

	<p style="text-align: center;">INDIAN INSTITUTE OF TECHNOLOGY MADRAS Chennai 600 036</p> <p>Telephone: [044] 2257 9798/9723 FAX: [044] 2257 4154 E-mail: arpp@iitm.ac.in</p>	
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V. Sathyanarayanan
Senior Manager (Project Purchase)

Ref: CHE/ARVK/006/2019
Date: 30.01.2019

Open Tender No: CHE/ARVK/006/2019

Due Date: 20th February 2019, 3 PM

Pre-Bid meeting: - Not required.

Technical Bid opening meeting on 20th February 2019, 4:00 PM at Department of Chemical Engineering, IIT-Madras.

Dear Sir/Madam,

On behalf of the Indian Institute of Technology Madras, offers are invited for the supply of "**PE Loop Tracer**" 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 Chemical 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 Chemical 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 20th February 2019, 4:00 PM at the **Department of Chemical 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

वि. सत्यनारायणन

V. SATHYANARAYANAN

वरिष्ठ प्रबंधक (परियोजना क्रय)

SENIOR MANAGER (PROJECT PURCHASE)

आई.सी एवं एस.आर / IC & SR

आई.आई.टी. मद्रास / I.I.T.MADRAS, चेन्नै / CHENNAI-600 036

SCHEDULE

Important Conditions of the tender

1. The due date for the submission of the tender is **20.02.2019, 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 "**PE Loop Tracer**" 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:** - The offer should clearly specify the warranty or guarantee period for the machinery/equipment. Any extended warranty offered for the same has to be mentioned separately (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 on 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 contact 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

IIT-Madras is looking for PE loop tracer for studying ferroelectric bulk ceramic samples and thin films. The following technical specifications should be met, to qualify the technical bid. A detailed compliance statement should be provided and it should be supported by the manufacturer's product brochure or website. Information provided in the supplier/redistributor/vendor/reseller's brochure or website cannot be considered as supporting document. Technical bids without proper compliance statement will not be considered. The bidder should be an Original Equipment Manufacturer or their authorized vendors/dealers/partners. If vendors/dealers/partners are participating in the bidding, an authorization certificate should be provided.

A. Ferroelectric Loop Tracer Main System Specifications

1. The output of the test system must be an arbitrary waveform generator in order to produce any waveform for hysteresis, pulse, leakage, and CV tests without a hardware configuration change.
2. For best resolution and flat frequency response, the charge measurement input should operate as an electrometer over the entire test frequency from 2 MHz to 1/30th Hz.
3. The test frequency must extend from a test period of 30 seconds for accurate measurement of large area capacitors down to 10 microseconds in hysteresis for characterizing small-scale but leaky thin-film multiferroic capacitors.
4. Pulse measurements should be as narrow as 0.5 μ s or better
5. The minimum required leakage resolution is 1pA.
6. For accuracy on small area capacitors, the parasitic input capacitance must be less than 10 fF/volt.
7. The software operating the tester must be programmable and capable of executing all measurement types in an arbitrary order without configuration change.
8. Captured data must be automatically stored and easily transferred to other testers using network protocols.
9. The tester software must be adaptable to future changes in the host computer operating system.
10. The tester must be capable of capturing external sensor data synchronously with polarization measurements.
11. Should provide a suitable computer and it should be separate from the loop tracer.
12. System should not necessarily work with a dedicated sample holder. Any kind of sample should be accommodated with appropriate wirings.
13. Output Range: ± 100 V using built-in amplifiers:
 - a. 16-bit arbitrary waveform generator output
 - b. 100 points in 100 μ s
 - c. 32,000 points from 16 ms to 30 s
 - d. Pulse Widths down to 0.5 μ s and up to 1s
 - e. Controlled output ramp for maximum accuracy
14. Polarization measurement
 - a. 18 bit analog to digital converters – 76 μ V sensitivity on 10 pF C_{sense}
 - b. 0.5 μ s capture rate with 100 ns interlace facility
 - c. Polarization, output voltage, and sensor inputs captured simultaneously with no more than 10ns skew between channels
 - d. Minimum charge sensitivity - 1.0 fC or better

- e. Minimum area resolution - $0.1 \mu\text{m}^2$ or better
 - f. Maximum charge measurement - 5.0 mC or higher
 - g. Maximum area resolution - 50 cm^2 or higher
 - h. Maximum hysteresis loop frequency - 250 KHz @ $\pm 10 \text{ V}$ built-in and 50KHz @ $\pm 100\text{V}$ built-in
 - i. Minimum hysteresis loop frequency – 0.03 Hz
 - j. Hysteresis Waveforms - Mono/Arb/Sine/Tri/Double/Pulse/Zero/Custom
15. 4 communication methods with accessories, USB, GPIB, RS232, or I²C.
 16. 2 external 18-bit, $\pm 10\text{V}$ high-impedance voltage inputs for interfacing with external displacement, temperature, current, or magnetic sensors.
 17. Must execute hysteresis, remanent hysteresis, small signal CV, IV, fatigue, imprint, PUND, retention, pyroelectric, static and dynamic magnetoelectric, and piezoelectric displacement from one hardware configuration.
 18. Software should allow user to create any custom test profile, execute that profile, store the results in a permanent but unalterable database assigned to the experiment, and recall that data at any time in the future to plot or export it as commanded by the user.
 19. Must correct displacement measurements for test fixture drift and offset.

B. High Voltage Setup and Sample Holders

20. Specifications

- a. Output range $\pm 10 \text{ kV}$ with external amplifier
- b. High voltage interface unit (A critical safety feature with 4 layers of High Voltage Safety Built-in)
- c. $\pm 10\text{KV}$ should be part of the system to provide a completely insulated voltage pathway from the high voltage amplifier to the sample and back.
- d. Two sample holders – one based on TEFLON for Room Temperature to 150 deg C and other ceramic sample holder for high temperature (upto 600 deg C) measurements

C. Other Mandatory requirements

- a. The bidder should have supplied at least 20 or more such units in IITs/IISC/National labs/universities in India in the last three years. The name and contact details of the customers should be provided. IIT-Madras reserve right to inquire the bidder's customers about the prior performance on their products and services. If the quality of the product and service received, found dissatisfactory, the bidder may be disqualified under technical grounds.
- b. Should have service center in India
- c. Onsite training for operation, calibration, service and troubleshooting support should be provided
- d. Two years warranty, on all parts and labour, from the date of successful installation and acceptance test on site, free software upgradation for the life time of equipment, availability of technical personnel/application scientist and service in India.

D. Optional Items

21. Thin film probe station for thin film PE measurements



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.
செய்து கலகலிவ (आई.सी. एव 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
Senior Manager
Canara Bank - IIT Madras branch



एस. अरवींदन
S. ARAVINDAN
Senior Manager
S. N. S. P. No. 31649