

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

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IISER/PUR/PT/10/09

22nd March 2010

INVITATION TO TENDER

Dear Sirs,

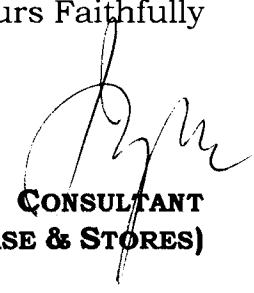
SUB: LAB EQUIPMENTS

Sealed **TWO - PART** Tenders are invited for Equipments as per **SCHEDULE** attached. TWO - PART bids for each Tender shall be sent separately. **Instructions to Tenderers [Indigenous & Imports]** are also attached.

The due date for receipt of Tenders is **30TH APRIL 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/10/09

SCHEDULE:

I. TENDER NO. IISER/PUR/506/09 - 1 No
500 MHZ NMR SPECTROMETER.

- 1) State of the art 11.8 Tesla actively /ultrashielded superconducting magnet, standard bore (ca. 5.4 cm), with long hold time, for liquid Helium (> 200 days) and liquid Nitrogen (> 14 days) Dewar (specify in terms of boil off rates. Anti-vibration to damp frequencies above 5 Hz and a drift rate < 8 Hz/Hr. Built-in cryo-shims and room temperature shims. Pneumatic sample load/spin/ejection. Radial stray field (5 G) < 1.0 meters. Include liquid Helium and liquid Nitrogen for initial charging of the magnet.
- 2) State of the art radiofrequency (RF) console with two RF channels: Frequency synthesizers, amplifier (amplified power ≥ 150 W (LF) and ≥ 50 W (HF). Transmitter controller, pre-amplifier filter, receivers, ADC's, lock assembly with deuterium lock, digital receiver and RF electronics controlled by acquisition processor, high oversampling rate and digital filters and fast digitizer. Gradient shimming. Accessories for shaped pulses.
- 3) Variable temperature unit (-100 °C to + 150 °C) with computer control, changeable in steps of and stability of 0.1°C.
- 4) Probes with high sensitivity, with variable temperature facility (please quote sensitivity/linewidth/pulse-widths for different nuclei), auto tuning facility, Z-axis gradients on all probes with gradient strength of ≥ 50 G/cm capacity to handle high duty cycle (specified in terms of percentage of duty cycle handling). Auto gradient shimming.
 - i. 5 mm, broadband X nuclei direct observation probe with Z-axis gradient (from P-31 to Ag-I09) capable of $^{19}\text{F}/^1\text{H}$ observation and decouple. Linewidth (non-spinning) in CHCl_3 at the height of ^{13}C satellites < 12 Hz. For 10 % ethyl benzene S/N for ^1H > 300:1, ^{13}C > 150:1. For ASTM sample S/N for ^{13}C is 200:1, in triphenyl phosphate, S/N for ^{31}P is 100:1. In 90% formamide S/N for ^{15}N is 30:1. Pulse width ($\pi/2$) for ^1H < 15 μs , ^{13}C < 10 μs , ^{15}N < 15 μs , ^{31}P < 15 μs .
 - ii. 5 mm H-X double resonance inverse detection probe with Z-axis gradient (OR) ^1H - ^{13}C Dual probe with Z-axis gradient. Linewidth specs same as above. S/N for 0.1% ethyl benzene ^1H > 800:1, Pulse width ($\pi/2$) < 10 μs .

- 5) High speed/memory computers and peripherals with complete preloaded software/data cards for data acquisition, processing and analyses including tools/software for complete automation of data. Multiple (≥ 5) licenses for the software.
- 6) Five-year complete warranty on all items mentioned above from the date of complete and satisfactory installation of the spectrometer.
- 7) Complete set of standard samples (in sealed 5 mm tubes) for resolution, S/N, and 90° pulse width tests.
- 8) 5 year liquid Helium refill contract.
- 9) Computer controlled automatic sample changer (minimum 20 sample holders)

OPTIONAL ADD ONS

1. 5 year liquid nitrogen refilling contract
2. Additional (third) channel for all specifications mentioned in item (1) of main specifications, capable of performing multi-nuclear and multi-resonance experiments.
3. Triple resonance H-X-Y broadband probe with Z-axis gradient.
4. Possibility of deuterium decoupling

GENERAL INFORMATION

- 1) Please provide complete and detailed system specifications for the items listed above and for the following:
 - i. Magnet drift rates
 - ii. Liquid He and Nitrogen capacities, evaporation rates, refill periods
 - iii. R. F. phase/frequency resolution/ADC rates
 - iv. Sensitivity and line width specifications for each of the probe
- 2) Room size requirements for the magnet and the console
- 3) Indicate other accessories such as UPS, power requirements, air conditioning, air compressors and Nitrogen gas requirements etc. that need to be acquired from other sources.

