

	<p style="text-align: center;">INDIAN INSTITUTE OF TECHNOLOGY MADRAS Chennai 600 036</p> <p>Telephone: [044] 2257 9798/9723 FAX: [044] 2257 4774 E-mail: arpp@iitm.ac.in</p>	
---	---	---

V. Sathyanarayanan
Senior Manager (Project Purchase)

Ref: MET/SARMA/002/2018
Date: 19.12.2018

Open Tender No: MET/SARMA/002/2018

Due Date: 16th January 2019, 3pm

Pre-Bid meeting: - Not required.

Technical Bid opening meeting on 16th January 2019, 4:00 PM at Department of Metallurgical & Materials Engineering, IIT-Madras.

Dear Sir/Madam,

On behalf of the Indian Institute of Technology Madras, offers are invited for the supply of “**High Resolution FESEM-EDS-EBSD system**” conforming to the specifications given in Annexure I.

Vendor who can supply and integrate the above equipment alone need to respond to the tender please.

Instructions to the Bidder

- I. Preparation of Bids:** - The tenders should be submitted under two-bid system (i.e.) Technical bid and Financial bid.
- II. Delivery of the tender:** - The tender shall be sent to the addresses mentioned below, either by post or by courier so as to reach our office before the due date and time specified in our schedule. The offer/bid can also be dropped in the tender box on or before the due date and time specified in the schedule. The tender box is kept in the office of the:

**Senior Manager,
Project Purchase,
IC & SR Building 2nd floor,
I.I.T. Madras,
Chennai – 600 036.**

III. Opening of the tender: - The offer/bids will be opened by a committee duly constituted for this purpose. The technical bids will be opened first and will be examined by a technical committee which will decide the suitability of the bids as per our specifications and requirements. All bidders will be invited for opening of the technical bids. With respect to opening the financial bid, only technically qualified bidders will be called.

IV. Prices: - The price should be quoted in net per unit (after breakup) and must include all packing and delivery charges to the **Department of Metallurgical & Materials Engineering**. The offer/bid should be exclusive of taxes and duties. The percentage of tax & duties should be clearly indicated separately. Kindly note that IIT Madras is eligible for concessional GST and relevant certificate will be issued.

In case of import supply, the price should be quoted without custom duty. IIT Madras is exempted from levy of IGST on Imports and eligible for concessional custom duty (not exceeding 5%) and the price should be quoted on EX-WORKS and CIP basis indicating the mode of shipment.

V. Agency Commission: - Agency commission, if any, will be paid to the Indian agents in rupees after receipt of the equipment and its satisfactory installation. Agency Commission will not be paid in foreign currency under any circumstances. The details should be explicitly shown in the tender document even in the case of 'Nil' commission. The tenderer should indicate the percentage of agency commission to be paid to the Indian agent. The foreign Principal should indicate the percentage of payment and it should be included in the basic price quoted originally (if any)..

VI. Terms of Delivery: - The item should be supplied to the **Department of Metallurgical & Materials Engineering, IIT Madras** as per the Purchase Order. In case of import supply, the item should be delivered at the cost of the supplier to our Institution. The Installation/Commissioning should be completed as specified in our important conditions.

VII. Technical Bid Opening: The technical bid will be on 16th January 2019, 4:00 PM at the **Department of Metallurgical & Materials Engineering, IIT-Madras**. The financial bids of those tenders who are technically qualified will be opened at a later date under intimation to them.

VIII. IIT Madras reserves the full right to accept / reject any tender at any stage without assigning any reason.

Yours sincerely,

V. Sathyanarayanan
Senior Manager (Project Purchase)
IC&SR Building, I.I.T. Madras,
Chennai – 600 036.

SCHEDULE

Important Conditions of the tender

1. The due date for the submission of the tender is **16.01.2019, 3 pm.**

The offers / bids should be submitted in two bids systems (i.e.) Technical bid and financial bid. The Technical bid should consist of all technical details / specifications only. The Financial bid should indicate item-wise price for each item and it should contain all Commercial Terms and Conditions including Taxes, transportation, packing & forwarding, installation, guarantee, payment terms, pricing terms etc. The Technical bid and financial bid should be put in separate covers and sealed. Both the sealed covers should be put in a bigger cover. The Open Tender for supply of **“High Resolution FESEM -EDS-EBSD system”** should be written on the left side of the Outer bigger cover and sealed.

2. **EMD: - The EMD in the form of account payee DD for 2% value of the item in favor of Registrar IIT Madras should be enclosed in the cover containing financial bid.** Any offer not accompanied with the EMD shall be rejected summarily as non-responsive.

