

Enquiry No. IITK/CHM/MC/17-18/1  
Due date: 04/05/2017 before 3:00 pm

**Subject: Purchase of one MOTORIZED INVERTED RESEARCH MICROSCOPE with DUAL DECK system and DARKFIELD attachment with accessories**

Please send us sealed quotations for MOTORIZED INVERTED RESEARCH MICROSCOPE with DUAL DECK system and DARKFIELD attachment. This microscope will be coupled to a pre-existing imaging spectrograph-CCD system (Andor SR303I-A and IXON Ultra) for dark-field scattering imaging and spectroscopy. Also it will be used for second harmonic generation (SHG) imaging and spectroscopy. In future, this microscope is intended to be upgraded for fluorescence, confocal, and multi-photon fluorescence imaging.

**The detail minimum requirements/specifications are given below**

1. **Microscope Body** : Multi-port design Microscope body with Infinity optical corrected optical system, Extendable optical free space up to 80 mm for attaching TIRF Attachment etc. in future, facility for 4 way or more light distribution path, up/down **motorized** focusing, side port for attaching digital camera, VFD/TFT screen and operation buttons on front of the microscope body for verifying microscope status including attached objective information with remote pad, Binocular tube with diopter adjustment facility, built-in 1.5x magnifier or better
2. **Illumination** : 12V 100W Precentred Halogen Illumination/LED illumination.
3. **Condenser and adapters**: Universal turret condenser (suitable for all microscopy techniques) with 5 Position (or more) and dark field condenser (along with required adapters) Dry & Oil type both.
4. **Dark-field attachment**: Dark field condenser (along with required adaptors) Dry & Oil type both.
5. **Eyepieces** : 10X (approximate) with F.O.V 22 (approximate) and diopter adjustment facility on both eyes, anti-fungus type
6. **Nosepiece** : Motorized sextuple revolving nosepiece
7. **Stage** : XY Motorized stage with Joystick control, Universal Holder, well plate holder & stage ring holder
8. **Focusing system** : Should have motorized coaxial coarse and fine focusing knob with minimum fine reading of 0.025 um or better.
9. **Objectives** : High performance suitable objectives:
  - (i) Super Plan Fluor ELWD 20XC N.A. 0.45, W.D. 8.2-6.9mm, Corr. 0-2.0mm (or better; for darkfield scattering microspectroscopy)
  - (ii) Super Plan Fluor ELWD 60XC N.A. 0.70, W.D. 2.61-1.79mm, Corr. 0.1-1.3mm (or better; for darkfield scattering microspectroscopy)
  - (iii) Plan Fluor 100X Oil with Iris diaphragm N.A. 0.5-1.3, W.D. 0.2 mm, Spring-loaded (or better; for darkfield scattering microspectroscopy)
  - (iv) 40X apochromatic NA 1.25 (or better; for multiphoton microspectroscopy)

10. **Polarizing Attachment:** Simple polarizer and analyzer set (extinction ratio 1000:1 or better). The polarizer should be mountable and 360 degree rotatable on a holder attached to the microscope pillar, before the darkfield condenser. The analyzer should be mountable on the filter cube after the objective. This arrangement is absolutely necessary for doing polarization resolved dark-field imaging and spectroscopy.

11. **Attachments:** Dual deck system with back / right side port unit:

- Motorized Epi-FL Filter Turret-1
- Stage Height Adjustment Kit- 1
- Back / Right side Port Unit-1 with **proper mount for the introduction of femtosecond pulsed laser (Ti:sapphire, don't quote for the laser)**
- Epi-Fl Empty/Blank Filter Cube-2
- Additional dichroic mirror holder / cube

12. **Optics:**

- Filter Daylight Colour Balance
- Filter Heat Absorbing
- Filter GIF 546 NM Green interference
- Filter Neutral Density
- **Extremely high quality Dichroic mirror for femtosecond pulsed laser (Ti:sapphire, excitation 800nm and emission 400 nm-750 nm). This is required for two-photon fluorescence and second harmonic generation studies. You must attach the transmission and reflection spectra of the dichroic mirror in your technical bid.**
- **Any relay lens or other lenses required for coupling (i) directly to a digital camera or (ii) to Andor SR303I-A spectrograph.**
  - Broad band and aberration free Tube lens, if needed.
  - Achromatic doublet (25 mm dia, to be used in 30 mm cage system that will couple the microscope to our spectrograph) lens pair for collimation and refocusing of the image beam onto the spectrograph entrance slit. These lenses are required if the tube lens is used after the infinity corrected objectives.

13. **Digital color camera:** High sensitivity and low noise, CMOS image sensor, Number of pixels : 2880x2048 pixel (approximate), Exposure time: 100µsec to 30 sec, Image record Format: BMP, TIFF, JPEG, etc

14. **Image analysis software:** For acquisition and device control. It should have the following features Image Acquisition, Time Lapse Imaging, Z-Stack, Multi-channel Fluorescence, Annotation, 2D / 3D View, ND Viewer, Filter, Morphology, Large

Image, Macro, Segmentation, Auto-measurement, Report Generator facility.

15. **Couplers and adaptors for coupling the dark-field microscope to a pre-existing imaging spectrograph-CCD system (Andor SR303I-A and IXON Ultra):** Cage system based coupling will be preferred. Provisions of putting 3 filters must be provided in this cage coupler system.
  - Additionally, height adjusting feet for the above mentioned spectrograph (this is needed in order to couple it to the microscope) may be offered (highly preferred) by the vendor as optional accessory.
16. Entire setup should work with standard **220-240 V** inputs.
17. please provide the cost of extended warranty and AMC as optional 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.

**Please read the terms and conditions very carefully while preparing your quote.**

**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 microscope should be from one of the reputed international companies mentioned below.

**Zeiss, Leica, Nikon, and Olympus**

**The microscope maker must have supplied the quoted spectrometer (or the previous models) to at least 10 leading universities/research institutes in the USA/Europe/Japan in last 3 years.** The related documents must be presented in the technical bid.

5. The installation of the instrument must be free of cost and must be done by the manufacturer.

6. Warranty period should be mentioned and whether after-sale services are available in India or not. Also, the vendor must be able to provide technical support throughout the warranty period and beyond. Longer warranty period will be very much preferred

7. Quotes should be made options for the following delivery modes

- I. CIF, Kanpur
- II. CIF, New Delhi
- III. Ex-works for pickup by our Institute transport provider
- IV. FOB/FCA in country of origin

8. Quotation should carry proper certifications like authorization certificate, proprietary certificate, etc. (if applicable). **Authorization certificate from the Principal manufacturer should accompany the technical bid.**

9. Please mention tender notice number on top of envelop.

Please send your best offer on or **before 04/05/2017 (before 3:00 pm)** to the address given below.

**Mail the quotation to:**

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