

December 31, 2018

## To Whom It May Concern

Limited Tender for Plasma Cleaner System for TEM sample and Sample holder at CeNSE, IISc.

This is an RFQ (Request for Quote) for procurement of a Plasma Cleaner System for TEM sample and Sample holder as part of an open tender for the Centre for Nano Science and Engineering (CeNSE) at IISc, Bangalore.

CeNSE is a multidisciplinary research department at IISc that houses a 14,000 sq. ft. cleanroom and characterization facility used by 50 faculty members from various disciplines at IISc. CeNSE also a user-facility, which has hosted over 6000 participants from more than 700 universities and institutes all over the world. Consequently, any tool in CeNSE receives significant exposure to scientific community in India and beyond. The vendors are requested to factor in the value of this exposure in to their quotes.

Being a user-facility puts additional technical burden on the tool. We need a tool that can tolerate heavy usage (at least 20 hours/week), has a high uptime, can be serviced and maintained for the foreseeable future (at least 5 years), and has a track record of reliability at comparable facilities in India and abroad. Details of existing facilities and the user program can be gleaned from:

<http://nnfc.cense.iisc.ac.in/>

<http://www.mncf.cense.iisc.ac.in/>

<https://www.inup.cense.iisc.ac.in/>

Also, CeNSE hosts equipment on behalf of vendors, as a national standard or 'model' system. If the vendor is interested, CeNSE can consider working out a similar arrangement for the lifetime system.

### Procedure

1. Vendors will be required to submit a technical proposal and a commercial proposal in **two separate sealed envelopes**. Quotes in violation of this will be rejected.
2. **The deadline for submission of proposals is the 15th<sup>th</sup> of January 2019, 5:30 pm Indian Standard Time.** Proposals should arrive at the Main office, GF-15, Centre for Nano Science and Engineering, Indian Institute of Science, Bangalore 560012, India, by the above deadline.
3. The decision of the purchase committee is final.
4. The technical proposal should contain
  - a. Relevant technical datasheets. The committee reserves the right to cross-check the information in these datasheets with publicly available information.
  - b. A compliance table with 5 columns. The first column must list the technical requirement, in the order that they are given in the technical configuration below. The second column should describe the capability of the tool for that specific requirement. In case the technical requirement is a question, second column must provide a technical answer. Please be quantitative and consistent with the technical datasheets. Third column must specify whether the technical requirement is met with a "Yes", "No", or "Partially". If the response is "Partially" or "No" the third column, the fourth column must explain the extent of the deviation and, if possible, the reasons for the deviation. The fifth column is for other "Remarks". You can use it to compare your tool with that of your competitors or provide more details/justifications.

- c. Technical capabilities of any *suggested* accessories/add-ons that may enhance the usability, capability, accuracy or reliability of the tool. Vendors are encouraged to quote for as many add-ons as their tool portfolio permits.
- d. Any additional capabilities or technical details that you would like to bring to the attention of the purchase committee. Vendors are encouraged to highlight the advantages of their tools over comparable tools from the competitors

5. The technical proposal will be evaluated against the technical requirement. Only vendors who meet the technical requirement will be considered for the commercial negotiation.

6. If multiple systems fulfill the requirements, vendors can offer multiple bids.

7. The commercial bid must contain:

- a. Itemized cost of the system and *required* accessories, such as software, power supply, etc.
- b. Itemized cost, as an option, for any *suggested* accessories/add-ons that may enhance the usability, capability, accuracy or reliability of the tool. Vendors are encouraged to quote for as many add-ons as their tool portfolio permits.
- c. The quotes should be CIF Bangalore, India. So please include cost of shipping to Bangalore. The quote does not need to account for Customs duties.
- d. Please indicate the warranty provided with the tool. Warrant of 3 years or more is preferred.
- e. Provide itemized cost for *required/expected* spares for 3 years of operation. For sake of this calculation, the vendor may assume active tool usage of 20 hours/week. This number will be used to estimate the life cycle cost of the tool.
- f. The cost of annual maintenance contract. The details of AMC are given below. This number will be used to estimate the life cycle cost of the tool.
- g. Length of time that the tools will be supported with service and spares from the date of installation. Our requirement is that the tools be supported for at least 5 years from the date of installation. To quote lowest price, vendors often quote for obsolete or soon-to-be obsolete equipment. This is NOT acceptable. For a user-facility like CeNSE, it is vital that the equipment be serviceable and supported for the foreseeable future. The length of guaranteed support will be used to estimate the life-cycles cost of the tool.

8. As an additional option, provide cost of an annual maintenance contract (AMC) for 3 years, post warranty. The AMC must

- a. cover 1 scheduled and 1 emergency visit per year;
- b. The emergency visit should be supported with a 48-hour response window.
- c. clarify if maintenance will be done by a trained local (within India) engineer or a specialist from the OEM.
- d. include an itemized list of spares (e.g. maintenance kits) that are essential for scheduled visits;

9. The commercial bids will be evaluated based on life-cycle cost of the tool. This includes the cost of purchase, maintenance, spares, etc.

10. The RFQ must include references of 3 previous installations, preferably in India. Please provide the names and contact addresses of the referees, so that the committee can contact them independently.

11. We encourage vendors to give technical presentations, physically or over Skype, so that we can better understand the technical capabilities of their tools and vendors can better understand the requirements. To schedule the presentations, the vendors can contact Dr. Suresha S J, GF-12, Centre

for Nano Science and Engineering, Indian Institute of Science, Bangalore 560012, India.  
[sureshasj@iisc.ac.in](mailto:sureshasj@iisc.ac.in).

