PMU-D/DII/13701/2025 29.07.2025

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## CORRIGENDUM

**Tender ID : 2025_KnrU_775136_1**

**Tender Reference Number : PMU-D/DII/13701/2025**

All prospective Bidders are hereby informed that the Kannur University has modified the specification of the equipment titled *"**Photoluminescence Spectrometer with low temperature, life time measurement and quantum yield measurement**"* in the above mentioned e-tender as follows;

## Modified Specifications

Modular fluorescence spectrometer system for acquiring steady-state excitation and emission spectra in the UV-VIS-NIR spectral range with single photon counting sensitivity. The standard instrument configuration must have a guaranteed sensitivity of >35,000:1 for the Signal-to- Noise Ratio of the water Raman signal (FSD Method) measured with excitation at 350 nm, emission at 397 nm, with a 1 second integration time and 5 nm spectral bandwidth.

**Source:**

- 450 W or higher CW xenon lamp with integrated power supply for steady state PL measurements.
- Display with lamp parameter and usage in hours must be integrated with Lamp housing.
- **15 W or higher** pulsed lamp for phosphorescence lifetime measurement with optical pulse width 1.5 µs to 2.5 µs and repetition rate: 0.1 Hz - 100 Hz
- Photomultiplier gating circuitry which is beneficial for measuring phosphorescence spectra

**Excitation Monochromator-**

- Double monochromator in Czerny Turner configuration with suitable grating optimized for the UV range around 300-400 nm, with focal lengths of 325 mm each or better.
- Minimum step 0.01 nm.
- Computer-controlled slits, exchangeable triple grating turret enabling software selection of gratings.
- **Computer-controlled filter wheel for higher-order removal**
- stray light suppression greater than 1:10^10.

**Sample chamber-**

- Large Sample Compartment with single cuvette holder temperature adjustable by water/coolant circulation, fitted with integrated probe for sample temperature monitoring by spectrometer operating software.
- Filter slots provided for holding **25 mm or above** square filters as standard.
- Suitable focusing optics lens/mirror based.
- T-geometry should be available for additional emission monochromator.

- Interlocks to operate detector protecting shutter.
- Computer-controlled signal level attenuator

**Emission Monochromator-**

- Double monochromator in Czerny Turner configuration with suitable grating optimised for visible range and blazed around 400-500 nm with a focal length of 325 mm each or better.
- Suitable NIR grating optimised for NIR measurement up to 1700nm and blazed around 1000nm
- Minimum step 0.01 nm.
- Computer-controlled slits, swing mirror, exchangeable triple grating turret enabling software selection of gratings.
- computer-controlled filter wheel for higher order removal
- Required NIR Order sorting filter around 1250nm
- Stray light suppression greater than 1:10^10.

**UV-VIS PMT Detector-**

- Suitable PMT detector in cooled housing.
- Detectors should have a response width of <600 ps.
- The spectral coverage is 230 nm to 980 nm or better, with low dark count <100 cps at - 20 degrees or better.

**NIR InGaAs (Steady State) Detector-**

- **TE /NR** Cooled NIR Steady State measurement
- Spectral range: 870 nm - 1650 nm or better
- Suitable Gratings and Filters must be quoted

**Solid sample holder-**

- Front face detection is suitable for measurement of powders and film/slide samples, including all the sample holders.
- Adjustable sample Position from the outside of the sample chamber.
- Necessary set of 7 long-pass filters with wavelengths **ranges from 320-650 nm**. All filters are of the size of 50 mm x 50 mm and fit into the filter holders.

**Quantum Yield-**

- Integrating sphere with minimum 120mm inner diameter for absolute PLQY measurements.
- Sphere must fit inside the sample chamber.
- The sphere must feature a motorised sample loading mechanism which allows easy sample exchange
- Two separate 3ml cuvette (10mm path length) with stopper and all other holders, reference plug, powder tray and all other related accessories must be provided as sphere accessories for complete measurements of absolute PLQY for both solid and liquid samples.

**TE cooled sample holder –**

**TE/NR** Cooled sample holder from – 10degC to 105degC for liquid samples measurement through software controlled.

**Software-**

- All the necessary hardware and timing electronics to measure steady state and time-resolved fluorescence spectra's full capabilities must be provided.
- Comprehensive fluorescence spectrometer control, performance monitoring, spectral and lifetime data acquisition, and data fitting and analysis.
- Software should also have facilities like spectral and fluorescence/phosphorescence lifetime acquisition, kinetic measurements, time-resolved excitation and emission spectra (TRES) and slicing of TRES data, data handling routines (normalization, scaling, arithmetic, integration, differentiation, smooth, etc.), routines for quantum yield, reflectance and absorption measurements, chromaticity and luminance calculation and presentation, etc.

**Quartz Fluorescence Cuvette:**

- 3ml Quartz fluorescence cell 1cm x 1 cm (Qty-2)

Neutral Density filter:

- ND filter with OD 2 and OD 3.

Computer-

- Suitable computer/workstation with all the interfacing hardware and pre-loaded software to operate the system with full capabilities and the license key must be provided.

One software license key for operating the software in another computer independently

**Warranty- Three-year comprehensive warranty**

**Optional Items:**

**1. Low-temperature measurements Capabilities: 77K-500 K**

- Flow type LN Cooled cryostat for sample measurements covering the temperature range 77K-500K
- All the related mounting accessories must be included in the offer.
- Turbomolecular Pump for Cryostat (220 V): Ready-to-operate high-vacuum pump with integrated vacuum gauge and display. 10-8 mbar ultimate pressure.
- All the sample holders for solid and liquid sample must be included.

**2. Time Resolved Fluorescence measurements (TCSPC):**

- The system should be upgraded on field to measure fluorescence lifetime based on TCSPC technique.
- TCSPC technique based shorter lifetime from picoseconds to microseconds or better.

A. Pulsed Laser diode 375 nm (±10 nm wavelength range). Repetition rate 20MHz or better

Typical Pulse Width @10 MHz – 60ps or better.

B. Pulsed Laser diode 450 nm (±10 nm wavelength range). Repetition rate 20MHz or better

Typical Pulse Width @10 MHz – 90ps or better.

All the other software and hardware accessories must be included to measure the fluorescence lifetime.

Sd /-

Prof. (Dr.) Joby K Jose

Registrar

# eTendering System Government of Kerala

Kerala Tenders

## Published Corrigendum Details

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| **Tender ID :** | 2025_KnrU_775136_1 |
| **Tender Ref No :** | PMU-D/DII/13701/2025 |
| **Tender Title :** | Supply, Installation, Testing and Commissioning of Photoluminescence Spectrometer with low temperature, life time measurement and quantum yield measurement |
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