

Ref. No PH/PSA/130/2017-18

2<sup>nd</sup> May 2017

Dear Sir/Madam,

Kindly send your best quotation for the **UV-VIS-NIR spectrometer for Raman spectroscopy and Photoluminescence** with the following specifications on C.I.P. Bangalore basis. Your quotation should clearly indicate the terms of delivery, delivery schedule, E.D., payment terms etc. The tender should be submitted in two separate sealed envelopes - one containing the technical bid and the other containing the commercial bid, both of which should reach us, duly signed on or before 24<sup>th</sup> May 2017 to

**The Chairman  
Department of Physics,  
Indian Institute of Science, Bangalore 560012**

Please enclose a compliance statement along with the technical bid.

Thanking you

Prof. P.S. Anil Kumar  
Dept. of Physics  
Indian Institute of Science

### **Specification**

**UV-VIS-NIR spectrometer for Raman spectroscopy and Photoluminescence.** The spectrometer should cover the following specifications.

1. **Spectral Range** : 250 nm to 2100 nm with out chromatic aberration and with high throughput optics covering the entire spectral range.
2. **Spectral resolution** : approximately  $0.5 \text{ cm}^{-1}/\text{pixel}$  at 532 nm.
3. **Detectors** : Detectors should cover the entire spectral range of the spectrometer. (1) Cooled multichannel CCD detector with 1024x512 pixels. Size of the chip : 25 mm with pixel size  $\sim 25 \times 25$  microns. Preference will be given to high quantum efficiency detectors, to be specified in different spectral range. The preference will be for low dark noise. Please specify the noise level.
4. **Microscope** : The microscope should be a true stable confocal microscope with standard objectives 10x, 50x and oil immersion 100x. Ultra long working distance 50x objectives (50x LWD with polarization preserving preference). Objectives should cover the entire spectral range of the spectrometer. High resolution video monitoring of the sample.
5. **Gratings** : Standard gratings 1800 and 600 gr/mm mounted on a motorized turret. Automatic interchangeable without optical realignment. Quote for other necessary gratings to cover the entire range. 1800 gr/mm grating should cover the visible range 400 – 750 nm and 600 gr/mm should cover from 220 nm to possible higher side. Quote for 300 gr/mm grating also with blazing around 1500 nm to cover near IR to far IR spectral region.

6. **Filters** : Edge filters covering the entire laser systems. Filters should be mounted on a kinematic mount. It should be possible to adjust the angle of the filters without modifying the alignment cut off for all the filters to be at least  $50 \text{ cm}^{-1}$  for 532 nm. Specify the cut off number for each filter.
7. **Laser Kits** :
  1. 532 nm DPSS laser with 100 mW power. Narrow band width of 1 MHz.
  2. 266 nm DPSS laser with 50 mW or above power.
  3. 325 nm He-Cd laser with 30 mW or above laser power.
  4. 690 nm laser with 50 mW or above laser power.
8. **Sample positioning** : Motorized XYZ sample positioning stage controlled using the software. X = 50-75 mm; Y = 50 -75 mm; XY specifications: repeatability  $\leq 1$  micron; accuracy  $\pm 3$  microns; resolution 10 nm. Z resolution 10 nm. Specify the maximum sample load for the stage. Capable of autofocus and mapping applications.
9. **Polarization rotators** for 532 and 690 nm lasers.
10. **Heavy duty XYZ stage** : Quote for a XYZ stage for a load of about 80 Kg with XYZ movement = 25-50 mm; repeatability  $\leq 1$  micron; accuracy  $\pm 3$  microns; resolution 100 nm.

The quote should include all necessary accessories and a complete computerization package.

Installation and Training is free of cost at IISc site.

Warranty should be minimum of one year. Clearly specify the warranty period for different parts of the spectrometer.

---

END