

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



National Center for Nanosciences and Nanotechnology, University of Mumbai, (NCNNUM),
New Building, Near Examination House, Vidyanagari, Santacruz (E), Mumbai 400 098, India.

Tel: +91 22 2653 0299 / +91 22 2654 3574, Email: director@nano.mu.ac.in

Tender Document for

**Supply of Accelerator Mass Spectrometry (AMS) facility with special
emphasis on carbon dating based on 500 keV Tandem Ion Accelerator.**

No: NCNNUM / Tender/ 422 / 10 / 2014

Date: 25th September, 2014

Part A - Terms and Conditions

Part B – Specifications

Price: Rs. 500/- (non refundable)

Important Dates:

Last date of Sale of Tender Document:	15th October, 2014, 4 pm
Last Date of Receiving sealed Bids:	15th October, 2014, 5 pm
Technical Bid opening (if minimum three bids are received):	18th October 2014, 11 am
First extension of two weeks starts, if less than three bids received in the first extension:	16th October, 2014
Last date of the first extension. (Opening of Technical Bids on the next working day, if three bids received):	30th October, 2014, 5 pm
Second extension of two weeks starts, if less than three bids received in the first extension:	1st November, 2014,
Last date of the second extension (Opening of Technical on the next working day, even if less than three bids are received):	15th November, 2014, 5 pm

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Part A - Terms and Conditions

Tender Notice

National Center for Nanosciences and Nanotechnology, University of Mumbai, (NCNNUM),
New Building, Near Examination House, Vidyanagari, Santacruz (E), Mumbai 400 098, India.

Tel: +91 22 2653 0299 / +91 22 2654 3574, Email: director@nano.mu.ac.in

NCNNUM/ 422 / of 2014

Date: 25th September, 2014

Sealed Tender bids for the **Supply of Accelerator Mass Spectrometry (AMS) facility with special emphasis on carbon dating based on 500 keV Tandem Ion Accelerator** for National Center for Nanoscience and Nanotechnology, University of Mumbai are invited for and on behalf of University of Mumbai by the Director, NCNNUM. Following schedule shall be maintained for various processes.

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Tender Document containing terms and conditions and technical specifications are available in the Office of the National Center for Nanoscience and Nanotechnology, University of Mumbai, on all working days between 11:00 am & 4:00 pm from 25th September 2014 to 15th October 2014. 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 drawn in favor of **“Finance and Accounts officer, University of Mumbai. (Kindly write your company name, instrument name and tender reference number on back of Demand Draft for Tender Fee).** The tender bids duly complete in all respects, along with the necessary documents should be submitted to: The Director, National Center for Nanosciences and Nanotechnology, University of Mumbai (NCCNUM). The technical bids so received, shall be opened in the office of The Director, (NCNNUM) in the presence of the representatives of the suppliers. Right to reject any or all tenders, without assigning any reason thereof is reserved by the NCNNUM, University of Mumbai.

Sd/-
Director, NCNNUM,

Terms and Conditions of Supply

1. Tenders from original manufacturers or their accredited suppliers will only be accepted.
2. The last date and time for the acceptance of the bids is as follows:

Last Date of Receiving sealed Bids:	15th October, 2014, 5 pm
Last date of Receiving sealed Bids in the case of the first extension:	30th October, 2014, 5 pm
Last date of Receiving sealed Bids in the case of the second extension:	15th November, 2014, 5 pm

3. Suppliers shall submit the following documents along with their quotations (**which should 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. Copies of Income Tax returns shall be applicable.
 - (b) Suppliers should be either manufacturer or authorized dealer of the said equipment and should submit the proof for the same. Also, the suppliers should state whether they are a Proprietary Firm, Partnership Firm or a Private/Public Limited Company and furnish the proof of the same.
 - (c) The names of the organizations and laboratories for which similar work carried out.
 - (d) Earnest Money Deposit in the form of a Demand Draft drawn in favor of **“Finance and Accounts officer, University of Mumbai”** on any Nationalized Bank, payable at Mumbai. Alternately, BG from a Nationalized Bank only may be acceptable. The amount of Earnest Money Deposit shall be ₹ 2,00,000/- (₹ Two lakh only). **Kindly write your company name, instrument name and tender reference number on back of Demand Draft for EMD.**
 - (e) In case, the tender document is downloaded from the website, the Tender Document fee of ₹ 500/- should be enclosed in the form of a Demand Draft drawn in favor 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, if any, should be included in the Technical bid
4. 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 supplier. The supplier must clearly state in what capacity he or she is signing the tender. **The rates / price should be inclusive of all machinery cost on CIF Mumbai basis, installation cost and the training. The item wise break up of cost should also be given.** The bidders

should quote tender without deviation, without any overwriting and duly signed & stamped on all pages. The supplier should send their techno-commercial representatives for the discussion with the NCNNUM appointed committee. The representative should be empowered to take financial decision on the spot.(which should be placed in the **Financial Bid Envelope, i.e. Envelope No. 2)**

