

## **Tender Specifications for Brewster angle microscopy integrated with single wavelength auto-nulling Imaging ellipsometer**

IISER, Mohali is inviting sealed two bid system tenders from reputed manufacturers for a User-friendly, functional and reliable Brewster Angle Microscopy with single wavelength auto nulling Imaging Nulling Ellipsometer with Highest lateral resolution down to 1  $\mu\text{m}$ . The first part should include the technical bid and the second part should include the financial bid. Both envelopes must be clearly labeled as Technical Bid or Financial Bid appropriately. Please use Speed Post/courier in advance.

### **Technical specifications:**

- 1) Auto-nulling Imaging Ellipsometer in PCSA configuration
- 2) Measurement of maps and in regions of interest (ROI)
- 3) Ellipsometric contrast micrographs
- 4) Maximum accuracy, precision and repeatability by four zone nulling
- 5) Automatic focus scanner to enable fully focused images
- 6) Broadband diode laser @ 658 nm, 50 mW (class IIIb)
- 7) CCD camera as a detector system with variable shutter timings and gain control
- 8) High precision automatic software controlled goniometer without bearings and mechanical mounts in the axis of rotation to measure high resolution angle of incident (AOI) spectra and enable variable angle measurements in the AOI range from 38° to 90°
- 9) Motorized z-lift to drive the optical head up & down to accommodate the surface position of the sample
- 10) Instrument alignment by angular adjustment of entire optical head
- 11) Alignment sensor for automatic and independent detection and positioning in z-direction and 2 tilt directions
- 12) Integrated active vibration isolation
- 13) Manual sample handling stage
- 14) User-friendly software and optical modelling tool
- 15) Functionality of a Brewster Angle Microscope
- 16) LB trough, trough mechanical adaption and software interface
- 17) Fully configured state of the art PC and 2 LCD monitors
- 18) Installation and training at customer side

### **Please quote Separately the upgrade possibilities as follows:**

- Upgrade to a Spectroscopic Imaging Ellipsometer with a maximum spectral range from 250 to 1700 nm
- Upgrade with Kinetic / SPR cell for In situ ellipsometry and Imaging SPR

### **Detailed Technical specifications:**

#### **Instrument base**

- All required mechanics and electronics
- Instrument alignment by angular adjustment of entire optical head with a precision of 0.001° in 2 tilting axes, and travel range alignment of 5 deg.
- A Gantry which includes a motorized z-lift to drive the optical head up & down to accommodate the surface position of the sample with vertical travel range: > 100 mm and repeatability: 1  $\mu\text{m}$ )

- An Alignment sensor for automatic and independent detection and positioning in z direction and 2 tilt directions to detect tilt and z-position of sample, detection: 0.001° in both tilting axes, z-axis resolution: up to 1 µm)
- A High precision automatic software controlled goniometer to enable variable angle measurements from AOI range of 38° to 90°, with angle resolution of 0.001° and absolute angle accuracy of 0.01° and speed of motion of ~ 5° / sec.)
- A Manual sample handling stage
- Software that can run independently of the instrument to enable off line data analysis and to easily integrate with optional alternate measurement technologies. Software Packages for instrument control, instrument data & analysis and modelling.
- Power supply: 230 V ± 10% , 50 Hz
- PC and Monitors: Windows 7 or higher version based-software pre-installed and ready to run, LCD display 23" or larger with up to date PC.

### **Light source & optics**

- All required optical components
- A Broadband diode laser (incl. 1 laser protection glasses) (658 nm, 50 mW, to reduce interference effects)

### **Imaging and analysis**

- Focus scanner to enable fully focused images
- 10x objective of long distance objective with high numerical aperture, with a field-of-view of 0.4 mm and lateral resolution of 2 µm
- A 20x objective with field-of-view of 0.2 mm and lateral resolution of 1 µm

### **Detection**

- High quality, monochrome GigE CCD camera with 1392 x 1040 pixel, 12 bits and max. 40 frames per second.

**Support frame:** Dimensions: 810 x 600 x 984 mm<sup>3</sup>

**Integrated active vibration isolation system** should be quoted with the system.

Isolation Performance min: 25 dB (94.4%) at 5 Hz and 35 dB (98.2%) beyond 10 Hz  
Active isolated frequency range: 1 – 200 Hz

### **Langmuir Blodgett trough:**

-Trough dimension : Surface area = 273 cm<sup>2</sup> LxWxD= 364 mm x 75 mm x 4 mm

-Maximum Sample size for vertical dipper( TxWxH mm): 3 x 52x56

-Dipping well ( LxWxD mm)- 20 x 56 x 60

-Barrier material: Delrin

-Trough material: Non porous PTFE

-Platinum Wilhelmy plate for surface potential measurement: 1 no.

### **General requirements:**

**Warranty:** The entire system (excluding laser which is for 12 months) should be warranted for a period of 24 months from the date of installation.

**Manuals/ Circuit-Diagrams and Instruction Sheets:**

All the manuals including circuit diagrams and instruction sheets must be supplied in English for the purpose of in house service engineer's reference.

**Pre-Installation requirement:**

Necessary pre-installation advice, room plan, electrical requirements and other site essential details should be sent immediately after the placement of the order.

**Installation in India:**

List of Indian users of the quoted/similar model of the equipment along with their complete contact details and date of supply of the instrument should be provided.

**Conditions**

The vendor must undertake to deliver and install the system at the shortest possible time after the placement of the purchase order.

**Installation, commissioning and Application Training:**

Free of cost installation at the site and user training at the site for a minimum of 2-3 working days for a group of scientists/technical staff/students for operating the instrument.

**Service facility in India:**

Supplier should clearly mention about their service set up in India for prompt service support along with number of service engineers specially trained on the quoted instrument.