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Ref No. INST/12(226)/2019-Pur Date: 21/05/2020

CORRIGENDUM

Reference to NIT no. INST/12(226)/2019-Pur published in national newspapers for purchase of equipment: Atomic Force Microscope (AFM) with PFM Facility. Below mentioned technical points may be read and corrected as per following:-

Present Tender Specifications	**Modified Specifications after pre-bid meeting**
1. Scanner, camera, micro-meter translation stage, active anti vibration table and air flow protection integrated in a single device.	1. Scanner, camera, micro-meter translation stage, active anti vibration table and air flow protection integrated in a single device.
2. Easy accommodation of the largest variety of different samples and sample holders up to 100 mm in diameter and 10 mm in height.	2. Easy accommodation of the largest variety of different samples and sample holders at least > 50 mm in diameter and 10 mm in height.
3. Integrated manual sample positioning with 20 mm x 20 mm travel in XY.	3. Integrated manual sample positioning with 20 mm x 20 mm travel in XY.
4. The AFM must have a xyz tip-scanning configuration.	4. The AFM must have a xyz tip-scanning configuration.
5. The AFM must include both top view and side view optics for sample viewing.	5. The AFM must include both top view and side view optics for sample viewing.
6. Should have the option to rescan the disturbed line in image during live imaging.	6. Should have the option to rescan the disturbed line in image during live imaging.
7.Should be capable of accommodating self-aligned cantilevers with alignment grooves to guarantee that laser is also automatically self-aligned on the cantilever back; manual laser adjustment must be possible for grooveless and special cantilevers.	7. Should be capable of accommodating self-aligned cantilevers with alignment grooves to guarantee that laser is also automatically self-aligned on the cantilever back; manual laser adjustment must be possible for grooveless and special cantilevers.
8. Integrated active antivibration table (min. 25 dB (94.0%) at 5 Hz, 40 dB (99.0%) above 10 Hz) with detection of non-adjustable external vibrations and consequent automatic	8. AFM data resolution should be at least 0.5 nm or lower. 9. Integrated active antivibration table (min. 25 dB (94.0%) at 5 Hz, 40 dB (99.0%) above 10 Hz) with detection of non-adjustable external vibrations and consequent automatic re-measurement of the current scan line.

re-measurement of the current scan line. 9. Microsoft Windows compatible and freely available acquisition and analysis software with software updates included for the product life. 10. The system must include the following scanning modes: • AFM Contact Mode • AFM Tapping Mode • Lateral Force Microscopy • Phase Imaging • Force Modulation Microscopy • Magnetic force microscopy • Force Distance (F-D) Spectroscopy and force volume map, amplitude-distance, phase-distance • Electrical modes such as EFM, PFM • Optional HV PFM with suitable HV amplifier for applying voltages up to 100V or higher. • Lithography 11. Scanner must include the following features • Flexure-based XY scanner and decoupled piezo-based Z-scanner Must have possibility to have an ample choice of detachable cantilever holders with kinematic mount to accommodate standard commercially available cantilevers with alignment grooves. • AFM laser operating at a wavelength between 645 and 655 nm. • The scanner must have a XY axes scanning range ≥ 100 um, and Z axes scanning range ≥12 µm. • Z-measurement noise level ≤ 40 pm (RMS, dynamic mode in air). • Optical Z position sensor with a noise level ≤ 180 pm.	10. Microsoft Windows compatible and freely available acquisition and analysis software with software updates included for the product life. 11. The system must include the following scanning modes: • AFM Contact Mode • AFM Tapping Mode • Lateral Force Microscopy • Phase Imaging • Force Modulation Microscopy • Magnetic force microscopy • Force Distance (F-D) Spectroscopy and force volume map, amplitude-distance, phase-distance • Electrical modes such as EFM, PFM (± 10 V) • Lithography 12. Scanner must include the following features • Flexure-based XY scanner and decoupled piezo-based Z-scanner must have possibility to have an ample choice of detachable cantilever holders with kinematic mount to accommodate standard commercially available cantilevers with alignment grooves. • AFM laser operating at a wavelength between 645 and 655 nm. • The scanner must have a XY axes scanning range ≥ 100 um, and Z axes scanning range ≥12 µm. • Z-measurement noise level ≤ 40 pm (RMS, dynamic mode in air). • Optical Z position sensor with a noise level ≤ 180 pm. 13. System optics should have following features • AFM scanning cantilever/probe optical surface should be viewable on axis in real time via Direct Optical Video Access by CCD.

