

**Department of Physics, University of Kerala, Kariavattom,
Thiruvananthapuram, Kerala, India – 695 581, Ph: 91 471 2308920**

E-Tender Notice

Department of Physics, University of Kerala, Kariavattom, invites tenders for the purchase of **Sophisticated Fluorescence Spectrometer**(with Quantum yield measurement set up and time-domain lifetime measurements set up) having following specifications.

Last date and time for submission of tender online	: 27.11.2017 at 5.30 p.m
Date and time of opening of tender	: 01.12.2017 at 11 a.m
For technical details contact	Dr. Subodh G., Head, Department of Physics, University of Kerala, Thiruvananthapuram, Ph. No. 9633983404 E-Mail: gsubodh@gmail.com

For further details logon to www.etenders.kerala.gov.in

Technical Specifications

Sophisticated Fluorescence Spectrometer having NIR (up to 1550 nm) and Quantum yield measurements and for time-domain lifetime measurements, incorporates TCSPC (time correlated single photon counting), with true single-photon sensitivity, with multiple sources as options, including solid-state NanoLED sources, and spark lamps for intense, wideband pulsed light.

1. Modular Research Fluorescence Spectrometer with 450W ozone free Xenon source or better for steady state Fluorescence measurement and power supply.

Excitation Channel

2. A double grating (or suitable) Czerny-Turner excitation spectrometer or with better design with 1200 g/mm gratings blazed at 500 nm or better.

3. Emission Channels

- a) (a)Single Emission Channel: Single grating Czerny-Turner spectrometer or better design with 1200 g/mm blazed at 500-550 nm for measuring emission up to 850nm should be offered.
- b) The System should have continuously adjustable entrance and exit slits operated under computer control, with all reflective optics, photodiode reference detector, and excitation shutter, photon counting electronics and controlling software.
- c) Two detectors (TBX and R928PMT 250-850nm emission detector). Both steady-state and time-resolved measurements.
- d) It is mandatory that optics in the spectrofluorometer system should be mirror based and system should be modular.
- e) Signal to noise ratio: 15,000:1 or better
- f) Wavelength Accuracy: minimum +/- 0.5 nm or better
- g) Solid sample holder. Designed for viewing front face fluorescence of thin films, powders, pellets, paper, fibers, or microscopic slides with variable alignment angle and right-angle detection instantly should also be offered.
- h) Two numbers of 4mL liquid quartz cuvette Suitable order sorting filters in the range of 370nm, 399nm, 450nm, 500nm and 550nm along with holders should be offered.
- i) Necessary items for NIR fluorescence measurements up to 1550nm in T channel/suitable configuration and items for quantum yield measurements with necessary holders for powder, thin films and liquid should be offered.

4. Integrating sphere for Quantum yield measurements with following specification

- a) 6 inches (55mm) integrating sphere for quantum yields of various solids, liquids, powders, thin films and small light sources should be offered
- b) Necessary powder cup, cover slips, spectralon plug, center mount cuvette-holder, top mounted excitation fiber holder, uncalibrated reflector

- c) Fiber coupler fiber optics or with out fiber coupler, Quanta-Phi sample port plug and calibrated standard cuvette (For calibrating the cuvette holder's absolute spectral response).
- d) Suitable ND filters also should be offered.

5. Time Correlated Single Photon Counting (TCSPC) Unit

- a) Time correlated Single Photon Counting (TCSPC) upgrade for fluorescence lifetime measurement with complete timing electronics should be quoted with the system.
- b) Nano second LED sources with peak wavelength of 250 nm +/- 10nm, 270nm+/- 10nm, 300nm+/- 10nm, 350nm+/- 10nm and 380 nm or 390 nm+/- 10nm should be offered towards excitation sources.
- c) Suitable mounting to attach the excitation sources with the instrument should also be offered.

6. Computer with Software for data collection, analysis and system control should be offered.

7. Another branded desktop computer with software for fluorescence analysis should be offered with at least three years of warranty.

8. A comprehensive warranty for 5 Years.

9. The system should be future upgradeable in the field itself for

- a) Temperature controlled measurements with peltier
- b) Automated Polarizers for Anisotropy measurements
- c) Phosphorescence measurement.

10. A detailed compliance statement about your offer with respect to above mentioned tender specification should be enclosed with the technical documents.

11. Online UPS System with isolation transformer (Power backup of 5 kV with batteries for at least 2h of power backup.

12. Any other items required for the successful installation and successful operation of the system.

General Conditions:

1. The tender shall be submitted in the **two bid** viz. Technical Bid and Financial Bid. Only those qualified in technical bid will be eligible for participating in financial bid. A presentation regarding the technical specification and item to be supplied shall be done before the technical evaluation committee if requested.
2. The bidder should be a manufacturer or their dealer specifically authorized by the manufacturer to quote on their behalf for this tender as per Manufacturer Authorization from and Indian agents

of foreign principals, if any, who must have designed, manufactured, tested and supplied the equipment(s) similar to the type specified in the “Technical Specification”. Such equipment must be of the most recent series/models incorporating the latest improvements in design. The models should be in successful operation for at least one year as on date of Bid Opening.

3. **Compliance Statement:** Along with the technical details provide a tabular column indicating whether the equipment quoted by you meets the specifications by indicating 'YES' or 'NO'. If 'YES', support the claim by providing original brochures. **Venders should provide clear brochures/data sheets about the equipment and its working. Also include adequate proof for the claim regarding the performance.**
4. **Reference:** Names of Institutes with contact person and telephone/ email where similar equipment supplied by you in India [Preferably South India] shall be mentioned in the bid.
5. Incomplete & conditional tenders and tenders received after the due date will be summarily rejected without assigning any reasons thereof.
6. The price should be inclusive of all taxes, duties, transportation, insurance, installation etc. Nothing extra will be paid in addition to the quoted rate. Any amount in Indian rupees for installation, commission, labour, spares, service etc shall be entered in item 2 of BoQ.
7. Payment Terms: 90% payment shall be made through irrevocable LC on presentation of complete and clear shipping documents and balance 10% of the amount shall be released after the receipt, installation commissioning and acceptance of the equipment.
8. Every tenderer should submit Tender fee of Rs. 2500/-
9. Validity of tender: Tender submitted shall remain valid at least for 120 days from the date of opening the tender. Validity beyond 120 days, from the date of opening of the tender shall be by mutual consent.
10. Delivery and installation: Proposed delivery schedule should be mentioned clearly. Delivery (including transport from airport), installation and training should be made at the Department of Physics, University of Kerala, Kariavattom campus, Trivandrum without extra cost. University of Kerala will provide customs duty exemption certificates if required.
11. Service facility: Supplier should mention their details of service setup and manpower in Thiruvananthapuram who are responsible for after sales support.
12. The model number, make, and a printed literature of the product shall submit positively.

13. In case of any dispute, the decision of the University authority shall be final and binding on the bidders.
14. The undersigned reserves the right to reject any or all of the tenders received without assigning any reason thereof.
15. The quoted item should be under **comprehensive warranty for 5 years** or more.
16. If any component is found to be defective during the warranty period, the vendor has to replace the defective item immediately at their own cost.

Documents to be Uploaded

- 1 Signed Compliance Matrix
2. Detailed Technical Brochure
3. Under taking of support for next 10 Years
4. BoQ