



GURU NANAK DEV UNIVERSITY AMRITSAR
DEPARTMENT OF CHEMISTRY

TENDER NOTICE

Tenders with separate financial and Technical bid, with earnest money @ 2% of the quoted price invited within 15 days of tender notice for supply of CCD detector based single crystal X-ray diffractometer, time resolved fluorescence spectrophotometer and microwave synthesizer. For terms and specifications see: www.gndu.ac.in or contact HOD (9872361528).

DR. SUBODH KUMAR

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Guru Nanak Dev University
Department of Chemistry
Tender Notice

Tenders with earnest money @ 2% of the quoted price invited within 15 days of tender notice (on page no. 5, The Tribune, dated 25/06/2010) for supply of CCD diffractometer for single crystal X-ray studies, time resolved fluorescence spectrophotometer and microwave synthesizer.

Terms: Sealed tenders should be sent under registered letter to Head, Department of chemistry, Guru Nanak Dev University, Amritsar. Send earnest money at the rate of 2%, for the equipment with cost more than 10 lakh, in the form of demand draft in favour of Registrar, Guru Nanak Dev University, Amritsar, without which tender shall not be considered. **The financial bid and the Technical bid be enclosed in separate envelops for each equipment.** Mobile contact 9872361528- Prof. Subodh Kumar(Head).

(1) Specifications for Microwave Synthesizer

Microwave Synthesizer with intelligent pressure, 240V/50Hz; consisting of the following items as a standard part of supply

(a) Magnetic Stirring

- (b) Standard Cooling
- (c) Infrared Temperature Feedback Control
- (d) IntelliVent SafeSeal
- (e) IntelliVent Safe Seal Locking Cover and
- (f) IntelliVent Pressure Attenuator,
- (g) Box of 100, 10mL Reaction Vials,
- (h) Box of 100 IntelliVent Caps and Septa,
- (i) Pack of 50, 3 mm Magnetic Stirring Bars,
- (j) Open vessel attenuator for atmospheric pressure reactions and supporting hardware,
- (k) Glassware extender for a 14/20 ground glass joint,
- (l) Glassware extender for a 24/40 ground glass joint,
- (m) Power Cord,
- (n) Pressure Regulator and tubing,
- (o) Microwave Synthesis textbook, and
- (p) Operation Manual.
- (q) Software

(2) Specifications for Fully Automated CCD Detector Based Single Crystal X-ray Diffraction System:

Most advanced floor mounted single crystal X-ray diffractometer system for small molecule crystal data collection and structure determination. The instrument should have minimum of 3KW or more sealed tube X-ray generator, CCD detector, 4-axis goniometer, low temperature device, accessories and peripherals required to fully integrate the system including water chiller and all hardware and software starting from mounting of crystal to crystallographic file generation.

- a) **Mounting:** Larger and floor mounted for dedicated laboratory use.
- b) **Goniometer:** 4-circle Kappa geometry, fully automated, with high precision and high angular coverage, 3 numbers goniometer heads, video microscope for alignment of crystals should be in-built feature.
- c) **X-ray Generator, detector and optics:** CCD detector for single crystal frame data collection and imaging/camera, large active area, high sensitivity, must be equipped with suitable cooling facility, suitable monochromator and all necessary accessories and optics.
Computer controlled 3KW or more X-ray generator (floor model), ceramic X-ray tube, having all safety features and fail safe switches, Chiller for X-ray tube, Full safety cabinet, PC and monitor to control data collection and hardware operations, Three extra computers for structure solution, Printer networked with computers and data collection workstation, Test crystal, One extra X-ray tube (to be kept in the factory and to be delivered on request from the department of chemistry).
- d) **Software:** Data Collection software, Structure solution software.

- e) **Accessories:** Spare parts kit for CCD and X-ray generator, Cryojet nitrogen jet cold unit with no icing effect, Cryojet controller electronic unit, 60L or higher capacity dewar for cryojet, Liquid nitrogen storage dewar (200 litre or more), Equipment for transfer of liquid nitrogen from storage dewar to cryojet dewar, line heater necessary accessories.
- f) **Power supply:** UPS for single crystal system and chillers, 50 KVA DG set for the equipment and air conditioners.
- g) **Terms and conditions:** Warranty 3 years, Guarantee for availability of spares for 10 years, Guarantee for availability of after sales service during normal life time of the equipment, draft for earnest money at the rate of 1% should be in the name of Registrar, Guru Nanak Dev University, Amritsar, CIF Amritsar, insurance, airfreight to be paid by the supplier, Customs duty would be paid by the university.

(3) Specifications for Time resolved Fluorescence spectrophotometer

1. Modular, computer controlled fluorescence steady state (excitation/emission, quantum yield) and lifetime spectrometer in L-geometry configuration
2. Single Photon Counting based detection for steady state and lifetime.
3. Provision for Phosphorescence studies
4. Sample chamber- magnetic stirring, N₂ purging and Peltier temperature control option under direct control of the spectrometer software
5. spectral range: 200 nm-850 nm
6. Steady state guaranteed sensitivity of 6000:1 for the Water Raman signal-to-noise ratio
7. 450W Xenon Lamp for steady state excitation
8. Time Correlated Single Photon Counting (TCSPC) technique based fluorescence lifetime measurements in the range ~100 ps to 50 μs
9. High quality 300 mm focal length monochromator in Czerny-Turner configuration should include computer controlled triple grating turret for diffraction gratings under direct control of the spectrometer software.
10. Spectral resolution to cover should be 0.1 nm or better. Stray light rejection should be 1:10⁵ or better
11. The standard emission monochromator should be able to house two separate detectors simultaneously, enabling UV-VIS-NIR measurements in one system.
12. Integrated sphere for quantum efficiency measurements for liquids, solids and powder samples. Automated algorithms for quantum efficiency calculations should be built into the software.
13. Glan Thompson Polarizers in computer controlled mount for automated anisotropy measurements.
14. Integrated spectrometer software should incorporate spectrometer component control, performance monitoring, data acquisition and data analysis (both lifetime and steady state) in one package on one PC.

15. Excitation Source for TCSPC based Lifetime : Pulsed Picosecond Diode Laser 405 nm, 470nm & Pulsed LED 340nm
16. Software for providing spectrometer control, performance monitoring, steady state and fluorescence lifetime data acquisition and data analysis Including: time resolved excitation and emission spectra (TRES); handling routines (normalisation, scaling, arithmetic, integration, differentiation, smooth etc); Discrete component analysis of up to 4 exponential terms with no initial guesses being required; Fluorescence lifetime distribution analysis; Global lifetime analysis with unsurpassed flexibility for both data file formats and for parameter options; Analysis of time resolved fluorescence anisotropy – free motion of spherical molecules, free motion of aspherical molecules, restricted motion of spherical molecules, free and restricted motion of spherical molecules, free rotation of two Spherical rotors; numerical data reconvolution of up to 4 exponentials based on Marquardt-Levenberg algorithm; full reconvolution analysis of up to 4096 channels of data; residuals analysis, Durbin-Watson analysis and autocorrelation analysis;- 2D, 3D and contour graphics including functions for peak/trough searches and data slicing; - file import/export options, including ASCII.