Any technical questions can be directed to Dr. Suresha S J, GF-12, Centre for Nano Science and Engineering, Indian Institute of Science, Bangalore 560012, India. ([sureshasj@iisc.ac.in](mailto:sureshasj@iisc.ac.in)).

### Technical Requirements

1.	Primary application	<p>The Plasma Cleaner should be capable of cleaning TEM Samples, Carbon Coated Grids as well as TEM Holders.</p> <ul style="list-style-type: none"> <li>• Remove existing carbonaceous debris from the specimen and prevents contamination occurring during imaging and analysis</li> <li>• TEM Samples and carbon coated grids: 3mm dia.</li> <li>• 3mm dia samples will be placed in 25 mm arm of the TEM holder</li> <li>• Two ports shall be available to accept all side entry TEM holders.</li> <li>• A large port shall be available for cleaning of irregular samples, SEM stubs and other parts that may affect the performance in an electron column instrument</li> </ul>
2.	Secondary application	<p>Plasma Cleaner should have Integrated holder bake out and storage feature</p> <ul style="list-style-type: none"> <li>• Plasma cleaning a sample and holder prior to insertion in the microscope can also prevent hydrocarbon contamination from being introduced into the microscope from the sample or holder.</li> </ul>
3.	Power	<ul style="list-style-type: none"> <li>• The system should have 2 to 75 Watt RF Source at 13.56 MHz</li> </ul>
4.	Vacuum	<ul style="list-style-type: none"> <li>• Vacuum pumping system shall consist of a diaphragm pumping stack backing turbo molecular pump</li> <li>• The pumping system shall pump down to high vacuum in less than two minutes after loading samples, TEM Holders or any other samples for sample cleaning.</li> <li>• Base pressure: <math>10^{-6}</math> torr or better</li> </ul>
5.	Gas	<ul style="list-style-type: none"> <li>• Gas flow controller shall be used</li> <li>• The system shall support a minimum of two gases; these should include Argon and Oxygen</li> <li>• Should be capable of cleaning with minimal plasma damage.</li> <li>• Should be capable to clean holey carbon grids without damaging them. Data supporting this should be included along with the offer.</li> </ul>
6.	Flow rate	<ul style="list-style-type: none"> <li>• The gas flow should be controlled using MFCs</li> <li>• Gas Flow Rate: Typical flow gas rates used should be between 1 sccm to 50 sccm and MFCs should be able to handle 1sccm to 50 sccm</li> </ul>
7.	Frequency	<ul style="list-style-type: none"> <li>• 13.56 MHz</li> </ul>

8.	Dimensions	<ul style="list-style-type: none"> <li>3mm dia samples will be placed in 25 mm arm of the TEM holder</li> <li>Two ports shall be available to accept all side entry TEM holders.</li> <li>A large port shall be available for cleaning of irregular samples, SEM stubs and other parts that may affect the performance in an electron column instrument</li> </ul>
9.	Power Supply	230 V, 50 Hz, Single phase
10.	Warranty	<ul style="list-style-type: none"> <li>Minimum of 2 years</li> <li>The Supplier should be able to provide after-sales support on site for at least five years by the factory trained engineers. Provide the address in India where after sales support can be provided during the next five years. Also, the supplier should provide uninterrupted supply of spares and accessories for a period of 10 years after warranty.</li> </ul>
11.	Safety	<ul style="list-style-type: none"> <li>Mention any special safety requirement of the tool</li> <li>The tool must come with a complement of interlocks to prevent common user errors.</li> </ul>
12.	Recommendation	<ul style="list-style-type: none"> <li>The system must submit references from at least 3 previous installations</li> <li>The names and contact addresses of the referees must be submitted with the proposal, so the purchase committee can contact them independently.</li> </ul>
13.	Footprint & weight	<ul style="list-style-type: none"> <li>Please specify the total footprint in cm x cm, and weight.</li> <li>All site requirements must be clearly mentioned.</li> </ul>
14	Periodic Maintenance	<ul style="list-style-type: none"> <li>The system should require minimal maintenance.</li> <li>Mention the recommended preventive maintenance schedule for the system. Any accessories needed for periodic preventive maintenance for 3 years e.g. O-rings, should be mentioned in separately the itemized quote.</li> <li>Can the preventive maintenance be done by a trained on-site engineer or requires a specialist from the OEM?</li> </ul> <p>The system should be supported by a trained local representative and should have a 48hour window of response</p>
15	Installation and Training	<ul style="list-style-type: none"> <li>Installation and training at customer site, by the experts should be part of the package.</li> <li>During the installation all the specifications of the processes should be verified for acceptance by the customer.</li> <li>Pre-installation requirements such as room size, tolerable limits of vibration (mechanical), required power rating, utility requirements are to be stated clearly, and to be verified/surveyed by the supplier at the installation site. It is the supplier's responsibility to clearly provide details of the above-mentioned requirements before delivery of the equipment.</li> </ul> <p>The operator should be not only trained in operating but also know the installation requirements for smooth uninterrupted functioning of the plasma cleaner</p>

16	Power & utilities	<ul style="list-style-type: none"> <li>• The instrument should work with Indian standards</li> <li>• Mention the power requirement.</li> <li>• Mention any utility requirement (gas, air, exhaust, etc.)</li> </ul>
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Thanking you,

Dr. Suresha S J

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