TENDER

FOR

SUPPLY & INSTALLATION OF

INSTRUMENTS FOR CHARACTERISATION LAB

SCHOOL OF BASIC SCIENCES, IIT MANDI

Tender No.:

Tender date: 05 January 2011

Last Date of submission: 27 January 2011

Indian Institute of Technology Mandi
Mandi – 175001 (H.P)

Tel: 01905-237917/7926/7919 **email:** bindu@iitmandi.ac.in

Indian Institute of Technology (IIT) Mandi, Mandi invites tender for supply, erection, installation and commissioning, testing, demonstration and training of Synthesis and Characterisation Laboratory Equipments, as per specifications given in the Schedule attached to the Tender form annexed hereto. All offers should be made in English and should be written in both figures and words. Tender forms can be downloaded from the website (http://iitmandi.ac.in/administration/tenderseoi.html) of the Institute.

The bidders are requested to read the tender document carefully and ensure compliance with all specifications/instructions herein. Non-compliance with specifications/instructions in this document may disqualify the bidders from the tender exercise. A compliance report must be submitted along with the technical bid.

The Director, IIT Mandi, reserves the right to select certain item(s) (in single or multiple units) and reject the others or all mentioned in the Schedule and to reject any quotation wholly or partly without assigning any reason.

Incomplete tenders, amendments and additions to tender after opening or late tenders are liable to be ignored and rejected.

Terms and Conditions:

1. The technical and financial bids should be quoted separately and put in different sealed envelopes marked "**Technical bid" or "Financial bid**" as applicable. These separate bids envelopes be put in an outer envelope which should also be sealed.

2. The technical and financial bids should be submitted in duplicate. The financial bid should include the cost of main equipment/item and its accessories. If there is any separate cost for installation etc. that should be quoted separately.

3. Each individual sealed envelope as well as the outer envelope should be marked with the following reference on the top left hand corner: "**IITMANDI/SBS/TEN/2010-11/CHRLAB/2/item no.1/name of the equipment".**

4. The printed literature and catalogue/brochure giving full technical details should be included with the technical bid to verify the specifications quoted in the tender. The bidders should submit copies of suitable documents in support of their reputation, credentials and past performance.

5. The rates should be quoted in figures (typed or printed) and cutting should be avoided. The final amount should be in figures as well as in words. If there are cuttings, they should be duly initialed, failing which the bids are liable to be rejected.

6. The technical and financial bids should be addressed to "The Director, Indian Institute of Technology Mandi, Mandi-175001 (H.P)".

7. Any bids received after **4.00 p.m. on 27th January 2011** shall not be considered.

8. While sending rates, the firm shall give an undertaking to the effect that the terms/conditions mentioned in the enquiry letter/Tender Notice against which the rates are being given are acceptable to the firm. In case the firms do not give this undertaking, their rates will not be considered.

9. The quotations should be given for the items in the same order as in the enquiry letter.

10. If the supplier/firm is manufacturer/authorized dealer/sole distributor of any item, the certificate to this effect should be attached.

11. The quantity shown against each item is approximate and may vary as per demand of the Institute at the time of placing order.

12. All tender documents should have to be sent through courier, speed post or registered post only. All tender documents received after this specified date and time shall not be considered. The postal address is:

The Dean (Academics),
Indian Institute of Technology Mandi (IIT Mandi),
Academic Block (Vallabh Degree College Campus),
Mandi – 175001 (H.P)

13. In the event of any dispute or difference(s) between the vendee Institute (IIT Mandi) and the vendor(s) arising out of non-supply of material or supplies not found according to specifications or any other cause whatsoever relating to the supply or purchase order before or after the supply has been executed, shall be referred to "The Director, IIT Mandi", Mandi who may decide the matter himself or may appoint arbitrator(s) under the arbritration and conciliation Act 1996. The decision of the arbitrator shall be final and binding on both the parties.

14. The place of arbitration and the language to be used in arbitral proceedings shall be decided by the arbitrator.

15. All disputes shall be subject to Mandi Jurisdiction only.

16. All tenders in which any of the prescribed conditions is not fulfilled or any condition is putforth by the tenderer shall be summarily rejected.

The Technical bid will be opened on **January 31, 2011 at 10.30 A.M** in the Conference Room of the Academic Block. The bidders or their authorized representative may also be present during the opening of the Technical Bid, if they desire so, at their own expenses.

Price bids of only those bidders will be opened whose technical bids are found suitable by the committee appointed for the purpose. Date and time of opening of price bids will be decided after technical bids have been evaluated by the committee. Information in this regard will be posted on Institute's web site / Notice board. No separate information shall be given to individual bidders. In exceptional situation, an authorized committee may negotiate price with the qualified bidder quoting the lowest price before awarding the contract

1. **Clarifications:**

In case the bidder requires any clarification regarding the tender documents, they are requested to contact Dr. Bindu Radhamany, Assistant Professor, IIT Mandi- email ID- bindu@iitmandi.ac.in

2. **Tender Cost:**

A Demand draft of Rs.1,000/-(Rupees One Thousand only) towards non-refundable tender fee drawn in favour of "The Registrar, IIT Mandi" payable at Mandi should accompany the Technical bid document.

