

Enquiry No. IITK/CHM/MC/17-18/15

Due date: 04/12/2017

Subject: Purchase of one imaging spectrometer

Please send us sealed quotations for the following item. Please mention tender notice number on top of envelop. Within this sealed envelope, **please put technical and financial bids separately in two sealed envelopes**. A single company/ distributor should quote for all the items. Partial quotations are not allowed.

ITEM: Imaging Spectrometer.

The required quantity is 1 (one).

The spectrometer should contain **(i)** a high throughput imaging spectrograph, **(ii)** a highly sensitive sCMOS camera, **(iii)** relay optics (for coupling between side port of Nikon inverted microscope and the spectrometer) and **(iv)** software for camera and spectrograph) control, imaging as well as spectral acquisition, visualization, and analysis. Shown below are the desired specifications for each individual components of the spectrometer

Desired specifications of the spectrometer system

Desired specifications of the spectrograph

Focal length : 190mm or larger with one manual slit in, CCD out

Aperture: F/3.6 or lower

Magnification Vertical @ centre of CCD: 1.07

Slit width range: Manual 10 μm to 2.5 mm

Wavelength accuracy: 0.15 nm

Wavelength repeatability: 75 pm

Gratings: Interchangeable dual on-axis

RFID-tagged turret for easy swapping

Stray light: 3.8×10^{-4} or lower

1 mirror +1 grating

Desired specifications of the camera

Sensor type: Front Illuminated Scientific CMOS compatible with spectrometer offered

Should work in the spectroscopy mode

Active pixels (W x H): 2560 x 2160 (5.5 Megapixel)

Sensor size: 16.6 x 14.0 mm; 21.8 mm diagonal

Pixel readout rate (MHz):

200 (100 MHz x 2 sensor halves)

560 (280 MHz x 2 sensor halves)

Read noise (e-) Median [rms]:

@ 200 MHz 1.2 [1.7]

@ 560 MHz 1.45 [1.8]

Maximum Quantum Efficiency: 60%

Sensor Operating Temperature:

0°C (up to 30°C ambient, air cooled)

Dark current, e-/pixel/sec @ min temp: 0.10 (Air cooled)

Readout modes: Rolling Shutter and

True Global Shutter (Snapshot)

Maximum dynamic range: 25,000:1

Photon Response Non-Uniformity (PRNU): < 0.5%

Pre-defined Region of Interest (ROI): 2048 x 2048,
1920 x 1080, 1392 x 1040, 512 x 512, 128 x 128

Data range: 12-bit (fastest US8 3.0 speeds) and
16-bit (maximum dynamic range)

Interface options: USB 3.0

Pixel binning: Hardware binning: 2 x 2, 3 x 3, 4 x 4, 8 x 8

Anti-blooming factor: x 10,000

Trigger Modes: Internal, External, External Start, External Exposure, Software
Trigger

Hardware timestamp accuracy: 25 ns

Internal memory: 1 GB

Desired specifications of the relay optics

Must have 4f-configuration and should be compatible to c-mount ports on either side.
Lenses should be aberration free.

Desired specifications of the software for camera control and data acquisition

Full spectrograph and camera control within the same package

Flexible data display: Should be able to view data in 2D, 3D, stacked and overlaid

Data export options: SIF, GRAMS, ASCII XY, FITS

Easy automation of experiment with additional commands added to the basic programming language: Essential

User defined background and data colours : Essential

Step and glue option for acquiring spectra over a large wavelength range : Essential

Terms and conditions:

1. Maximum educational discounts should be applied – these equipments will be used for research purposes only.
2. The quotation should have a validity of minimum 60 days.
3. The delivery period should be specifically stated.
4. The quoted spectrometer should be from reputed international companies (e.g., Horiba-JobinYvon, Princeton Instruments, Andor, Hamamatsu, etc.). The spectrometer maker must have supplied the quoted spectrometer (or the individual components of the spectrometers) to at least 20 leading universities/research institutes in the USA/Europe/Japan in last 3 years.
5. The Indian Representative should have at least 3 years association with the Principal company. It is also required that the Indian representative have supplied the quoted spectrometer (or the individual components of the spectrometers) to at least 3 research labs in IITs/IISc/IISERs in last 3 years.
6. Warranty period should be mentioned and whether after-sale services are available in India or not. **A minimum of 3 years of warranty is required.** Also, The vendor must be able to provide technical support throughout the warranty period and beyond.
7. Quotes should be made options for the following delivery modes
 - I. CIP, New Delhi
 - II. CIF, Kanpur
8. Quotation should carry proper certifications like authorization certificate, proprietary certificate, etc. (if applicable).
9. Please mention tender notice number on top of envelop.

Please send your best offer on or before 04/12/2017 to the address given below.

Mail the quotation to:

Manabendra Chandra
Assistant Professor
Department of Chemistry
Indian Institute of Technology, Kanpur.