



**JNCASR**

## जवाहरलाल नेहरू उन्नत वैज्ञानिक अनुसंधान केंद्र

जक्कूर, बेंगलुरु - 560064 कर्नाटक, भारत

विज्ञान एवं प्रौद्योगिकी विभाग, भारत सरकार के अधीन एक स्वायत्त संस्थान  
सम विश्वविद्यालय संस्था

### Jawaharlal Nehru Centre For Advanced Scientific Research

Jakkur, Bengaluru - 560064 Karnataka, INDIA

An autonomous institution under Department of Science and Technology, Govt. of India.  
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JNC/PUR/CPMU/MD/PI2-94/25-26/13/E

June 26, 2025

### NOTICE INVITING TENDER

Jawaharlal Nehru Centre for Advanced Scientific Research, Jakkur invites sealed tenders in two bids (Technical & Commercial) from qualified and experienced Vendors for **SPECTROMETER WITH BACK - ILLUMINATED EMCCD** as per the terms and conditions below and as broad specifications shown in ANNEXURE-I

#### TERMS & CONDITIONS:

1. Any item not specifically mentioned in the technical specification but essential for successful implementation of the system (in the opinion of the bidder) must be brought to our notice and quoted accordingly.
2. At the time of installation, if it is found that some additional items are required to meet the operational requirement of the configuration, but not included in the bidder's original list of deliverables, the bidder shall supply such items to ensure completeness of the configuration at no extra cost. Make and Model should be specified with complete brochures to verify the specifications.
3. Delivery period should be six months from the date of Purchase Order. Once delivered to onsite, the installation, commissioning and acceptance period will be within two weeks from the date of delivery of equipment.
4. The successful bidder immediately after the award of the Purchase Order shall prepare a detailed plan of installation as proposed to be followed by placement of the equipment, etc.
5. System Installation and integration of all supplied equipment and software shall be done by the successful bidder. Subcontracting in any form is not allowed.
6. Bidders should clearly specify after sales/service/application support/AMC capabilities. Bid validity should be 60 days.
7. Warranty and support: All supplied Equipment with Accessories – 1 year.
8. Provide all information as regards pre-installation requirements (i.e. room, environment) for system installation.
9. Detailed list of users of the system in India with contact details to be furnished.
10. Bidders should be submitted EMD for Rs. 1,50,000/- only in the form of DD/ Bank Guarantee respectively. EMD exemption will be allowed to vendors having valid MSME Certificate as per rules.





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11. **Performance Security:** The successful bidder has to provide 3% Performance Security in the form of Bank Guarantee within 15 days after receiving Purchase Order.
12. **Performance Bank Guarantee:** Successful bidder has to submit 3% PBG valid for five years.
13. **Payment terms:** 90% payment against supply and balance 10% payment against installation and commissioning and submission of Performance Bank Guarantee for 3% of Purchase Order value valid for five years from the date of installation/commissioning.
14. Late & delayed quotations will not be considered.
15. As time is the essence of the contract, delivery period mentioned in the Purchase Order should be strictly adhered to. Otherwise the successful bidder will forfeit Security Deposit. Of the supplier fails to supply, install and commission the system as per specifications mentioned in the Purchase Order within the due date, the supplier is liable to pay liquidated damage of 0.5% of Purchase Order value per every week of delay subject to a maximum of ten percent beyond the due date. Such money will be deducted from any amount due or which may become due to the supplier. JNCASR reserves the right to cancel the Purchase Order in case the delay is more than ten weeks. Penalties, if any, will be deducted from the Security Deposit. The maximum amount of penalty shall be ten percent. Liquidated damages shall be levied on the Purchase Order value, freight, insurance and duties.
16. The place of Applicable Law / Jurisdiction is Bengaluru, Karnataka, India.
17. Decision of the President, JNCASR will be final.
18. **Formats for price-bid:** Corresponding to each part in the technical bid there should be a pricing referring to the Part name in the technical bid and mentioning quantity, unit price and total price. If there are any other charges, they should be also added at the end. All pages have to be serially numbered. References if any to technical bid should be provided along with the exact location (page number, etc). You are required to use the price bid format given by us only for commercial tender.
19. **Warranty Replacements:** Any replacement of defective items during Warranty period is the responsibility of the successful bidder. The expenditure involved like freight charges, customs duty, insurance charges, clearance charges etc. are to be borne by the successful bidder.
20. **Submission of Proposal:** The proposal should be submitted in a sealed two bid system. One containing sealed technical bid and the other one a sealed price bid. The bidder name, the nature of the envelope (either technical bid or price bid) must be clearly mentioned on top of each of the envelope. The sealed proposals must be addressed to Senior Stores & Purchase Officer, JNCASR. The proposals should be submitted at the Stores & Purchase Department, JNCASR.





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21. **Evaluation of bids:** Technical bids will be evaluated by JNCASR. Price bids of technically qualified bidders only will be opened on date and time that will be decided by the JNCASR.
22. Public Procurement (preference to "Make in India") order 2017 will be considered as per order No. P-45021/2/2017-PP (BE-II), dated 28.05.2018.

