

**SOPHISTICATED ANALYTICAL INSTRUMENTATION FACILITY (SAIF)**

**PANJAB UNIVERSITY, CHANDIGARH**

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**TENDER DOCUMENT FOR THE PURCHASE OF  
Field Emission Scanning Electron Microscope ( FE SEM)**

Last Date for Receipt of Tender: **March 15, 2013, 3:00 PM**

DATE & TIME OF OPENING:

**To be notified later**

**PRICE Rs. 1000/-**

## SECTION – I

### PROCEDURE FOR SUBMISSION OF BIDS

1. There will be **Two bid system** for this Tender: *Techno-Commercial bid* and *Financial bid*
2. The Techno-Commercial Bid of the Tender should be covered in one sealed cover superscribing the words “Techno-Commercial Bid”.

Likewise, the Financial Bid should also be covered in a **separate** sealed cover superscribing the words “Financial Bid”.

**The two documents viz., Techno-Commercial bid and Financial bid covers prepared as above should be enclosed in a single sealed cover marked as under:**

Tender for the supply of FE SEM

Due on ..... (last date for submission).

Name & Address of the Tenderer.....

**Note: Price should not be indicated in the Techno-Commercial bid otherwise the Tender will be rejected**

3. Tenders received after the due date will not be accepted. If the last date for submission of Tender falls on any declared holiday in the University, the next working day will be considered as the last date for the same.
4. The bids prepared by the Tenderer and all correspondence and documents relating to the bids, shall be written in English language
5. The contract for the supply of the items is non-transferable.
6. Tender/Offer should be type written, otherwise the same will be rejected
7. Each page of the tender document should be signed by the authorized signatory.
8. Each offer should be complete in all respects.
9. Telegraphic/electronic/conditional offers will not be accepted.

## SECTION – II

### TERMS AND CONDITIONS

1. **Opening of bids:** Techno-Commercial bids will be opened by the Committee after the closing date and studied. The Tenderers will be invited for presentation and clarifications if needed. Financial bids of the Tenderers complying with the prescribed Techno-commercial specifications will be opened by the Committee. Tenderers or their authorized agents may be present if they so desire during opening of the Tenders.
2. **Rejection of bids:** The Committee reserves the right to reject any or all offers without assigning any reason.
3. **EMD:** The Tender bid should accompany an EMD of Rs. 1, 00,000. The EMD should be made by means of an A/c payee DD in favor of the *Director SAIF, Panjab University, Chandigarh-160014* payable at Chandigarh. No interest is payable on EMD.
4. **Refund of EMD:** The EMD will be returned to unsuccessful Tenderer only after the Tenders are finalized. In case of successful Tenderer, it will be retained till the successful and complete installation of the equipment.
5. **CIF value and comparison of Financial bids:** CIF value up to SAIF, Panjab University, Chandigarh (*shipment by air up to Delhi and insured up to the installation site*) should be quoted. and will be considered for comparison of bids. Bids quoted in foreign currency will be converted into Indian Currency at the exchange rate applicable on the day of opening of the financial bids for comparison purposes.
6. **Warranty Period:** The warranty period should be *five years (with spares)* from the date of installation with satisfactory performance as per specifications.
7. **PBG:** Tenderer selected for supply of equipment, will have to provide Performance Bank Guarantee (PBG) on any *scheduled bank situated in India, equivalent to 10 percent of the cost of the equipment* which should be valid until the expiry of the Warranty period. The PBG will be provided by the Company along with the letter of acceptance of the order by the Principals. LC will be opened in favor of the Principals only after obtaining the PBG.
8. **Terms of Payment:** LC will be opened for the 100% value of the equipment, 90% of the amount will be released after the shipment and remaining 10% after the installation of the equipment.
9. **Delivery period :** Delivery should be made within *120 days* of opening of the LC
10. **Delayed delivery:** If the delivery is not made within the due date for any reason, the Committee will have the right to impose penalty as under::
  - i First extension for one month or part thereof @ 2%.
  - ii Second extension for an additional month or part thereof @ 3%
11. **Non delivery beyond extended period:** If the Tenderer fails to execute the order within the second extension mentioned above or mutually agreed time frame, the order will be cancelled and EMD forfeited by the Dept. He will also be liable for all damages imposed by SAIF for non supply of equipment including the liability to pay the difference between the price accepted by him and those ultimately paid by the SAIF for the equipment, Such damages will be assessed by the Committee for the purchase of FE SEM .