3. **Earnest Money Deposit (EMD):**

If the cost of the equipment/item is more than 5 lakhs, a refundable amount @ 2% of the quoted price as earnest money deposit (EMD) in the shape of DD drawn in favour of "The Registrar, IIT Mandi" payable at Mandi should accompany the Financial bid documents. Without EMD the bid will not be considered.

4. **Pre – Qualification Criteria:**

a. Bidders should be the manufacturer / authorized dealer. Letter of Authorization from original equipment manufacturer (OEM) on the same and specific to the tender should be enclosed.

b. An undertaking from the OEM is required stating that they would facilitate the bidder on a regular basis with technology/product updates and extend support for the warranty as well.

5. **Prices:**

a) The Prices quoted should be inclusive of all taxes or duties, packing, forwarding, freight, insurance, delivery and commissioning etc. at destination site (IIT Mandi, Mandi). IIT Mandi is on the course of registering with DSIR, Govt. of India and may be exempted from Custom / Excise Duty. Exemption

Certificate to this effect may be issued by IIT Mandi-Himachal Pradesh. **Hence, prices should be quoted separately inclusive and exclusive of Customs/Excise Duty.** The rates shall be firm and final. Nothing extra shall be paid on any account.

b) In case of imported equipment(s)/item(s), the agency commission, if any, payable in Indian rupees should be mentioned separately. For imported equipment, the Letter of Credit will be opened for the amount excluding agency commission in Indian Rupees. The firm should clearly mention the address of foreign bank in the financial bid.

6. **Validity:**

The bid should be valid for acceptance up to a period of 180 Days. The Bidders should be ready to extend the validity, if required.

7. **Delivery:**

The Equipment should be delivered and installed within the period as specified in the purchase order and be ready for use within 16 weeks of the issue of purchase order unless otherwise prescribed. If the bidder fails to deliver and place any or all the Equipment or perform the service by the specified date, penalty at the rate of 1% per week of the total order value subject to the maximum of 10% of total order value will be deducted.

8. **Training:**

Bidders need to provide adequate training to the nominated person of IIT Mandi at their cost. IIT Mandi will not bear any training expenditure.

9. **Warranty Declaration:**

Bidders must give the comprehensive onsite warranty as required from the date of successful installation of Equipment against any

manufacturing defects and also give the warranty declaration that "everything to be supplied by us hereunder shall be free from all defects and faults in material, workmanship and shall be of the highest quality and material of the type ordered, shall be in full conformity with the specification and shall be complete enough to carry out the experiments, as specified in the tender document."

Any deviation in the material, and the specifications from the accepted terms may liable to be rejected and the bidders need to supply all the goods in the specified form to the satisfaction / specifications specified in the order / contract and demonstrate at the their own cost.

A performance bank guarantee as 10% of the cost of the equipment for the duration of the warranty period will be taken from successful bidder.

10. **Terms of Payment:**

Payment will generally be made only after delivery and satisfactory installation, testing, commissioning etc. This must be specified in the tender/quotation.

- In case of imported supplies, payment (excluding Indian agency commission, if any) will be made through Letter of Credit.

11. **Tender expenses and documents:**

All costs incurred by the bidder in the preparation of the tender shall be at the entire expense of the bidder.

12. **Tender Evaluation Criteria:**

The technical bids will be opened on 31th January 2011. at 10:30 AM. After evaluation of the technical bid, the financial bid for only those offers which have qualified in the evaluation of technical bid will be opened.

13. **Return of EMD:**

• The earnest money of the successful bidder will be returned to them without any interest after completing the successful contract.

• The earnest money of unsuccessful bidders will be returned to them without any interest within fifteen working days after awarding the contact.

14. **Manual and documentation:**

All the manuals necessary for operating and servicing the equipment (including details of electronic circuits) will have to be provided along with the instrument.

Registrar (IIT Mandi)

BID PARTICULARS

1. Name of the Supplier :

2. Address of the Supplier :

3. Availability of demonstration of equipment: Yes / No

4. Tender cost enclosed: : Yes/No if yes

D.D. No._____ Bank_____
Amount_____

5. EMD enclosed : Yes / No if Yes

D.D. No._____ Bank_____

6. Name and address of the Officer/contact person to whom all references shall be made regarding this tender enquiry.

Name :

Address :

Telephone No. :

Fax No. :

Mobile No :

e-Mail :

Web :

Annexure- I

Item No. 1: Powder x-ray diffractometer

Qty. 01 No.

The powder x-ray diffractometer will be used for basic characterization and also detailed structural studies of various powdered, thin films, nano particles etc.

The system must combine high resolution, high power, horizontal sample mount x-ray diffractometer with fully automatic and knowledge based control system. Full range of samples like solid, liquid, and thin films will be measured. The XRD system must have the capability to configure in different modes like, High Resolution X-ray Diffraction (HR XRD), Grazing Incidence X-ray Diffraction (GIXRD), X-ray Reflectometry (XRR) and Small Angle X-ray scattering (SAXS). The system software must automate all process from the setting and aligning of the optics to sample measurement. The package should guide for the best optical configuration for each application, check the hardware setting and run automatic alignment sequences.