II. TENDER NO. IISER/PUR/507/09 - 1 No **SINGLE CRYSTAL X-RAY DIFFRACTOMETER**

Basic Single Crystal x-ray diffractometer preferably with Kappa four circle goniometer with full structure determination package with the following specifications.

1. X-RAY GENERATOR:

- | | | | |
|------|-----------------------|---|-----------------------------------|
| i) | Maximum output power | : | 3.0kW |
| ii) | Maximum Voltage | : | 60kV |
| iii) | Maximum Anode Current | : | 45-50mA |
| iv) | Stability | : | <0.005% at 10% power fluctuation |
| v) | Control | : | Fully controlled through software |

2. X-RAY TUBE:

X-ray tube with ceramic fine focus for both Cu and Mo.

3. GONIOMETER:

The goniometer should be equipped with four circle geometry. The four angles phi, omega, theta, kappa with the sphere of all axes coinciding within ten micro-meters. Resolution on each circle should be better than 0.005°.

4. OPTICS:

- (i) Monochromated beam for both Cu and Mo with enhanced x-ray source based on suitable optics
- (ii) Focusing mirror geometry is preferred to increase the flux at the sample

5. DETECTOR:

- (a) A state of the art detector (either CCD or image plate). High resolution CCD with a minimum of 1024x1024 pixels preferable
- (b) It should have a high resolution, lower dead time and higher precession with a temperature stability of ±0.05 degrees

6. COMPUTER CONTROL:

A desk top PC should be provided for all operations of the XRD with DVD-RW drive facility, >300GB HDD, >2MB RAM, 19" LCD Monitor, Windows XP/VISTA operating system. A color deskjet printer should be provided.

7. SOFTWARE:

- i) Structure determination package as required by IUCr recommendations must be provided.
- ii) Software for the control of variable temperature attachment must be provided.
- iii) Computer graphics software for display and publication meeting the requirements of crystallographic journals must be provided
- iv) Data reduction and data massaging protocols along with standard systematic error correction software must be provided
- v) All software should be provided with minimum of 5 user licenses.

8. CRYOGENICS:

Low Temperature Attachment from LN2 temperature till +490deg K. This should include all accessories like control unit, vacuum system, connecting hoses, dewar flask.

9. SPARES: The vendor should quote optionally for spare parts for operation for 2 years of continuous operation. Vendors to quote separately for spares including electronic boards for generator and control electronics for 5 years trouble free operation. Operational and Maintenance manuals should be provided.

10. SAFETY: Should confirm to Indian and International safety standards and regulations pertaining to X-ray Radiation and other hazards. Vendor to provide certificate stating the radiation dosage for the quoted model.

11. ACCESSORIES FOR WATER and POWER SUPPLY: The vendor should quote for an Indian make chiller of adequate capacity for the XRD.

12. **Warranty:** Minimum 3 years warranty should be provided.
13. **TRAINING** -Users should be given training at our site.

NOTE: THE VENDORS ARE REQUESTED TO MENTION ALL THE TECHNICAL DETAILS OF THEIR MODEL AND ALSO TO SUPPLY A LIST OF THE RECENT USERS IN INDIA.

**III. TENDER No.IISER/PUR/505/09 - 1 No.
POWDER X-RAY DIFFRACTOMETER**

Basic Powder x-ray diffractometer fully software controlled with the following specifications.

I. X-RAY GENERATOR:

- (i) Maximum output power : 3.0kW.
(ii) Maximum Voltage : 60kV
(iii) Maximum Anode Current : 45-50mA
(iv) Stability : <0.005% at 10% power fluctuation.
(v) Control : Fully controlled through software

II. X-RAY TUBE:

Cu-tube with ceramic insulation with line focus/point focus facility.

