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Date: 16th February 2021

Local Tender (India based vendors only)

To Whom It May Concern

This is an RFQ (Request for Quote) for procurement of a spectrometer system and attachments as part of a limited tender for the Centre for Nano Science and Engineering (CeNSE) at IISc, Bangalore. The spectrometer system would be used to study the luminescence properties of thin-film semiconductors and their optoelectronic devices.

CeNSE is a multidisciplinary research department at IISc that houses a 14,000 sq. ft. cleanroom and characterisation facility used by 50 faculty members from various disciplines at IISc. CeNSE also runs a program called Indian Nanoelectronics Users Program (INUP) which has allowed 4200 participants from more than 700 universities and institutes all over India to use the facilities at CeNSE. Consequently, any tool in CeNSE receives significant exposure to scientific community at IISc and beyond. The vendors are requested to factor in the value of this exposure into their quotes. Details of existing facilities and INUP program can be gleaned from:
http://nnfc.cense.iisc.ac.in/
http://www.mncf.cense.iisc.ac.in/

A. Procedure:

1. Vendors will be required to submit a technical proposal and a commercial proposal in **two separate sealed envelopes**. Only vendors who meet the technical requirement will be considered for the commercial negotiation.
2. The Bidder should belong to either class 1 or class 2 supplier distinguished by their "local content" as defined by recent edits to GFR. They should mention clearly which class they belong to in the cover letter.
    a. Class 1 supplier: Goods and services should have local content of equal to or more than 50%.
    b. Class 2 supplier: Goods and services should have local content of equal to or more than 20 % and less than 50%.
3. Purchase preference as defined by the recent edits to GFR (within the "margin of purchase preference") will be given to Class-1 supplier.
4. MSME can seek exemption to some qualification criteria. IISc follows GFR2017 for such details
5. Sperate detailed justification needs to be given to substantiate the qualification as Class 1 and Class 2 suppliers and the intender reserves the right to cross-check the factual validity of the same.

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6. The deadline for submission of proposals is **05th March 2021, 5:30 pm** Indian Standard Time. Bids should arrive at the office of **Prof. Aditya Sadhanala, FF-05, Centre for Nano Science and Engineering, Indian Institute of Science, Bangalore 560012**, India, by the above deadline.
7. The technical proposal should contain a technical compliance table with 5 columns.
    a. The first column must list the technical requirements, in the order that they are given in the technical requirement below.
    b. The second column should provide specifications of the instrument against the requirement (please provide quantitative responses wherever possible.
    c. The third column should describe your compliance with a "Yes" or "No" only. Ensure that the entries in column 2 and column 3 are consistent.
    d. The fourth column should state the reasons/explanations/context for deviations, if any.
    e. The fifth column can contain additional remarks from the OEM. You can use this opportunity to highlight technical features, qualify response of previous columns.
8. Vendors are encouraged to highlight the advantages of their tools over comparable tools from the competitors
9. If multiple systems can fulfil the requirements, vendors can submit multiple bids.
10. In the commercial bid, please provide the itemised cost of the system and required accessories, such as software, power supply, etc.
11. As an option, please provide itemised cost 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.
12. The quotes should be CIF Bangalore, India. So please include the cost of shipping. Customs can be extra.
13. In the quote, you are requested to provide itemised cost for spares expected over 2 years of use.
14. Please indicate the warranty provided with the tool.
15. Any questions or clarifications can be directed to:
    Prof. Aditya Sadhanala,
    FF-05, Centre for Nano Science and Engineering,
    Indian Institute of Science, Bangalore 560012
    sadhanala@iisc.ac.in

B. Terms and Conditions

1. The decision of purchase committee will be final
2. The vendor is responsible for the installation of the system at the IISc campus.
3. The RFQ must include references of 5 previous installations, preferable in India. Please provide the names and contact addresses of the referees, so that the committee can contact them independently. Details of such systems with model numbers and users should be

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provided. The reference letters can be used to disqualify vendors with poor track record of service, build quality, system performance, or poor availability of spares.

4. The vendor must also submit a list of 50 customers where similar systems have been installed.
5. Clarify if periodic (preventive) maintenance be done by a trained on-site engineer or requires a specialist from the OEM. The vendor should have qualified technical service personnel for the equipment based in India and must assure a response time of <2 business days after receiving a service request.
6. The lead-time for the delivery of the equipment should not be more than 2 months from the date of receipt of our purchase order.
7. The indenter reserves the right to withhold placement of final order. The right to reject all or any of the quotations and to split up the requirements or relax any or all of the above conditions without assigning any reason.
8. Wherever requested in this specifications sheet, data must be supplied along with technical compliance documents. Technical bids without supporting data will be deemed as technically non-compliant.
9. All guaranteed specifications will have to be demonstrated, upon request, in an active installation. Failure to demonstrate any promised specifications will be deemed as technical non-compliance.
10. Printed literature and published papers in support of all compliance to the prescribed specifications may be provided.
11. Technical evaluation by the institute may include demonstration to verify functionalities and capabilities of the system quoted. Any discrepancy between the promised specifications and demonstrated specifications will be deemed as technical non-compliance. If need arises, the vendor must be ready to physically visit IISc for a techno commercial discussion.
12. The **validity of commercial quotation should be at least 60 days** from the last date for the submission of tender documents.
13. 100% payments will be released after completion of delivery and satisfactory installation subject to TDS as per rules. As per GFR no advance payment can be made to domestic vendors, unless an equal amount of bank guarentee is provided.