IMPORTANT DATES	
Last date for submission of bids (Two-bid system)	10.07.2025 @ 3.00 PM
(a) <u>Technical Cover :</u> Technical Specification with Commercial Terms and Conditions, Brochures, Compliance statement EMD & Bill of quantities without Price Information.	
(b) <u>Price bid cover:</u> With complete specs & item wise Rates to be indicated.	
Opening of technical bids :	10.07.2025 @ 3.00 PM
Opening of commercial bids :	Will be informed later

(K. Bhaskara Rao)

**Senior Stores and Purchase Officer**

के. भास्करा राव / K.BHASKARA RAO

वरीष्ठ भंडार एवं क्रय अधिकारी / SR. STORES & PURCHASE OFFICER

जवाहरलाल नेहरू उन्नत वैज्ञानिक अनुसंधान केंद्र

JAWAHARLAL NEHRU CENTRE FOR ADVANCED SCIENTIFIC RESEARCH

जक्कूर बेंगलूरु - 560 064 / JAKKUR, BANGALORE- 560 064.





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## ANNEUXRE – I

### TECHNICAL SPECIFICATIONS FOR A SPECTROMETER

#### SPECTROMETER:

1. Pre-aligned, pre-calibrated Czerny-Turner Spectrograph
2. Focal length: 327 mm or larger
3. Aperture: F/4.1 or better
4. Magnification: 1.1: 1
5. Toroidal optics for astigmatism correction are required
6. Single Interchangeable quad grating turret to accommodate 4 gratings simultaneously. No manual change of turret should be required for using 4 gratings
7. The internal focusing mirror must be movable by software to have optimal focus for different wavelength bands.
8. Software-controlled adaptive focus - Automatic optimization when changing between grating or cameras to ensure the best resolution at any wavelength. Or equivalent provision for automated internal focus adjustment should be provided.
9. Computer interface: USB 2.0 interface
10. Nominal optical height: 142.6 mm
11. Focal plane size (mm, W x H): 30 x 16
12. Grating size (mm): 68 x 68 or larger
13. Stray light for 1 nm from laser:  $3.8 \times 10^{-4}$
14. Spectral resolution with 1200 lines/mm blazed at 500nm grating: 0.07nm
15. Wavelength accuracy (centre): 0.04 nm or better
16. Wavelength accuracy (side): 0.2 nm or better
17. Wavelength repeatability for single grating: 4 pm or better
18. Wavelength repeatability for grating-to-grating: 10 pm or better
19. Spectrograph should be I2C interface compatible
20. Appropriate hardware accessory to be offered on atleast one of the input slits to improve the resolution by  $\sim 30\%$  or more without any mathematical de-convolution.





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21. No mathematical spectral deconvolution to be involved.

### INPUT/ OUTPUT PORT CONFIGURATION:

1. INPUT PORT 1: Motorized entrance slit should have to open from 10  $\mu\text{m}$  to 2.5 mm
2. INPUT PORT 2: Manual Entrance slit should have to open from 10  $\mu\text{m}$  to 2.5 mm
3. OUTPUT PORTS: Two CCD camera output ports

### GRATING AND OPTICS

Should include the FOUR (4) Gratings as below pre-installed on a single turret:

1. 600 lines/mm blazed at 500nm
2. 1200 lines/mm blazed at 500nm
3. 1800 lines/mm Holographic (Optimized for 360 - 900 nm)
4. Highly reflective mirror for VIS-NIR

### EMCCD DETECTOR FOR SPECTROMETER

1. Back Illuminated EMCCD, Vis-optimized and anti-fringing for NIR applications.
2. Active pixels: 1600 x 200 or more
3. Pixel size (W x H): 16 x 16  $\mu\text{m}$  or smaller
4. Image area: 25.6 x 3.2 mill with 100% fill factor or better
5. Peak Q.E: > 95% @ 500nm
6. Quantum efficiency: > 60% from 400nm to 850nm
7. TE Cooling: -80°C with air, with option to add water cooling to take temperature to -100°C or lower, LN cooling not allowed
8. Guaranteed low dark current - should be 0.00010 e-/pixel/sec or less. Please provide the OEM website public domain URL to check the details and verify the same.
9. Read noise with EM Gain ON: <1 e-
10. EM gain: 1 - 1,000 times (software controlled)
11. Maximum spectra: 649 with Full vertical binning or higher
12. Active area pixel well depth: 200,000 e- or higher
13. Register well depth for Electron Multiplying mode: 800,000 e-





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14. Digitization: 16 bits
15. Linearity: Better than 99%
16. Vertical clock speed: 4.9, 9.8, 19, 38,57 (software selectable).
17. Calibration should be stable at all cooling temperatures (Temperature compensated EM gain)
18. PC interfacing: USB 2.0 or 3.0
19. EM calibration should be via software routine only, no use of maintenance prone light source which degrades with time for EM calibration.

### SOFTWARE AND PC INTERFACE

WINOWS Based software should be provided for above item and single software should control spectrometer and EMCCD.

### OTHER TERMS:

- The spectrometer and EMCCD should be manufactured by the same OEM to ensure a fully integrated system.
- The vendor should have at least five installations of similar EMCCD spectroscopy systems in India. Please provide customer references with contact information.
- Warranty: 12 months from the date of complete installation and commissioning.
- The vendor must provide complete compliance statement/graphs against each technical specification. Failing to do so may result in the Bid being rejected.
- An authorization letter from the OEM manufacturer is mandatory to participate in the tender.

(K. Bhaskara Rao)

Senior Stores and Purchase Officer

के. भास्करा राव / K.BHASKARA RAO  
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