The EMD of the unsuccessful bidders shall be returned within 30 days of the end of the bid validity period. The same shall be forfeited, if the tenderers withdraw their offer after the opening during the bid validity period. The Institute shall not be liable for payment of any interest on EMD. EMD is exempted for Micro and Small Enterprises (MSE) as defined in MSE Procurement Policy issued by Department of Micro, Small and Medium Enterprises (MSME).

When no local agent, the foreign vendor can submit demand draft equal to 2% or wire transfer the amount to our account as detailed in the attachment (Annexure II) and enclose the proof with the financial bid.

3. **Performance Security: -** The successful bidder should submit Performance Security for an amount of 5% of the value of the contract/supply. The Performance Security may be furnished in the form of an Account Payee DD, FD Receipt from the commercial bank, Bank Guarantee from any nationalized bank in India. **The performance security should be furnished within 21 days from the delivery of the purchase order.**

Performance Security in the form of Bank Guarantee:- In case the successful bidder wishes to submit Performance Security in the form of Bank Guarantee, the Bank Guarantee should be routed through the Beneficiary Bank to the end user bank. Otherwise, the Indian Agent of the foreign vendor has to submit a Bank Guarantee from a Nationalized Bank of India.

The Bank Guarantee should remain valid for a period of sixty days beyond the date of completion of all contractual obligations of the supplier including the warranty obligations.

4. **Indian agent:** If an Indian agent is involved, the following documents must be enclosed:

Foreign principal's proforma invoice indicating the commission payable to the Indian Agent and nature of after-sales service to be rendered by the Indian Agent.

- ✓ Copy of the agency agreement with the foreign principal and the precise relationship between them and their mutual interest in the business.

5. The offer/bids should be sent only for a machine that is available in the market and supplied to a number of customers. A list of customers in India and abroad with details must accompany the quotations. Quotations for a prototype machine will not be accepted.
6. Original catalogue (not any photocopy) of the quoted model duly signed by the principals must accompany the quotation in the Technical bid.
7. Compliance or Confirmation report with reference to the specifications and other terms & conditions should also be obtained from the principal.
8. **Validity:** Validity of Quotation not less than 90 days from the due date of tender.
9. **Delivery Schedule:** - The tenderer should indicate clearly the time required for delivery of the item (subjected to the executive committee-IITMadras approval). In case there is any deviation in the delivery schedule, liquidated damages clause will be enforced or penalty for the delayed supply period will be levied. If there is delay, the penalty will be @1% per week of delay subject to a max of 10% of the value of purchase order and if the delay is more than accepted time frame by IITM, the PO would be cancelled and liquidated damages will be enforced.
10. **Risk Purchase Clause:-** In the event of failure of supply of the item/equipment within the stipulated delivery schedule, the purchaser has all the right to purchase the item/equipment from other sources on the total risk of the supplier under risk purchase clause.
11. **Payment:-**
 - (i) No Advance payment will be made for Indigenous purchase. However 90% Payment against Delivery and 10% after installation are agreed to wherever the installation is involved. In case of import supplies the payment will be made only through 100% Letter of Credit i.e. (90% payment will be released against shipping documents and 10% after successful installation wherever the installation is being done).
 - (ii) **Advance Payment:** No advance payment is generally admissible. In case of specific percentage of advance payment is required, the Foreign Vendor has to submit a Bank Guarantee equal to the amount of advance payment and it should be routed through the Beneficiary Bank to the end user Bank. Otherwise, the Indian Agent of the foreign vendor has to submit a Bank Guarantee through a Nationalized Bank of India.
12. **On-site Installation:** - The equipment or machinery has to be installed or commissioned by the successful bidder within 15 to 20 days from the date of receipt of the item at site of IIT Madras.
13. **Warranty/Guarantee:** - For more details please refer our Technical Specifications.
14. **Late offer:** - The offers received after the due date and time will not be considered. The Institute shall not be responsible for the late receipt of Tender on account of Postal, Courier or any other delay.
15. **Acceptance and Rejection:** - I.I.T. Madras has the right to accept the whole or any part of the Tender or portion of the quantity offered or reject it in full without assigning any reason.

16. **Do not quote the optional items or additional items unless otherwise mentioned in the Tender documents / Specifications.**

17. Disputes and Jurisdiction:

Settlement of Disputes: Any dispute, controversy or claim arising out of or in connection with this PO including any question regarding its existence, validity, breach or termination, shall in the first instance be attempted to be resolved amicably by both the Parties. If attempts for such amicable resolution fails or no decision is reached within 30 days whichever is earlier, then such disputes shall be settled by arbitration in accordance with the Arbitration and Conciliation Act, 1996. Unless the Parties agree on a sole arbitrator, within 30 days from the receipt of a written request by one Party from the other Party to so agree, the arbitral panel shall comprise of three arbitrators. In that event, the supplier will nominate one arbitrator and the Project Coordinator of IITM shall nominate an arbitrator. The Dean IC&SR will nominate the Presiding Arbitrator of the arbitral tribunal. The arbitration proceeding shall be carried out in English language. The cost of arbitration and fees of the arbitrator(s) shall be shared equally by the Parties. The seat of arbitration shall be at IC&SR IIT Madras, Chennai.

