

Raman Spectrophotometer

Spectrometer :

- Scan to scan repeatability should be better than 0.05cm^{-1} .
- Optimization for excitation wavelengths at 785nm and 532nm with fully automatic selection of the optics.
- Spectrometer Range: 200nm – 2000nm
- Raman Spectral Range : 100 cm^{-1} to 4000cm^{-1}
- Spectral Resolution better than 0.5 cm^{-1} (FWHM)
- Variable Laser Spot size : 1μ to 300μ
- Encoder feedback controlled grating stage with 2400 l/mm & 1200 l/mm grating
- Detector - CCD array detector with **1024 x 256 pixels and range of 200-1050 nm, Peltier cooled to $-70\text{ }^{\circ}\text{C}$** . No water or liquid nitrogen required.
- Motorized neutral density filters to offer 16 different output Power level from 0.00005 to 100% of the Laser at Sample.
- The system should include two high-efficiency Rayleigh rejection filters.

Automisation :

The offered Raman system should be fully automatic with following (no manual change of Laser/ optics is acceptable)

Auto alignment and optimization of input laser power.

The system must include a wavelength specific Rayleigh rejection filter for each laser. These filters must offer a Stokes-shifted spectral range of at least 100 cm^{-1} to 3100 cm^{-1} . Rayleigh rejection filters should be switched automatically in the system when the laser is switched in the software. The user should not have to do anything more than select the desired laser in the software.

Self validation using built-in internal reference sample.

Built-in self calibration and intensity correction using light sources

Motorised switching between laser and white light sample images using integral video

Microscope :

Research Grade microscope to allowing confocal measurements with better than $2.0\mu\text{m}$ depth resolution and should also include the following:

- Reflected Light
- Standard Objectives : x5, x20, x50, x100
- Long working Distance Objective : 50x
- The system must be equipped with both darkfield and brightfield illumination.
- System must include an integrated trinocular supporting simultaneous binocular viewing and collection of video camera images if equipped with a camera. The laser must be completely blocked from viewing optics to guarantee laser safety.
- Mapping Stage XYZ Stage with Step size XY 100nm , Z 16nm
- Fast Mapping – Line focus accessory Kit for 785nm & 532nm Laser packages

- Microscope Enclosure –Class I laser safe enclosure. Systems in which the lasers are not enclosed in a Class I enclosure are unacceptable.

Lasers :

Diode Laser - 785nm, more than 250mW, Air cooled

Diode Laser – 532nm, 150mW, Air cooled

- **Instrument should have option of future upgrade to UV laser systems.**

Suitable Baseplate or Optical table for mounting :

Kinematic Honeycomb base plate to accommodate spectrometer, Microscope and two lasers

Computer & Software :

Computer

Operating optimized branded computer, Dual core

4 GB RAM,DVD-RW, 500 Gb SATA HDD

Windows 7 Professional (64 bit), 22” TFT Colour Monitor.

Color Printer

Software

- Instrument control and data acquisition software, fully integrated data analysis and presentation software with image capture software for white light image display and capture.
- Image Capture for viewing and saving on screen white light images

UPS 5KVA

Warranty

Two year complete warranty with additional three years service warranty.

Optional Item

- **Heating and cooling module** : -196 Deg C to 500 deg C
- **Complete kit (including slides) for SERS**
- **Data Libraries:** Data Libraries for Polymeric, Biological, Organic and Inorganic Materials
- Macro sampling accessories for 180⁰ reflection measurements

General Terms and Conditions (as per rules of IIT Delhi):

1. Quotations to be made in sealed envelope Technical and commercial bids must be sent separately in two sealed envelope, subscribed with “technical bid” or “commercial bid” and put together in one envelope address to **Prof. Harpal Singh ,CBME, Block III/297, IIT,Hauz Khas, New Delhi-110016** latest by **10th Jan 2013**.
2. Price must be quoted FOB Basis.
3. Mode of payment as per institution rules.
4. The cost should include installation and demonstration.
5. Warranty and delivery period should be mentioned.
6. Tax/Vat should be clearly indicated in the quotation.
7. Original printed brochures/catalogues should be provided.