5. The supplier shall submit the tender in two envelopes. The first envelope (Technical Bid) shall contain all the documents referred to in **para three above** and sealed. The second envelope (Commercial Bid) shall contain the **Schedule**, in which the supplier shall register the rates of supply. 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 supplier have submitted all the requisite documents. If the Technical Bids are 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.
6. Tender bids not accompanied by the requisite amount of Earnest Money Deposit are liable to be rejected
7. 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.
8.
 - a). Confirmation of full technical details as given Part-B of the AMS facility should be submitted for technical evaluation. There must be proper technical information along with the details. Required Area for the complete AMS System (Two Ion Source systems including safety cages, Tandem Accelerator, analyzing system, chamber, detectors etc.) should be mentioned clearly with drawing/schematic layout of the quoted system.
 - b) No deviation from technical specifications mentioned in the bid is acceptable.
 - c) Entire copy of Tender Document should be signed on each page & stamped by the bidder.
 - d) List should be provided of Reputed Ion Accelerator Laboratories (with address, contact details and year of supply) where similar tandem accelerators based AMS systems are supplied in last 5 years.
 - e) List should be provided of Institutes/Laboratories/Centers in India where Tandem Accelerators are installed successfully.

f) The supplier should provide technical specifications of all the components of the system like Ion Sources, Electrostatic spherical analyzers, injection systems for two separate ion sources, Details of bouncing system, Complete details of all the magnets (magnetic rigidity, power supplies, field measurements etc.) used in the system, Faraday cups (mentioning their numbers and locations), Beam Profile monitors (mentioning their numbers and locations), Offset Faraday cups (mentioning their numbers and locations) , Beam optic elements like quadrupoles, beam steers etc., Complete ion beam optics and ion beam transmissions at different positions, Different types of vacuum pumps, valves and their locations, SF₆ gas handling system, Details of control systems for the complete AMS facility with hardware and software, Ion accelerator details with its operational and control devices, Analyzing system with accelerator terminal potential control system, Details of Beam detection system design, operation and different detectors used and data accumulation software etc.. The system should be fully automated for control and multi samples measurements. Complete details of all the parts of AMS system should be submitted.

9. The amount of Security Deposit/Performance Guarantee shall be 5 % of the cost. 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 a Bank Guarantee from a scheduled bank.
10. Supplier should read carefully all the instructions and terms and conditions, etc before registering rates in prescribed schedule of the tender. Taxes and duties etc, should be shown separately.
11. The offers made by the suppliers shall be open for acceptance within 90 days after the last date of submission of tender.
12. **The Technical Documents shall be opened** by The Director, National Center for Nanosciences and Nanotechnology as per the schedule shown above. The tenderers or their authorized representatives will 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 communicated after the technical bids are opened in due course.
13. In case of imported items/equipment, 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.
14. Technical specifications of the instruments/equipment/articles are given in Annexure to

these papers (Part B).

15. The delivery, installation of the works should be as per the terms and conditions mentioned in the order. No extension shall be granted to the contractors/suppliers for the period of delivery, under any circumstances. All drawings to be approved by NCNNUM. No change is allowed without written permission.
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 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. Before tendering, the tenderer shall inspect the site to fully acquaint himself with the condition in regard to accessibility of site, working condition of site and locality including unloading of materials, installation of tools and plants, etc., required for the satisfactory execution of the work contract. No separate claim whatsoever on these accounts shall be entertained by the University of Mumbai. No claim for expenses incurred in the site visit will be entertained by the University of Mumbai
19. The bills of suppliers shall be paid by the University only after the complete installation of system as per the stated specification in the tender documents and certified test reports are submitted
20. Only those contractors who can execute the complete project including all the optional accessories shall submit their bids. Bids received for part work shall not be considered. Tenderers of the **“Supply of Accelerator Mass Spectrometry (AMS) Facility with special emphasis on carbon dating based on 500 KV Tandem Ion Accelerator”**, should provide the entire equipment as described in part B, and will be responsible for the design, development and installation of the complete instrument.
21. Missing of any required or any of the optional accessories / features / modules of the system will disqualify the vendor from technical bid and commercial bid.
22. The vendor must assume responsibility for any damage to equipment during the shipping process or unloading to NCNNUM

