

**National Centre for Nanoscience & Nanotechnology,  
University of Mumbai,  
(NCNNUM),**



National Center for Nanoscience and Nanotechnology, Ramkrishna Bajaj Sanskrut Bhavan,  
II floor ,University of Mumbai, Vidyanagari, Santacruz (E), Mumbai 400 098, India.  
Tel: (022) 2654 3495, Fax (022) 26530299 Email: director@nano.mu.ac.in

Tender Document for

**Combined Pulsed Laser Deposition cum Pulsed Electron Deposition Chamber**

No: NCNNUM/Tender/262 /2012

Date: 24<sup>th</sup> January 2012

Part A - Terms and Conditions

Part B – Specifications

Price: Rs. 500/- (non refundable)

**Important Dates:**

Period of Sale of Tender Document	24 <sup>th</sup> January till 14 <sup>th</sup> February , 2012,
Last Date of Receiving sealed Bids/Tenders:	15 <sup>th</sup> February, 2012, 1.00 pm
Time and date of Tender opening	15 <sup>th</sup> February, 2012, 4.00 pm

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**Part A - Terms and Conditions**

## Tender Notice

National Center for Nanoscience and Nanotechnology  
Ramkrishna Bajaj Sanskrut Bhavan, II floor  
University of Mumbai, Vidyanagari, Santacruz (E),  
Mumbai 400 098, India  
Tel: (022) 2654 3495, Fax (022) 26530299  
NCNNUM/262/ of 2012  
Date: 24<sup>th</sup> January 2012

Sealed Tenders / bids for the purchase of **Combined Pulsed Laser Deposition cum Pulsed Electron Deposition chamber**, for National Center for Nanoscience and Nanotechnology, University of Mumbai are invited for and on behalf of University of Mumbai by the Director, NCNNUM.

Tender Document containing terms and conditions and technical specifications of the equipment are available in the Office of the Director National Center for Nanoscience and Nanotechnology, University of Mumbai, Vidyanagari, Santacruz (E), Mumbai 400 098, on all working days between 11.00 a.m. to 4.00 p.m. from 24<sup>th</sup> January 2012, to till 4 pm of 14<sup>th</sup> February, 2012 by paying Rs.500/- (Rs. Five hundred only) in cash /Demand Draft from any Scheduled Bank/Nationalized bank, drawn in favour of **“Finance and Accounts officer, University of Mumbai”**. Terms & conditions and technical specifications can also be downloaded. In case, the tender document is downloaded from the website, the Tender Document fee of Rs. 500/- should be enclosed in the Technical Bid Envelope, in the form of a Demand Draft from any Nationalized bank, drawn in favour of **“Finance and Accounts officer, University of Mumbai”**. The tenders bids duly complete in all respects, along with the necessary documents and EMD of Rs 1, 50,000/- (Rs. One Lac fifty thousand only) should be submitted to The Director, National Center for Nanoscience and Nanotechnology, University of Mumbai on 15<sup>th</sup> February 2012 at 1.00 p.m..

The tenders / bids so received shall be opened on 15<sup>th</sup> February 2012, at 4 pm in the office of The Director, National Center for Nanoscience and Nanotechnology, University of Mumbai in the presence of the representatives of the suppliers. The names of shortlisted tenderers shall be announced on the website after scrutinizing the Technical bids and evaluating their suitability to meet the University requirements.

Right to reject any or all tenders without assigning any reason there for is reserved by the University of Mumbai.