12. System optics should have following features • AFM scanning cantilever/probe optical surface should be viewable on axis in real time via Direct Optical Video Access by CCD. • The resolution of the optics must be 2 µm or better. • The AFM must include top-view optics with motorized focus & digital zoom. Systems having both top view and side view camera with motorized focus and digital zoom will be preferred. • The optics must have software-controlled white LED illumination. • The optics must include a 5-Megapixel or higher camera, and software to display and store the optical image from within the AFM software. 13. System controller should have following features • AFM controller with fully digital internal data processing, 24-bit ADC/DAC conversion depth, and programmable FPGA CPU, allowing high-speed data acquisition, dynamic filtering and analysis, and real-time signal monitoring directly from within the AFM control software, 32-bit CPU and multitasking operating system for parallel operations • USB interface between controller and PC • data points 8000x8000 pixels or higher • The system must allow for up to 8 simultaneous channels in real time scanning • It must allow access of controller signals via external BNC connector 14. Detector: High-speed, low-noise 4-quadrant photodiode detector; Choice between red laser and near infrared SLD; Laser on/off through software. 15. Computer and UPS:	• The resolution of the optics must be 2 µm or better. • The AFM must include top-view optics with motorized focus & digital zoom. Systems having both top view and side view camera with motorized focus and digital zoom will be preferred. • The optics must have software-controlled white LED illumination. • The optics must include a 5-Megapixel or higher camera, and software to display and store the optical image from within the AFM software. 14. System controller should have following features • AFM controller with fully digital internal data processing, 24-bit ADC/DAC conversion depth, and programmable FPGA CPU, allowing high-speed data acquisition, dynamic filtering and analysis, and real-time signal monitoring directly from within the AFM control software, 32-bit CPU and multitasking operating system for parallel operations • USB interface between controller and PC • data points 8000×8000 pixels or higher • The system must allow for up to 8 simultaneous channels in real time scanning • It must allow access of controller signals via external BNC connector 15. Detector: High-speed, low-noise 4-quadrant photodiode detector; Choice between red laser and near infrared SLD; Laser on/off through software. 16. Computer and UPS: Latest branded PC with windows operating system and licensed software for the operation of the instrument. • Software must be a single package for all modes and attachments with no need for additional software programs. • Software package must include both image acquisition and data processing software in one package with no need for different programs operation.

Latest branded PC with windows operating system and licensed software for the operation of the instrument. • Software must be a single package for all modes and attachments with no need for additional software programs. • Software package must include both image acquisition and data processing software in one package with no need for different programs operation. AFM Tips: 50 to 60 pcs conducting tips suitable for PFM Sample stubs: More than 10 pcs	•Life time license including all software and accessories for standalone operation. 17. Mandatory instruction: • After submission of tender document, vender should collect the sample from indenting officer and send back the detail test results within 15 days after collection of sample on the same proposed system (same model no. with certifications) for technical evaluations. • 10 tips for each mode (such as tapping, contact, MFM and PFM/EFM) should be provide. 18. Optional quotation: • High voltage PFM with at least higher than ± 50 V and compatible interface for data processing and imaging with the parent system. • Tips: 50 to 60 pcs conducting tips suitable for PFM. • Sample stubs: More than 10 pcs.

The last date for receipt of tender has been extended upto **24/06/2020 till 2:00PM** which will be opened on the same date at **3:00PM** at INST, Mohali. The other details of the tender shall remain unchanged.

Sd/-

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