III. GONIOMETER: The goniometer should be either vertically mounted or horizontally mounted with 8-28 or 8-8 circle. The goniometer should have the following features

- (i) Scan speed 0.001 -1.27⁰ /sec or better
(ii) 2θ range 0 -180⁰ or better
(iii) Minimum step size 0.0010 or better
(iv) Resolution 0.05⁰ or better

The mounting and demounting of other accessories should not require any realignment of the goniometer. There should be provision for both transmission and reflection geometries. Capillary mode data collection attachment may also be provided as an additional attachment.

IV. OPTICS:

- (i) Variable slits to facilitate measurements from < 1° in 2θ
(ii) Both primary and secondary monochromators should be provided preferably with no loss in intensity
(iii) Focusing mirror geometry is preferred to increase the flux at the sample

V. DETECTOR:

- (i) A state of the art detector with no requirements for gas filling
(ii) Both one dimension and two dimension measurements should be possible.
(iii) It should have a high resolution, lower dead time and higher precision

VI. COMPUTER CONTROL: A desk top PC should be provided for all operations of the XRD with DVD-RW drive facility, >300GB HDD, >2MB RAM, 19" LCD Monitor, Windows XP/VISTA operating system. A color DeskJet printer should be provided.

VII. SOFTWARE:

- (i) The software should be capable of simultaneous diffractometer control, data collection and analysis, peak search, search-match, profile fitting and elaborate pattern treatment such as data smoothing, background subtraction, ka₂ stripping, etc.

- (ii) Software for profile analysis (Rietveld refinement), quantitative phase analysis, estimation of lattice constants etc should be part of the basic unit.
- (iii) All software should be provided with minimum of 5 user licenses.

VIII. OPTIONAL UPGRADABLE ACCESSORIES: The diffractometer should have the provision to take on various attachments as outlined below

- (i) Low Temperature Attachment from LN2 temperature till +450 Dc. This should include all accessories like control unit, vacuum system, connecting hoses, dewar flask
- (ii) Attachments for carrying out thin film measurements, evaluation of epitaxial growth and provision for stress/strain analysis.
- (iii) Attachments for carrying out measurements of nano sized samples
- (iv) The ICDD PDF4 database should be quoted as an option

The prices for the above optional upgradable accessories should be valid till 31.12.2010 for placement of order at a later stage. No price escalation will be allowed at a later stage.

IX. SPARES: The vendor should quote optionally for spare parts for operation for 3 years of continuous operation. Vendors to quote separately for spares including electronic boards for generator and control electronics for 5 years trouble free operation. Operational and Maintenance manuals should be provided.

X. SAFETY: Should confirm to Indian and International safety standards and regulations pertaining to X-ray Radiation and other hazards. Vendor to provide certificate stating the radiation dosage for the quoted model.

XI. ACCESSORIES FOR WATER and POWER SUPPLY: The vendor should quote for an Indian make chiller of adequate capacity for the XRD.

XII. Warranty -Minimum 3 years warranty should be provided.

XIII. TRAINING -Users should be given training at our site.

Note: The vendors are requested to mention all the technical details of their model and also to supply a list of the recent users in India.

SPECIAL CONDITIONS APPLICABLE TO ALL THE ABOVE THREE TENDERS

1. TWO PART TENDER.

PART I – TECHNICAL BID:

Consisting of all Technical details alongwith commercial terms and conditions.

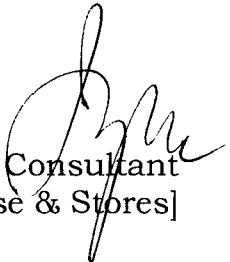
PART II – PRICE BID:

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.

2. RELOCATING THE EQUIPMENTS.

These equipments are to be initially installed at IISER Transit Campus [CET] and later, when permanent campus of IISER is ready at Vithura [40 Km from Trivandrum], these equipments are 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].


Consultant
[Purchase & Stores]

IISER-TVM
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 assessing any reason.


CONSULTANT
[PURCHASE & STORES]

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 Form16 as per VAT Rules.
13. There is no EMD or Tender Cost.


CONSULTANT
(PURCHASE & STORES)