- a. **The Applicable Law:** This Purchase Order shall be construed, interpreted and governed by the Laws of India, Court at Chennai shall have exclusive jurisdiction subject to the arbitration clause.
- b. Any legal disputes arising out of any breach of contract pertaining to this tender shall be settled in the court of competent jurisdiction located within the city of Chennai in Tamil Nadu.

20. All Amendments, time extension, clarifications etc., will be uploaded on the website only and will not be published in newspapers. Bidders should regularly visit the above website to keep themselves updated. No extension in the bid due date/ time shall be considered on account of delay in receipt of any document by mail.

Acknowledgement: - It is hereby acknowledged that the tenderer has gone through all the conditions mentioned above and agrees to abide by them.

**SIGNATURE OF TENDERER
ALONG WITH SEAL OF THE
COMPANY WITH DATE**

Technical specifications for the high resolution FESEM with EDS and EBSD attachments

S. no	Features	Specification	Compliance
1	Resolution	0.7 nm or better @15 kV in high vacuum 1.1 nm or better @ 500 V in high vacuum	
2	Electron Gun	High Stability Schottky Field Emission Electron Source with automated filament cutoff safety device	
3	Magnification	Lower mag. $\times 30$ or less Higher Mag. $\times 2,000,000$ or more	
4	High Tension	Lower limit: 20V, Higher limit: 30 kV and any chosen intermediate value. All the kV settings should be varied through software	
5	Chamber	a) Chamber should have atleast 7 accessory ports, c) Infrared chamber scope (IRCCD) for real time view	
6	Stage	5 axis motorized eucentric piezo stage or equivalent type with X and Y of 100 mm or more and Z-axis = 20 mm or more, Tilt = -3° to $+70^\circ$ or better. Manual Joystick as well as software control for stage movement	
7	Sample holder	a) SEM should be able to handle at least 50 mm wafer; b) Multiple sample holder to be provided which accommodates different varying sample sizes in the range 1 mm to 20 mm or larger c) sample holder for STEM imaging	
8	Electron Optics, Lenses	The system must have magnetic/electrostatic objective/compound lens or equivalent lens assembly for high resolution imaging of ferromagnetic and other materials with working distance of 2 mm or less. The lenses should be thermally stabilized. Electron channeling contrast imaging (ECCI) should be possible with the supplied optics	
9	Lens correction	Astigmatism, wobbling, aberration correction etc. should be controllable through software as well as manual control panel for proper adjustment of focusing.	
10	Probe Current	Adjustable range from Minimum: 3pA or less and Maximum 100nA or higher Noise < 1%, Drift < 0.2%/hour	

11	Detectors	Secondary electron (SE) imaging detector or equivalent. In-lens SE detector or equivalent for high resolution imaging in high vacuum. Pneumatically retractable backscattered detector and pneumatically retractable STEM detector for BF / DF and HAADF imaging	
12	User Interface	Computer controlled user friendly interface for the smooth routine operation of microscope	
13	Display computer and software	A computer system with 24 inch or more display with latest Windows OS and all the necessary supporting software to run the FESEM and all the other accessories. The software should have function like auto-focusing, drift correction, dynamic focus, auto-contrast/brightness etc.	
14	EDS-EBSD-TKD Detectors	<p>The state of the art EDS-EBSD system should be fully integrated and should work on the same User Interface and should consist of the following:</p> <p><u>EDS detector:</u> Should be easily retractable to a safe position when not in use. Peltier cooled silicon drift detector (SDD) with pulse processor, Active detector area 30mm² or larger, energy resolution of 125eV or better at Mn K alpha. Detection of elements down to Beryllium and quantification from Boron onwards, Robust EDS detector window with Silicon nitride.</p> <p><u>EBSB-sample holder and detector:</u> Pre-tilted sample holder for EBSD Camera Speed: 3000 or higher indexed patterns per second on Ni standard at beam currents of > 2 nA, Motorized, high-precision camera slide, Touch sensor for collision prevention, Integrated Forward Scatter Detector, SEM interface for camera should contain standard features</p>	

