



INDIAN INSTITUTE OF TECHNOLOGY BOMBAY

MATERIALS MANAGEMENT DIVISION

Powai, Mumbai - 400076

Technical Specification :

Inverted Optical Research Microscope

- 1) Inverted Optical Microscope, upgradable to double layer configuration at site, along with two exit ports (left and right side) with light distribution of 100% to each of the exit ports, in addition to 100% to eyepiece. The prisms for light distribution through the ports/eyepiece have to be replaced with highly reflective mirrors, which can further be replaced, if necessary, with new mirrors). Intermediate magnification changer 1.5X should be an integral part of the system without through both the side ports as well as the eyepiece. Coaxial coarse/fine focus mechanism has to be an integral part of the microscope.
- 2) Binocular Tube (Field No. 22) with 10X eyepieces with dioptre adjustment (FOV 22 mm). Bertrand lens optics to check back-focal-plane (BFP) is to be included along with the options of 1.5x magnification for eyepiece. The Bertrand lens should allow for the BFP imaging through the left/right port detectors as well as be seen through eyepiece.
- 3) Rectangular mechanical stage with short handle – should be compatible for third party piezo stage installation.
- 4) Illuminator (top): Transmitted light high power LED and condenser turret with LWD lens (NA 0.3 or more). Both dark-field and bright-field condensers to be included (Dark field iris and attachment to be included).
- 5) Rotatable nosepiece to attach 6 objective lenses. Should include 4 caps and BFP visualization cap/knob.
- 6) Rotatable Fluorescence Turret which can accommodate 6 filter cubes.
- 7) Empty Epi-fluorescence High-Quality Filter Cubes (6 in number) for laser based single molecule fluorescence and Raman imaging (The bottom part of the filter cubes should be absolute flat (perpendicular or 90 degrees) to incident laser light and reflected/fluorescence emission). This is important to avoid leakage of excitation light).
- 8) High quality laser-line emission (**razor edge long-pass**) filters and high quality **laser dichroic mirrors** for four wavelengths: **405 nm, 473 nm, 532 nm, and 635 nm**.

Moreover, we require band-pass filters in the following transmission regions (All filters preferably from Semrock Inc.),

- (i) 420 nm-500 nm
- (ii) 500 nm-550 nm
- (iii) 525 nm- 575 nm
- (iv) 525 nm-630 nm
- (v) 580 nm-670 nm
- (vi) 585 nm-675 nm
- (vii) 642 nm-710 nm

9) Microscope objectives:

- a) Apochromat **60X (Oil) NA 1.49, TIRF**, WD 0.2 mm (w/o coverslip) or more, and should include coverslip correction collar.
- b) Objective lens with matching specifications as that of the dark field condenser (NA, working distance, etc.) with either 40X or 60X magnification.

10) One year warranty