12. Increased statutory levies and duties above the rate quoted in the offer will not be an excuse for the Tenderer to delay the supply beyond the date specified in the Tender.
13. **Validity of rates:** Rates quoted should be valid for at least *4 months* from the closing date of the tenders.
14. **Consistent pricing:** The rates quoted for the Equipments by the supplier shall in no case exceed the lowest price at which the supplier of this Equipments of identical description made to any other person/organization/Institution during the above said period and should attach an undertaking in this regard
15. **Installation requirements:** The Supplier will clearly mention installation requirements on our part in the *Techno-Commercial bid*.
16. **Installation time:** The company must install the equipment *within a period of two months* of the date of delivery of the equipment at SAIF. Chandigarh.
17. **Free Installation:** The equipment and software should be installed and tested to the specifications *free of cost*.
18. **Supporting Equipment:** The Tenderer will provide all requisite supporting equipments like isolation transformer, step down transformer, *if needed*. We need the complete installed system.
19. **Licensed Software and its up gradation:** *Two user licenses* for analysis software should be provided. The certified/licensed software and programs should be the part of the supplies. There should be *free up gradation of software upto 5 years*
20. **Factory Acceptance Data:** Proposed acceptance criteria for the equipment should be provided by the supplier. in order to compare the performance against the quoted specifications. *Manufacturer's test certificate along with test conditions and results* is to be supplied along with the equipment.
21. Tenderers are advised to study all technical aspects and terms & Conditions, of the Tender documents. Submission of Tender shall be deemed to have been done after careful study and examination of the Tender Document with understanding of its implications.
22. **Only Manufacturers or Authorized dealers to bid:** The offering firm should clearly mention whether they are the manufacturer or authorized agent/dealer of the manufacturer. In case of agent for overseas manufacturer, a letter of authorization from the manufacturer should be submitted along with the offer. The Tenderer can also enclose the rates on the letterhead of the manufacturer if he has been authorized to do so by the manufacturer.
23. **Descriptive literature:** A set of specifications, description and illustrated literature of the equipment and related peripherals *should accompany the Techno-Commercial bid*.
24. **User and Service Manuals:** A set of User's manuals and Service manuals of the main instrument, attachments and related equipment (water chiller etc.) should be supplied with the equipment
25. **Equipment must be new:** The Tenderer must ensure that the equipment being offered is a new one and not refurbished or repaired one.
26. **Defective Equipment:** If any of the equipment supplied by the Tenderer is found to be substandard, refurbished, unmerchantable or not in a accordance with the description /specification or otherwise faulty, the committee will have the right to reject the equipment or its part. The prices of such equipment shall be refunded by the Tenderer with 18% interest if such payments for such equipment has already been made to him.

27. All damaged or unapproved goods shall be returned at suppliers cost and risk and the incidental expenses incurred thereon shall be recovered from the supplier. Defective part in equipment, if found before installation and/or during warranty period, shall be replaced within 45 days on receipt of the intimation from this office at the cost and risk of supplier including all other charges.
28. **Damage during transit:** In case of any mishappening /damage to equipment and supplies during the carriage of supplies from the origin of equipment to the installation site, the supplier has to replace it with new equipment/supplies immediately at his own risk. Supplier will settle his claim with the insurance company as per his convenience. The SAIF will not be liable to any type of losses in any form.
29. **Legal jurisdiction:** Any dispute in this regard of any term of the offer and on the supply of equipment is subject to *Chandigarh jurisdiction* only.
30. **Training** Four weeks training should be provided free of charge at the premises of SAIF out of which one week should be on equipment usage & software and three weeks in maintenance twice over a span of one year.
31. **Availability of Spares:** The Tenderer must assure the availability of spares for servicing of equipment *for at least 10 years*. Supplier should give an undertaking that spares parts will be supplied within the specified periods as and when ordered.
32. **SAIF Infrastructure:** SAIF will provide required air conditioned space, *single phase power supply* with required electricity outlets. However, a suitable anti-vibration table to be provided by the supplier with the system, free of cost.
33. **Clearance:** The Principals will do all types of clearance work to deliver the equipment at the site of installation. Department will provide all types of documentary support including Customs Duty Clearance. Principals will themselves have to procure any requisite permission from the Govt. of country of origin of equipment.
34. **Agency Commission:** Agency commission, if any, should be clearly mentioned by the Principals in the form of a certificate and will be paid in Indian Currency.
35. **Bank Charges:** Bank charges in India will be borne by the Panjab University and Bank charges abroad will be borne by the suppliers.
36. **Similar Models installed:** The Tenderer must mention in the *Techno-Commercial bid* the similar model of equipment installed in India *during the last two years* and the *addresses of contact persons at these places*.
37. **Application Specialist:** The Tenderer should mention in the *Techno-Commercial bid* the availability and *names of Application Specialist and Service Engineers* in the nearest regional office.
38. **Response Time:** The Tenderer should mention in the *Techno-Commercial bid* the response time for attending to a complaint about the equipment.
39. **Change of Indian Representatives:** The original manufacturer/Principals should give an undertaking that the aforementioned warranty and availability of spares clauses will be valid even in the case of change of their representatives in India.