Sd/-  
Director,  
NCNNUM,  
University of Mumbai

### **Terms and Conditions of Supply:**

1. The tender document along with terms & conditions are available for sale from 24<sup>th</sup> January 2012 to 14<sup>th</sup> February 2012 in the office of the Director, National Centre for Nanoscience and Nanotechnology, University of Mumbai, Vidyanagari, Santacruz-E, Mumbai during office hours from 11.00.am To 4.00 .pm by paying tender fee of Rs 500/- in cash or a Demand Draft by any Scheduled Bank / Nationalised bank drawn in favour of **“Finance and Accounts officer, University of Mumbai”**. **The tender fee is not refundable.**
2. The completed sealed Tender/Bid in all respect will be accepted up to 15<sup>th</sup> February 2012 at 1.00 pm in the office of Director NCNNUM, Ramkrishna Bajaj Sanskrit Bhavan, II floor Santacruz (E), Mumbai 400 098, India,
3. The received Tenders / Bids will be opened on 15<sup>th</sup> February 2012 at 4.00 pm before the Tender opening committee in presence of the tender representatives of the tenders / bidders in the office of the Director NCNNUM.
4. Tenderers /Bidders shall submit the following documents along with their tender and **be placed in the Technical Bid Envelope i.e . Envelope No. 1).**
  - (a) Income-Tax clearance certificate from the Income-Tax Officer concerned, certifying that the tenderer has cleared all the Income-Tax dues.
  - (b) Tenderers should be either manufacturer or authorized dealer of the said equipment and should submit the proof for the same. Also, the Tenderers should state whether they are a Proprietary Firm, Partnership Firm or a Private/Public Limited Company and furnish the proof of the same. If the tenderer is a partnership firm, the necessary partnership deed, disclosing the names of all partners and their interest in the firm shall be enclosed.
  - (c) Tenderer should enclose the list of names of the organizations and laboratories to which similar equipment have supplied and a certificate to the effect that the performance of the supplied equipment was satisfactory.
  - (d) The tender document must be accompanied by Earnest Money Deposit shall be Rs. 150,000/- (Rs One Lac Fifty thousand only). Earnest Money Deposit in the form of a Demand Draft drawn in favour of **“Finance and Accounts officer, University of Mumbai”** on any Scheduled/ Nationalized Bank, payable at Mumbai.
  - (e) In case, the tender document is downloaded from the website, the Tender Document fee of Rs. 500/-(Rs Five hundred only) should be enclosed in the form of a Demand Draft from any Scheduled / Nationalised Bank drawn in favour of **“Finance and Accounts officer, University of Mumbai”**
  - (f) VAT Registration No.
  - (g) Technical specifications offered by the Supplier. (h) Technical compliance table
  - (i) Proprietary certificate
  - (j) The authority to sign to tender document shall be submitted invariably by the tenderer.
5. The rates should be mentioned in the **Schedule** attached with the Tender Document. Each page of the tender shall be signed in full and stamped with the seal by the Tenderer. The Tenderer must clearly state in what capacity he or she is signing the tender **(which should be placed in the Financial Bid Envelope i.e. Envelope No.2)**
6. The Tenderer shall submit the tender in two envelopes. The first envelope (Technical Bid)

shall contain all the documents referred to in **para four above** and sealed. The second envelope (Commercial Bid) shall contain the **Schedule**, in which the Tenderer shall register the rates of equipment. The second envelope shall also, likewise, be sealed. Both the envelope then should be put together, and shall be sealed in an envelope, and shall prescribe time and date. The Technical Bid shall be opened first to ensure that Tenderer have submitted all the requisite documents. If the Technical Bids are found not in order or are deficient in some respect, the commercial bids in respect of such tenders shall not be opened. The date and time of opening the financial bids shall be announced immediately after opening all the Technical bids.

7. Tender / bids not accompanied by the requisite amount of Earnest Money Deposit are liable to be rejected.
8. The Earnest Money Deposit paid by the supplier shall be forfeited, if the supplier fails to pay the necessary security deposit in the event of his tender being accepted.
9. The amount of Security Deposit/Performance Guarantee shall be 5 % of the accepted cost. In case of successful tenderer the amount of Earnest Money Deposit shall be converted in Security Deposit/Performance Guarantee. Security Deposit/Performance Guarantee shall be refunded after the warranty period is over. The Security Deposit/Performance Guarantee can be paid in the form of Demand Draft or a Bank Guarantee from a Nationalised scheduled bank drawn in favour of **“Finance and Accounts officer, University of Mumbai”**.
10. Bidder should read carefully all the instructions and terms and conditions, etc before registering rates in the prescribed schedule of the tender. Price registering in the schedule of price to tender should be inclusive of all taxes and duties. The rate /price quoted shall be F.O.R/C.I.F Mumbai and to reach to the office of CNNUM or as directed in the order.
11. The offers made by the Tenderers shall be valid for 120 days after the last date of submission of tender.
12. **The Technical Documents shall be opened** by The Director, National Center for Nano science and Nanotechnology, **at 400 p.m. on 15<sup>th</sup> February, 2012**, for those bids for which minimum three Bidders have participated. The tenderers or their authorized representatives shall be allowed to be present at the time of opening of the tenders. Financial bids of only qualified tenderers shall be opened. The date and time of opening the financial bids shall be announced after opening and evaluating all the Technical bids.
13. In case of imported items/equipments, the rates should be quoted in the light of exemptions enjoyed by educational institutions. University is exempted from the payment of Octroi and the necessary certificate/form can be issued by the University. The customs duty applicable to the University of Mumbai is maximum 5% of the invoice.
14. Technical specifications of the instruments/equipments/articles are given in **Annexure** to these papers i.e. Part B.
15. The delivery, installation & operational training of the instruments/equipment should be completed within 3 months from placing of the order, in case of the imported equipment and within 15 days if the instrument/equipment is made in India. No extension shall be

granted to the contractors/suppliers for the period of delivery, under any circumstances.