The XRD set up must contain the provision for horizontal sample mount with theta-theta goniometer with high resolution scanning mode with both in plane and out of plane measurement. The entire system must be provided with the following specifications:

Available input power supply- 220- 240 V one phase/ 3 phase, 50 Hz.

X-ray generator:

Maximum Rated out put	Rotating anode 9 KW or more continuous rated maximum output power
Rated Voltage	10-200 mA (in steps of 1mA)
Stability	±0.01% per 10% main variation or better (for voltage and current, within ±10 % input power variations).
X-ray tube shield	Electromagnetic Shutter interloacked with radiation enclosure
Safety Device	Abnormal cooling water, flow rate, water pressure, temperature detection, abnormal load in the generator (over load, line current, abnormal low and high voltage, emergency stop switch, leak breaker), shutter malfunction detection.
X-ray tube	Cu target rotating anode material, long line focus with Ni K_β filter.

Goniometer

The θ-θ Goniometer must hold the sample in a Horizontal and Stationary position. The θ-θ Goniometer should use Optical position sensing device for high reproducibility and accuracy with high resolution. Provision for changing from Bragg Brentano focusing optics to parallel beam optics by adapting geometry selection slit and using parabolic multilayer mirror must be a standard feature of the system.

The Goniometer should be capable of using small angle scattering measurement, thin film measurement and in-plane measurement (option) for equatorial grazing incident diffraction measurement with proper slit and accessories if required.

(1) Geometry: Vertical θ/θ (keeps sample horizontal and stationary)

(2) Scanning axis: $\theta_{Detector}$, θ_{Sample}, *T*s (tube height)

(3) Scanning mode: $\theta_{Detecto}/\theta_{Sample}$ independent or coupled

(4) Minimum step width: $\theta_{Detecto}$, θ_{Sample} 0.0001 ° or better
*T*s 0.00006 mm or better

(5) Maximum scanning speed: $\theta_{Detecto}/\theta_{Sample}$ coupled 500 °/min or better
$\theta_{Detecto}/\theta_{Sample}$ independent 250 °/min or better

(6) Scanning step: $\theta_{Detecto}/\theta_{Sample}$ coupled 0.0002 – 10 ° step (2θ)
$\theta_{Detecto}/\theta_{Sample}$ independent 0.0001 – 5 ° step

(7) Range: $\theta_{Detecto}/\theta_{Sample}$ coupled -3 – +160 ° (2θ) or more
*T*s -7 – +2.5 mm or more

(8) Goniometer radius: 300 mm

Optics

Slit exchange:

There should be automatic variable slit arrangements for incident, anti scatter and receiving slits.

Rotary Attenuator:

Should be computer controlled, programmable automatic rotary attenuator .i.e. the attenuator must be chosen automatically depending on the x-ray intensity.

Flexible soller slit system:

Incident and receiving soller slits should be provided
Parallel Slit collimator with suitable aperture

Monochromator

Curved graphite (0002)

X-ray detector and Controller

Scintillation Counter with HV/PHA computer controlled and with auto date time correction.

Standard Software

The system software engine must be on intelligence-based data collection platform which must select automatically and check right hardware configuration using hardware sensors to provide fully automatic optical and sample alignment, slit and scan condition setting and measurement. The software should also contain the following features.

Peak search, integrated intensity calculation, multiple recording of raw data files, measurement condition display and editing, data conversion to ASCII and general TEXT format with powder diffraction pattern analysis based on ICDD database (ICDD) database must be offered in option), Structure analysis software like Reitveld profile refinement software, PDXL Structure analysis academic.

Radiation enclosure

Open and close door system (with a Pb contained Acrylic Resin windows)
Lead equivalent: 0.5mm Pb equivalent
Fail Safe Function: With a CPU controlled function

Warning Light: Installed independently on the top of the radiation enclosure

(a) Spare parts kit for 2 years operation must be offered
(b) ICDD data base to be quoted optionally: PDF 2 in CD ROM ICDD Data base.

There should be provision for the below given attachments in the future

1. Ultra low temperature attachment (12 to 300 K or better)
2. GIXRD, XRR and SAXS attachments

Indigenous items required for XRD installation

(a) Closed Circuit Chilling Water System / forced air alternative.

(b) Servo Controlled Voltage Stabiliser: Single Phase with auto step down Transformer with Voltage Stabiliser.

(c) Computer with Colour Laserjet Printer must be offered.

Please quote separately

1. Option required for high resolution Rietveld analysis with software [Ge 2 and 4-Bounce monochromator, parallel beam multilayer optics]

2. Ultra low temperature attachment (12 K - 300 K) with necessary accessories like Vacuum Port and temperature controller etc.

3. High temperature attachment with necessary accessories.

Training

Users should be imparted training at our site.

- **Free installation of the XRD set up must be provided when our campus is shifted to a new place.**

- **Three years on-site extended warranty on all parts.**

- **Annual Maintenance Contract may be quoted as optional.**