## **Specifications for High Resolution FE-SEM with EDS**

Required Digital Field Emission Electron Microscope should address the various needs to investigate a wide variety of materials including biological samples and characterize their structure. The system should be advanced flexible solution for current and future research applications. It should work on 230V, 50 Hz power supply as per Indian Standards and should have 10 chamber ports for future expansion.

**Instrument should have the following specifications and configuration:**

### **1. Electron optics**

- a. Field emission Electron source
- b. Accelerating voltage: 0.1 KV to 30KV (in normal mode) and 0.1KV to 2KV (in deceleration mode) or broader range
- c. Probe current: minimum 2 nA or better
- d. Magnification: x20 to x 800,000 or better

### **2. Resolution**

Secondary electron detector resolution

- a. 1.0 nm at 15 KV
- b. 1.6 nm or better at 1 KV, with ultra low landing voltage (ie. Gentle beam or beam Deceleration or equivalent)

### **3. Detectors**

- a. Two secondary electron (SE) detectors, one in the chamber and another in column,
- b. In-Column Detector / Filter technology for low/high angle BSE & low/high Energy BSE signal imaging and also SE/BSE signal detection for pure SE, pure BSE and SE+BSE mixed signal

**4.** Ion Sputter coater with Au/Pt target assembly with accessories.

### **5. Energy Dispersive X Ray detector**

- a. Detector: 30 mm<sup>2</sup> or better LN<sub>2</sub> free Silicon Drift Detector (SDD)
- b. Detection from Beryllium to Uranium
- c. Resolution 127 eV or better
- d. **EDS Software:** Quantitative, Qualitative, Digital X-ray Mapping, Digital Line Scan & Multi-point Analysis

**6. Vacuum system:** Should be Fast, Clean and contamination free

- a. Electron gun chamber vacuum ~ 10<sup>-7</sup> Pa or better with Ion Pumps
- b. Specimen Chamber vacuum 10<sup>-4</sup> Pa or better with TMP (turbo molecular pump)
- c. Anti-contamination trap
- d. Ion Pump backup power supply unit to be quoted for trouble free operation

## **7. Stage control**

- a. 5 Axis motorized Stage
- b. X-Y = 50 mm or better
- c. Z= 1.5 to 30mm or better
- d. T=  $-5^{\circ}$  to  $+70^{\circ}$
- e. R =  $360^{\circ}$  continuous
- f. Sample size should be able to handle 100 mm diameter or more.
- g. Manual Control panel with rotary knobs
- h. Built-in Airlock specimen exchange device
- i. Cryo/ Cooling Stage to be included ( rate to be mentioned)

## **8. Computer System**

- a. Latest Branded computer and peripherals such as monitor(s) keyboard, mouse, DVD-RW, High Quality color Laser printer, 24-inch LCD display or better
- b. Ethernet ready
- c. Latest Windows OS
- d. All necessary software to operate the equipment should be included
- e. Image saving capability at 2560 x 2048 pixels or better
- f. Please mention Essential software and optional software.
- g. All the software should be licensed
- h. An additional similar computer for off line operation to be included.
- i. Both the computers to be networked

- 9.** Any additional equipment/apparatus required for basic operation of instrument such as chiller, air compressor, anti vibration mechanism etc should be quoted and supplied by principals.

## **10. Spares and Consumables**

- a. Vendors should quote separately for necessary spares & consumables required for smooth operation of instrument for 2 years optionally.
- b. Vendors should confirm spares availability of the quoted model for 12 years from the date of installation.

## **11. Warranty**

Five Years Comprehensive warranty for full system and accessories. If any spare part needs replacement during warranty period it should be supplied totally free of cost at our campus.

**12 Installation and Training**

The installation & training should be done by factory trained engineer free of cost at our campus as per terms and conditions of tender.

**13.** Compliance Certificate from principals should be provided.

**14. Options: Please quote following items optionally**

- a. STEM Detector for simultaneous imaging of both Bright Field (BF) & Dark Field (DF) imaging
- b. Spare electron gun
- c. Different types of stubs / multi stubs
- d. Plasma Cleaner
- e. 10 KVA Online UPS with 2 hrs backup
- f. Trained Manpower for five years for operation of FESEM