23. 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 in Microsoft word format.
24. 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.
25. The warranty period shall be of 1 year from the date of complete and satisfactory installation of the system.
26. As the suppliers shall be responsible for the supply and installation of equipment at Mumbai, the cost towards insurance until destination in the University, shall be borne by suppliers.
27. The vendor has to provide clear compliance statement with respect to the specifications given in the tender document and fully supported by the manufacturer's original literature and part numbers. Any other claims will not be accepted and may lead to the rejection of the bid. It is mandatory to specify the part numbers of the quoted items along with the technical offer without which the subject offer would be liable for rejection.
28. 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 and forfeit the security deposit of the supplier.
29. **Escalation:** No cost escalation over and above items rates quoted by the bidder will be entertained.
30. **Completion time:** The time shall be the essence of this contract and entire work as titled above is to be completed in all respects within a period **of 14 months** from the date of issue of letter of intent (LOI) /purchase order by the centre. Under the force majeure conditions or delay due to reasons beyond control of the contractor, NCNNUM may grant suitable time extension for which the contractor has to request along with the justification/ reasons well in advance to the Director, NCNNUM for approval without any prejudice to price escalation. The decision of the Director, NCNNUM will be final and binding on the bidder/contractor. Any further delay after sanctioned extension

in completing the work for reasons attributable to the Contractor is liable for liquidated damages as per clause 34 of this Tender document.

31. **Scope of Supply:** Detailed scope of supply, additional terms and conditions, technical specifications etc. are enclosed with part-B of this tender document
32. **Deviations:** No deviation from the stipulated terms and conditions will be allowed. Tenders should be unconditional. Any deviation from the technical specifications and tender condition shall be mentioned in the technical bid separately.
33. **Correspondence:** All the correspondence in respect of tender / contractual obligation shall be made to The Director, National Center for Nanosciences and Nanotechnology, University of Mumbai, (NCNNUM), New Building, Near Examination House, Vidyanagari, Santacruz (E), Mumbai 400 098, India.
34. **Liquidated damages:** In case the supply/installation is delayed beyond the specified completion period for reasons attributable to the supplier, deductions on account of Liquidated damages @ 0.5% of the contract value per month will be deducted subject to a maximum of 5% of the total works.
35. The training of NCNNUM and/or TIFR personnel in factory premises for operation, maintenance and application purpose are to be provided.
36. The equipment will be shipped after pre inspection and after successful performance test at factory by NCNNUM and/or TIFR personnel.
37. The system should be able to measure ^{12}C , ^{13}C and ^{14}C so -that $^{13}\text{C}/^{12}\text{C}$, $^{14}\text{C}/^{12}\text{C}$ and $^{14}\text{C}/^{13}\text{C}$ ratios can be determined.
38. The precision for $^{14}\text{C}/^{13}\text{C}$, $^{13}\text{C}/^{12}\text{C}$ measurements has to be better than 0.3% for modern carbon for acceptance of the system by NCNNUM.
39. The technical bid should provide complete beam optics, beam transmission at different stages of the accelerator system.
40. Additionally, to provide capability to measure ^{10}Be and ^{26}Al with precision better than 3% for $^{10}\text{Be}/^9\text{Be}$ and $^{26}\text{Al}/^{27}\text{Al}$, additional items required should be shown as optional items.
41. Any dispute arising out of this contract will be subjected to jurisdiction at Mumbai,

India.

42. Right to reject any or all tenders without assigning any reason there for is reserved by the NCNNUM, University of Mumbai. The decision of the Centre in this regard will be binding on all the bidders. Tenders not complying with any of the provisions stated in this tender document are liable to be rejected.

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, at destinations/godown/places indicated in the delivery

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

Signature of the Tenderer

Date:

Seal of the Firm

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Part B – Specifications

Technical Specifications for Supply of Accelerator Mass Spectrometry (AMS) facility with special emphasis on carbon dating based on 500 keV Tandem Ion Accelerator.

National Centre for Nanosciences and Nanotechnology, University of Mumbai, Mumbai, India is in the process of setting up an Accelerator Mass Spectrometry (AMS) facility for ^{14}C measurements. The accelerator should consist of 500kV Tandem ion accelerator for setting up an AMS facility in its existing laboratory complex. The AMS system should be complete in all respects, fully automated including all hardware, software, control systems, data acquisition, data analysis, with hardware and software interlocks etc. It should be able to measure ^{12}C , ^{13}C , ^{14}C as per following requirements:

1. Complete 500 kV Tandem Ion Accelerator with SF_6 gas insulating system with capability to perform measurements of individual isotopes of C (optionally with a possibility of Be and Al).
2. Possibility to have an injector system installed with two separate Ion sources simultaneously each having capability to hold (i) 30 to 50 sample cathodes (ii) 100 to 200 sample cathodes.
3. Ion Sources with necessary hardware for solid cathodes, having options for using gas cathode should be given separately.
4. All other necessary components details of the system like Ion Sources, Electrostatic spherical analyzers, injection systems for two separate ion sources, Details of bouncing system. Complete details of all the magnets (magnetic rigidity, power supplies, field measurements etc.) used in the system, Faraday cups (mentioning their numbers and locations), Beam Profile monitors (mentioning their numbers and locations) , Offset Faraday cups (mentioning their numbers and locations) , Beam optic elements like quadrupoles, beam steers etc., Complete ion beam optics and ion beam transmissions at different positions, Different types of vacuum pumps, valves and their locations, SF_6 gas handling system. Details of control systems for the complete AMS facility with hardware and software, Ion accelerator details with its operational and control devices, Analyzing system with accelerator terminal potential control system, Details of Beam detection system design, operation and different detectors used and data accumulation software etc.
5. The system should be fully automated for control and multi samples measurements. Complete details of all the parts of AMS system should be submitted.
6. The dimension of the complete system (from two separate ion source stations to, end analysis chamber with detectors) should be within the existing available space of 9m x 7m.
7. The system should be able to measure ^{12}C , ^{13}C and ^{14}C so that $^{13}\text{C}/^{12}\text{C}$, $^{14}\text{C}/^{12}\text{C}$ and $^{14}\text{C}/^{13}\text{C}$ ratios can be determined. The precision for $^{14}\text{C}/^{13}\text{C}$, $^{13}\text{C}/^{12}\text{C}$ measurements should be better than 0.3% for modern carbon.
8. A sketch showing the complete system with outer dimensions (length x breadth) and list of major components should be given in the bid. The layout of the accelerator and the user line should be provided so as to optimize the usage and beam optics for the primary carbon

dating setup and future expansions.

9. The technical bid shall include an international and national client list and the supplier should have a proven track record of supplying similar tandem machines to government laboratories in India.
10. The equipment shall be shipped after pre-inspection, training and successful performance test at the manufacturer's site in the presence of NCNNUM and/or TIFR personnel. The acceptance test must be performed after installation at NCNNUM.

Additional Terms and Conditions:

1. The bidder/supplier should have supplied tandem ion accelerator to other government laboratories of India and the offer should accompany the list of customers.
2. **Delivery period:** The supplier should be able to supply the item within 14 months after receiving the order. The installation, commissioning and acceptance of AMS facility should be completed within next six months after its arrival at National Centre for Nanosciences and Nanotechnology, University of Mumbai, site.
3. Operational and maintenance manuals of all the systems, wiring diagram, drawings, lists of components and systems with complete details in print and in softcopy should accompany the supply of AMS facility. The manuals for all the items purchased by the supplier from its other equipment suppliers should also be supplied along the machine.
4. The supplier will test the machine after manufacturing at its own site before shipment and will provide radiation survey report of the machine after beam testing for necessary clearances required for the installation of machine at National Centre for Nanosciences and Nanotechnology, University of Mumbai.
5. The supplier will also supply along the machine all necessary standards materials required for calibration and testing of AMS system for all the beams to be accelerated. Details of the tests for the acceptance of AMS facility at National Centre for Nanosciences and Nanotechnology, University of Mumbai, should be given in technical bid.
6. Additionally, to provide capability to measure ^{10}Be and ^{26}Al with precision better than 3% for $^{10}\text{Be}/^9\text{Be}$ and $^{26}\text{Al}/^{27}\text{Al}$, additional items required should be shown as optional items.
7. The technical quote should provide details of infrastructure required in terms of air conditioning, compressed air, electrical power, uninterrupted power and water requirements. However the drawings of facilities and utilities requirements for the AMS facility should be provided within 90 days of the placement of order.
8. The supplier will ship the machine after satisfactory testing in its factory and will demonstrate an acceptance test for the performance of the machine as per the specifications of the tender document.

9. The price should be item/section wise and prices should be valid for 3 months. No cost escalation
10. The price should be total C.I.P. National Centre for Nanosciences and Nanotechnology, University of Mumbai and include all charges related to insurance, delivery, training, installation and acceptance test of AMS system at National Centre for Nanosciences and Nanotechnology, University of Mumbai.
11. The items supplied must have warranty for a period of 12 months after installation. Pre-dispatch checks and tests will be carried out in presence of National Centre for Nanosciences and Nanotechnology, University of Mumbai, and/or TIFR personnel.
12. A detailed list of suggested spare parts required for 3 years operation after installation along with their prices should be given.

Annexure 'A' – Format for submitting un-priced BOQ along with technical bid

Tender No NCNUM / Tender/ 422 / 10 / 2014

S No.	Description	Qty	Make / Model

Signature of the Tenderer

Date:

Seal of the Firm

Annexure ‘B’ – Format for submitting compliance/response of bidder

NCNNUM / Tender/ 422 / 10 / 2014

With reference to the technical details described in different sections of Part B, the bidder shall provide their compliance/response as below format. It should be clear that all the required and optional features must be clearly mentioned.

If the tenderer specification has **any deviations** from the specifications or details provided in any of the sections described in Part B needs to be clearly specified in the above table.

- Signature of the Tenderer**
- Date:**
- Seal of the Firm**