15	EDS Software	<p>Qualitative and quantitative spectrum analysis for accurate peak identification, background subtraction and automatic peak evaluation</p> <p>Deconvolution of spectra for separate element contributions</p> <p>Quantification software must have options for ZAF or similar corrections</p> <p>User interactive qualitative and standardless quantification with K, L, M, N line database. Quantification of elements from Boron in point, Line Scan, Mapping. Real time elemental mapping with auto elemental identification, quantification based on ZAF or similar correction algorithms. Quantification of phases.</p> <p>Spectral imaging with up to 4096 x 4096 pixel resolution, online deconvolution and pseudo color mapping. Storing of spectrums at each point during mapping for online and offline analysis (1 offline license).</p> <p>Display of quantitative results as atomic and weight percentage. Color-coded concentration distributions (element maps, phase maps) for any number of elements within an arbitrary field of view.</p> <p>EBSD-TKD data collection software include state of the art features. EBSD-TKD data analysis software (with 3 offline licenses) should include state of the art features for grain size, phase, orientation, mis-orientation and texture analysis. Should have suitable materials databases for metals, alloys, intermetallics, ceramics and polymers.</p> <p>Export of results to MS® Word, Excel and pdf.</p>	
16	Calibration standard sample	Standard samples to be provided for SEM-EDS-EBSD	
17	Essential Accessories	<p>a) Vibration and noise free chiller</p> <p>b) Compressor for pneumatic systems of the microscope</p>	
18	Power supply :	All equipment should operate with 220 V, 50 Hz power supply	
19	Warranty	Warranty (from the date of full installation) for 5 years along with free software upgrades for the entire system including all the attachments	
20	Documentation	Vendor should specify the model number of the FESEM and submit the brochure that supports all the quoted specifications	

21	Operation & maintenance manuals	Soft copy of the operation & maintenance manuals should be provided	
22	Availability of spares parts	The vendor has to guarantee that all the spares parts for the offered FESEM and attachments will be available for at least next 10 years	
23	Installation & training	Onsite installation, demonstration of all specifications quoted. Training for 5 persons in the operation of the FESEM-ECCI-EDS-EBSD for 5 days	
25	Pre-installation requirement (civil& electrical EMI and gas, etc.)	Should be mentioned along with offer. Free survey of vibration and EMI at site and provide the results of the survey and the necessary modifications if required for achieving best results	
26	Buy back option	Buy-back offer for the existing Quanta 200 mK1 SEM (working condition) with Digiview 2 EBSD cameras 2 Nos (working condition), EDAX LN2 EDS detector (defective), SDD Apollo detector (defective)	
25	Optional Accessories	Sample holder for TKD and suitable detector positioning system Vibration isolation system, EMI active cancellation system Suitable UPS for 1 hour of back up	

Mandatory requirement:

Testing of the samples supplied by us to validate the specifications with respect to electron channeling contrast imaging. The above testing process is to be made accessible for the end user in person or through skype or similar web based application. It may be noted that the decision to open the financial bids will be based on the test results.

NOTE / Pre-Qualification criteria:

- A) Equipment offered must be a model from the current serial production range of the manufacturer. Customized or One off Manufactured Model will not be accepted. Offer should be supported with printed catalogue / depiction on company website.
- B) The local vendor of OEM must have supplied at least 10 FESEMs to IITs, IISERs and other Govt. of India organizations. Please attach a reference list of supplies in last 2 year with contact details (Name, Phone, email address) of users.
- C) The company or companies (for combined quotations) should be original equipment manufacturers (OEMs) of the FESEM-EDS-EBSD systems. Please attach exclusive authorization certificate(s) specific for this tender with quote without which bid will be rejected.
- D) The manufacturer must be an ISO9001 company & equipment model must be with CE compliance. Please attach relevant certificates.



CENTRE FOR INDUSTRIAL CONSULTANCY & SPONSORED RESEARCH (IC&SR)
INDIAN INSTITUTE OF TECHNOLOGY MADRAS
CHENNAI 600 036



B NAGARAJAN
JOINT REGISTRAR (IC & SR)

Project Accounts
July 22, 2016

TO WHOMSOEVER IT MAY CONCERN

In connection with project, **US currency may be transferred to CANARA BANK, IIT - MADRAS Branch** with the following details.

FOR TRANSFER OF CURRENCY US DOLLAR

Please Credit in USD

(THROUGH)

JP MORGAN CHASE, NEW YORK
SWIFT CODE: CHASUS33

For Credit to

USD ACCOUNT No: 001-1395969, of CANARA BANK INTERNATIONAL DIVISION
MUMBAI

For Further Credit to

ACCOUNT NO: 2722101001741 of IIT Chennai – Swift Code: CNRBINBBIIT
OF THE REGISTRAR, IIT, MADRAS


JOINT REGISTRAR (IC & SR) i/c.
संयुक्त कुलसचिव (आई.सी. एवं एस.आर.)
JOINT REGISTRAR (IC & SR)
आई.आई.टी. मद्रास
आई.आई.टी. मद्रास

This is to certify that the particulars furnished are correct.
For Canara Bank

Senior Manager
Canara Bank - IIT Madras branch



एस.अरवींदन
S.ARAVINDAN
सिनिअर मैनेजर Senior Manager
ए.अ.सं. S.No.31649