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Technical Requirements:

1.	**Spectrometer specifications:** **Focal length**: 320mm or longer **Gratings turret**: 4 gratings to optimally cover bandwidth and resolution. All gratings to be accommodated on a single turret (to use any of the 4 gratings) without any need to change the turret or re-calibrate the system. **Grating size (mm)**: 68 x 68 or larger. **No. of Input**: Two entrances with motorised slits having an opening range of 10µm to 2.5mm. At least one of the inputs should have a user-accessible filter wheel assembly with at least four 1inch diameter filter slots. One entrance should also have a XY fiber adaptor for SMA fiber termination. **No. of exits**: Two ccd ports (software selectable) **Wavelength accuracy center**: 0.04 or better **Wavelength repeatability (Grating to Grating)**: 10 picometer or better **USB interface**: Must be present **Gratings**: Have to be included and pre-installed in the spectrometer on the same turret. Two or more gratings can be installed to cover the wavelength range of 250 nm – 2000 nm. The grating efficiency in this entire wavelength range should be higher than 50%.
2.	**CCD Camera:** The application requires a back-illuminated CCD camera with the following configuration: **Wavelength Range**: At least 250 nm – 1000 nm. **Quantum Efficiency**: Should be greater than 50% from 300 nm – 850 nm.

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	Camera Detector Cooling: Thermoelectric cooling is a must. Air-cooled to -80^{O}C with an option to upgrade to water cooling. **Minimum Dark Current Achievable**: 0.0003 e/pix/sec or lower **Detection Speed:** Should essentially have a capability to measure a minimum of 250 spectra/sec. Ideally should have an ability to measure 1000 spectra/sec **Clock Speed**: The clock speed should be user selectable through software and in the range of reaching down to a minimum of 2 µs.
3.	**InGaAs Detector:** The application requires a 16-bit InGaAs Detector array as well with the following configuration: **Wavelength Range**: At least 700 nm to 1700 nm. **Quantum Efficiency**: Should be greater than 50% from 900 nm – 1700 nm and with a peak of at least 85% **Detector Specifications**: Detector should contain at least 512 active pixels with a pixel size of at the most 25 µm x 500 µm. **Detector Cooling**: Thermoelectric cooling is a must. Air-cooled to -80^{O}C with an option to upgrade to water cooling. **Detector Linearity**: more than 99% linearity is a must. Data proving this in terms of counts vs exposure time under constant photon flux up to the system's saturation point showing the linearity is a must. **Minimum Dark Current Achievable**: 0.0003 e/pix/sec or lower **Minimum Exposure Time**: 1.5 µs or shorter **Dark Current**: Should be less than 11 Ke-/pixel/sec @ max cooling **Minimum Read Noise**: 580 e- or lower

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	Sensitivity: 2800 e- per count or better **Detection Speed:** Should essentially have a capability to measure a minimum of 150 spectra/sec. Ideally should have an ability to measure over 190 spectra/sec
4.	**Utilities:** Please mention all the non-electrical utilities required to use the system, including cooling water, compressed air, inert gas, etc., along with their consumption. **Systems with minimal consumption of non-electrical utilities would be preferred.**
5.	**Footprint:** The system should be a table-top one that can be easily accommodated in a research laboratory. Please mention the system dimensions.
6.	**User Interface:** The system should be highly automated and preferably be in a plug-and-play condition at delivery. Additionally, the system should be controllable by a generic external computer via USB, or RS232, or RS485, or ethernet or any such interface. Command set for this control must be included with the system.
7.	**Regular Maintenance:** The system should require minimal maintenance. Any regular maintenance (optical alignment, calibration, cleaning, etc.) needed to keep the instrument in good working conditions should be clearly mentioned. The cost of this regular maintenance (if requiring additional consumables or spare parts) for 2 years should be quoted separately as "maintenance contract".
8.	**Power:** The instrument should work at 220-240V 50 Hz AC power. If the system runs on DC power, please include the price of a suitable AC-DC power adapter. **Please mention AC power consumption.**
9.	**Operating Conditions:** The system must function year-round in Bangalore conditions, i.e. the ambient temperature of 10-40 °C and relative humidity of 30-95%.
10.	**Local Support:** Please mention if the system will be supported by a local distributor. **A Bangalore based vendor who can quickly respond to issues will be preferred.**
11.	**References:** Please provide a list of at least 3 references of users in India who have purchased the same or similar spectrometers.

Thank you,

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