prices are required to be quoted according to the units indicated in the Invitation to Tender. When quotations are given in terms of units other than those specified in the tender form, relationship between the two sets of units must be furnished.
5. (a) Preference will be given to those tenders offering supplies from ready stocks and on the basis of delivery at IISER site.
(b) Preference will also be given to those who agree our payment terms of within 30 days of receipt and acceptance of the item at our site.
6. (a) All available technical literature, catalogues and other data in support of the specifications and details of the items should be furnished along with the offer.
(b) Samples, if called for, should be submitted free of all charges by the tenderer and the IISER shall not be responsible for any loss or damage thereof due to any reason whatsoever. In the event of non-acceptance of tender, the tenderer will have to take back the samples at his own expense.
(c) Approximate net and gross weight of the items offered shall be indicated in your offer. If dimensional details are available the same should also be indicated in your offer.
(d) **Specifications:** Stores offered should strictly conform to our specifications. Deviations, if any should be clearly indicated by the tenderer in their quotation. The tenderer should also indicate the Make/Type number of the stores offered and provide catalogues, technical literature and samples, wherever necessary along with the quotations. Test Certificates wherever necessary should be forwarded along with supplies. Whenever specifically mentioned by us the tenderer could suggest changes to specifications with appropriate reasons for the same.
7. IISER shall be under no obligation to accept the lowest or any tender and reserves the right of acceptance of the whole or any part of the tender or portion of the quantity offered and the tenderers shall supply the same at the rates quoted.
8. Corrections, if any, in the Quotation must be attested. All amounts shall be indicated both in words as well as in figures. Where there is difference between amounts quoted in words and figures, amount quote d in words shall prevail.
9. The tenderer should mention the name of his bankers, Sales Tax Registration, PAN number etc in the tender.
10. The authority of the person signing the tender, if called for, should be produced.
11. The purchaser reserve the right to accept or reject the lowest or any other offer in whole or in part without assigning any reason.
12. IISER being a Govt of India Educational and Research Institute, is exempted from payment of Excise Duty and Customs Duty under Notification No. 51/96- Customs dated 23rd July 2009. Also, we can issue Form 16 as per VAT Rules.
13. There is no EMD or Tender Cost.


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INSTRUCTION TO TENDERERS [IMPORTS]:

1. **PRICE:** The price quoted shall be firm. The terms of FOB/EXW/FCA/CIF/CIP etc shall be clearly mentioned.
2. **AGENT & AGENCY COMMISSION:** In case Tenderer is represented by any agent in India, their name and address shall be furnished. The amount of commission included in the price shall be clearly shown in the offer; which will be paid directly to the Indian Agents by purchaser in equivalent Indian Rupees. In case Indian agents existing and their agency commission is not shown in the Tender, reasons for the same shall be clearly mentioned in Tender. Details of Indian agent's statutory registration shall be stated. If Agency Commission is paid by Principals in foreign currency, the reasons for the same and exemption from Enforcement Directorate in India shall also be provided.
3. **LEAFLET/CATALOGUE:** Tenderer should furnish all necessary leaflet/catalogue etc., of the stores offered by him to enable the Purchaser to evaluate his offer correctly.
4. **MODE OF DESPATCH:** Tenderer shall indicate the mode of dispatch (*i.e.*, Sea/Air-freight/Parcel Post, etc.) depending upon the normal mode of dispatch adopted by him for the type of stores offered for consideration of the Purchaser.
5. **COUNTRY OF ORIGIN:** Tenderer shall indicate in his offer the country of origin of goods offered and the name and address of the manufacture.
6. **INSURANCE:** If insurance of the goods is felt necessary, the same shall be advised by the Tenderer in the offer.
7. **DELIVERY/SHIPMENT:** The time for and date of delivery quoted shall be reasonable/realistic and shall strictly be adhered to in case of placing order on the Tenderer.
8. **MODE AND TERMS OF PAYMENT:** Payment in full (excluding the amount of Agency Commission included in the price payable directly by the Purchaser to the Indian Agents in Indian Rupees) will be made immediately on presentation of the prescribed documents against SIGHT DRAFT or LETTER OF CREDIT.
9. **WARRANTY:** Period of warranty and conditions shall be clearly mentioned in the Tender.
10. **GENERAL:** The Tenderer shall also be complied with the following:
 - a. Mention your Banker's name and address.
 - b. Show approximate net and gross weight and dimensions of packages/cases.
 - c. Furnish list of recommended spares for satisfactory operation for a minimum period of one year if the quote is for Plant & Machinery, Equipments etc.
 - d. Details of any technical service, if required for erection assembly, commissioning and demonstration.
 - e. Conform that the prices quoted are inclusive of all taxes, levies, duties arising in the tenderer's country.
 - f. The offer is valid for a minimum period of 90 days from the due date of opening of the tender.
 - g. Samples, if called for, will be sent free of all charges.
 - h. Late tenders and Delayed will not be considered.
 - i. Offers made by Indian Agents on behalf of their Principals, should be supported by the Proforma Invoice of their Principals.
 - j. The authority of person signing the tender, if called for, shall be produced.
 - k. The purchaser reserves the right to accept or reject the lowest or any other offer in whole or in part without assigning any reason.