16. If the supplier fails to deliver the article as per the delivery schedule, the University of Mumbai shall be free to procure the balance/undelivered supply, at the risk and cost of the supplier, from other such suppliers
17. The goods, articles, materials equipment supplied by the supplier shall be accepted after inspection by an officer authorized by the competent authority. No articles/materials which do not conform to the specifications laid down in the terms and conditions or damaged in transit accepted.
18. The bills of the suppliers shall be paid by the University after all the materials /articles/equipments have been received inspected and found in good condition as mentioned above.
19. **Vendor must submit Compliance statement in tabular form comparing each specification of the quoted item with that given in the Tender Document part B. The Vendor also must supply a soft copy of the Table only Microsoft in word format.**
20. **If the equipment is imported and requires PC, printer other peripherals, they can be bought from India and should be of International brand such as HP. The monitor should be LCD/TFT screen. The printer should be LaserJet printer. The processor should be Intel latest processor. The amount quoted for the items bought in India, installation; servicing etc. can be in Indian Rupees and the imported items can be quoted in foreign currency.**
21. **The warranty period shall be of Three years from the date of complete and satisfactory installation of the equipment.**
22. As the suppliers shall be responsible for the supply and installation (wherever necessary) of equipment at Mumbai, the cost towards insurance until destination in the University, shall be borne by suppliers.
23. In the event of any breach of the terms and conditions of the supply, the University of Mumbai may terminate the contract placed with the supplier, forfeit the security deposit of the supplier and make alternative arrangements for procurement of supplies at the risk and cost of supplier.
24. **Proprietary certificate, if any, should be included in the Technical bid.**
25. **The Conditional offers are liable to be summarily rejected.**
26. **Right to reject any or all tenders without assigning any reason there for is reserved by the University of Mumbai.**

## **Envelope No.1**

**National Centre for Nanoscience & Nanotechnology,  
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Tender Document for

### **Combined Pulsed Laser Deposition cum Pulsed Electron Deposition Chamber**

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Date: 24<sup>th</sup> January 2012.

### **PART B SPECIFICATIONS**

**Envelope No.2**  
**(Financial/Price Bid)**

**SCHEDULE TO TENDER**

Note:

1. Tenderers are advised to read carefully the Terms and Conditions of supply and the Instructions to the Tenderers" before recording the rates in this schedule.
2. No erasures or overwriting shall be allowed, unless they are authenticated under the full signature and the seal of the tenderer.
3. The Rates shall be FOR/CIF, at destinations/godowns/places indicated in the supply order.

Item no	Description of goods with details of specifications	Number/ quantity	Price/ Rate per Unit	Taxes	Duties	etc	Total

Total price .....

In words .....only

**Date**  
**Place**

**Signature of the Tenderer**  
**Name of the signatory on tender**  
**Seal of the Firm/Co./**



## **Specifications for Combined Pulsed Laser Deposition cum Pulsed Electron Deposition Chamber**

### **Minimum Technical Specification acceptable for a Pulsed Laser Deposition Unit:**

Maximum substrate size: multiple sizes (5 mm X 5 mm to 2" diameter)

Maximum substrate temperature: ~ 850C

PID programmable temperature controller.

Temperature uniformity: +/-1% across 2" diameter substrate

Number of target: 6

Gas flow assembly: at least 4 connections of gases (for example: O2, N2, Ar/H2, etc.)

Operating pressure range: ~ 10<sup>-7</sup> Torr to 500 mTorr

Target to substrate distance: adjustable

Proper synchronization between laser source and target, through software.

Base Pressure of main chamber: < ~ 10<sup>-7</sup> Torr

Wavelength: variable

Computer control: MFC flow rate, turbo pump, target rotation, target rastering, target indexing, laser function, substrate temperature, etc.

**Laser: Excimer laser with 400mJ @248 nm**

**Power : ≥ 7 watt**

The laser should be air cooled and should run on single phase power supply.

Repetition rate: 20 Hz

Pulse to Pulse stability: +/-1%

An internal laser pulse energy monitor and control for stable energy operation.

A necessary integrated vacuum pump (oil free) and halogen gas filters

Beam divergence: 3x 1 mrad

Beam Dimension: 24 x 10mm

Laser Tube: Metal Ceramic technology.

**Quote for system with high energy of 700mJ, 50 Hz, 30W laser as an alternative with necessary accessories like chiller etc.**

All gases (premix configuration) required for the operation should be quoted together with gas regulators for the proposed system .Supplier should clearly indicate the purity and quantity of each type of gas.

Include: all kinds of spares for maintaining the system.

**Minimum technical specification acceptable for a Pulsed Electron deposition Unit:**

PEBS source should be integrated to the Pulsed deposition unit.

PEBS source with power supply, electronic control package computer control with preinstalled software.

Input voltage 230 v, 50/60 Hz, single phase.

PEBS source should be a top mount assembly

Beam cross section variation, up to 20%

Energy of electrons 8-20 kV

Operating pressure: 5-20 mTorr

Single pulse energy 0.1 -0.8 Joules

Equipment should be guaranteed for a trouble free performance at the purchaser laboratory at least for a period of one year from the date of commissioning of the equipment.

All Technical literature /catalogs of various systems should accompany the quotation. All the documents should be in English .

A list of references in India, where similar systems have been installed, must be provided

Proprietary Certificate, if available should be provided along with the offer.

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