Technical specification Spectrofluorometer

Description: A reflective steady-state photoluminescence spectrofluorometer with an ability to measure quantum efficiency should have perfect focus at all wavelengths and the highest sensitivity. The sample chamber should be capable of holding both solid and liquid samples with appropriate front face viewing option so as to avoid scattered light. For quantum yield measurements, the sample chamber should have enough space to fit integrating sphere and should be included. System should come with configured computer including the supporting software. Detailed specifications are provided below

1.

S.No	Bidder Eligibility Criteria-II	Compliance (Yes/No)	Reference Page No.
1)	The bidder/OEM should have supplied at least 5 similar items to IITs, NITs, IISERs, CSIR Labs or other Govt. R&D organizations in the last 5 years, The supplier should provide Performance certificate(s) along with contact details (address, email id, phone number) of all these users so that IIT Madras can approach them for any feedback.		

2.

S.No	Specification		Complied/Not Complied	Reference Page No.
1.	Excitation Source	Xenon arc lamp 150 W or better with power supply should be provided. The minimum lamp life of 1000 h or better		
2.	Optics	A mirror-based system for focusing at all wavelengths and precise imaging for micro samples		
3.	Excitation Spectrometer	Single Czerny Turner excitation spectrometer with 1200 g/mm grating blazed between 300-330 nm or better		
4.	Emission Spectrometer	Single Czerny-Turner design based single Spectrometer with 1200 g/mm gratings blazed between 500-550 nm or better.		
5.	Excitation and Emission wavelength Range	200-950 nm or better		
6.	Bandpass	At least from 0-30 nm continuously adjustable entrance, exit and		

		intermediate slits operated under computer control		
7.	Wavelength Accuracy	+/- 0.5 nm or better		
8.	Signal to Noise Ratio	Minimum10,000:1(FSD Method) or 30,000:1 (RMS method) or better		
9.	Reference Detector	Photodiode detector should be provided in the sample compartment to measure the beam intensity from the excitation monochromator.		
10	Emission Detector	Photomultiplier tube detector should be provided to cover the wavelength range from 250 nm-850 nm and should be operating in photon counting electronics mode.		
11	Sample compartment	It should also be capable of accommodating standard cryostats which will be procured at a later stage. Compatible cryostats should be indicated.		
12	Cuvette	Two numbers of quartz cuvette 4 mL volume, 1 cm x 1 cm optical path and open top with cap should be provided.		
13	Order Sorting Filters	Suitable filters in the range of 370 nm, 400 nm, 455 nm, 495 nm and 550 nm should be provided.		
14	Power requirements	Single phase, 200 to 250 V, 50 to 60 Hz.		
15	Integrating sphere	An integrating sphere with inner diameter of around 12 cm should be provided to measure the absolute PL quantum yeild measurements (PLQY) of solids and liquids. The inner sphere should be of highly reflective material with a reflectance of greater than 95 % in the wavelength range 250 – 2500 nm. A suitable sample cup with appropriate quartz cover glass should be provided along with quartz cuvette. The sphere should have an option for gas purge connectors. The performance evaluation report for standard reference samples should be included in the quote. Approprite ND filters should also be provided for PLQY measurements.		

16	Software and Computer	A suitable fluorescence analysis software and branded computing system with all the accessories and latest software should be supplied along with the system.		
17	Warranty	Minimum two years from the date of installation		
18	Optional accessories	(i)An optional detector to cover the emission range from 800-1550 nm or better with an appropriate NIR glass and Long pass filter with adapter should be quoted. (ii)Solid sample holder: One number of Solid sample holder for thin film, powders, pellets, microscopic slides should be quoted with variable alignment angle facility for the optimization of the signal.		
19	Warranty and maintenance	The complete instrument should be under warranty for a period of at least two years from the date of installation. The vendor should be agreeable to enter into a Comprehensive Annual Maintenance Contract with IIT Madras at a reasonable price, for maintaining the equipment in proper working condition, after the warranty period is completed (optional item). A Quote for the cost of onsite annual maintenance for two years after the warranty period should be provided. The vendor must have a service center in India. In case of breakdown during the warranty period, competent service engineer of the supplier should make as many visits as are necessary to rectify the problem and replace the faulty parts, without any liability of cost. All the expenses related to shipping of faulty parts should be borne by the vendor. The supplier should ensure the supply of all spares required for making the instrument operational. Spares recommended for keeping in		

		inventory along with the instrument may also be quoted as an optional item.		
20	Installation and training	The complete system should be installed at the user defined site at IIT Madras. The supplier should also provide complete hands-on training after installation and commissioning. The expenses, if any, associated with installation and training should be included in the quoted price.		
21	Service	The support of local service team should be available at all time. Basic spares should be available with the local vendor to minimize the downtime. Online technical support both from the local service team and the principles should be available.		
22	Compliance Statement	The supplier must submit technical brochures and proper application notes adequately explaining and confirming the availability of features in the model of the equipment being quoted for. The offered specifications should accompany all Makes & Model Nos. The supplier should submit a table indicating the compliance of the features of the model being quoted for with those given in the indent. Features not matching – must be clearly indicated and all deviations must be clearly specified. Additional features and features in the quoted equipment which are better than those in the indent – may be explicitly highlighted and explained.		