

B.I.T. Sindri
P.O. - Sindri Institute, Sindri,
Dhanbad, Jharkhand -828123

Notice

Description : Supply and installation of Scanning Tunneling Microscope Physical (STM) for nanotechnology

Package Code : TEQIP-III/JH/bits/17

Package Name : TEQIP-III/BITSindri/OTH/NANO-STM

B.I.T. Sindri, Dhanbad wishes to establish a Nanotechnology lab as a central research facility. The Technical specifications of the equipments/goods are provided below.

Interested manufacturers / authorized supplier are requested to fill in the Information Form (Annexure - A) given below and send the filled, signed and stamped hard copy on or before **4:00 P.M. of 10/07/2019** at following address -

Director, B.I.T. Sindri,
P.O. - Sindri Institute, Sindri,
Dhanbad, Jharkhand -828123

Formal request for Financial and Technical proposal will be sent to the applied valid firms after 10/07/2019.

Technical Specification

Following are the specifications and details for Scanning Tunneling Microscope Physical (STM) for nanotechnology laboratory at B.I.T. Sindri, Dhanbad.

Scanning Tunneling Microscope Physical (STM) is predominately used for surface topography and spectroscopy of thin film and nano structures of carbon based materials (i.e., CNT, carbon fiber ect.) and inorganic compounds.

SI. No.	Features & detailed specifications of the features
1.	<ul style="list-style-type: none"> • Suitable for pedagogy • The controller and Data-Acquisition electronics • A toolkit (with tools for tip and sample changing, spare sample mounting discs, conducting silver paste, tip wire cutters) • Two pre-mounted calibration samples, one for large area scans and one for calibration at the 0.1 nm level. • Pt/Ir and Tungsten tips (10 each) with 1 m extra of tungsten wire. • The STM should work under ambient conditions.
2.	Scan area: Min. 500nm × 500nm or smaller and Max. 2.0 μm × 2.0 μm or higher Atomic resolution with X-Y resolution 8 pm or better
3.	Imaging mode: Topographic imaging with sub atomic resolution in -Constant Current Mode - Constant Height Mode - Dynamical Conductance Imaging
4.	Z-resolution: Analog Mode : 8 – 10 pm or better Digital : 15pm or better
5.	Spectroscopy modes: 1. I-V Spectroscopy in point mode, line mode and grid modes (i) Numerical dI/ dV & Normalized dI/dV plots (ii) dI/dV with Lock-in Amplifier 2. I- Z Spectroscopy
6.	Bias settings: -10V to+ 10V in Steps of 0.5m V or better -100V to + 100V in Steps of 5mV or better
7.	Tunneling current range: + 5nA to -5nA in steps of 0.1n A or better
8.	Lock-in amplifier: Dynamical Conductance/Local Density of States Imaging through the fully integrated lock-in amplifier simultaneously with topography Local barrier height imaging through the same Lock-in amplifier.
9.	Image display: Dual Imaging Window for Scan and Retrace Image Display
10.	Data export: Export to standard image file formats like jpg, png, ASCII, postscript formats.
11.	Analysis functions: Line (Single line profile) Extraction, Localized Zooming, Roughness Display, Measure length & angles on the images, 2D Fast Fourier, Transformation etc.
12.	Sample size: 1×1 cm ² or higher
13.	Power supply: 220-240 V/ 50 Hz
14.	The STM should have suitable vibration isolation platform, an acoustic isolation shield, essential tool-kit, instruction manual, a few calibration samples.
15.	Computer: A third-party branded computer with essential specifications.
16.	List of optional items - Reference Sample Kit (with 10 pre-mounted samples having HOPG, Bismuth Telluride,

	and DVD samples)
17.	<p>Warranty and support :</p> <ol style="list-style-type: none"> 1. 3 years comprehensive on-site warranty for all parts of the entire system including accessories supplied with the instruments from the date of successful installation and commissioning post warranty period will be for another 3 years for supply of all parts of the entire system, including accessories. If the system breakdown during warranty period, the warranty period will be extended for the full breakdown period after the expiry of initial warranty. 2. Service response time must be 48 hours or less. 3. On-site training must be provided by trained engineering at free of cost.
18.	<p>Maintenance :</p> <p>The supplier is required to confirm that the spares and accessories would be available for more than 6 years after expiry of warranty and post warranty.</p>
19.	<p>Upgradation :</p> <p>The supplier shall supply upgraded software for STM operation whenever they are available.</p>
20.	<p>Application notes & Manuals :</p> <p>The supplier shall provide detailed application notes and manuals of STM in hard and soft copy along with the detailed drawings and circuit diagrams (in English).</p>
21.	<p>Required Documents:</p> <p>The supplier should have installed at least 10 STM across the country for last 3 years. The supplier must provide a comprehensive list of uses of STM in India.</p>
22.	<p>Compliance statement :</p> <p>The supplier must submit a table indicating the compliance of the features of the model of the equipment being quoted with those given in indent.</p>
23.	<p>Pre-installation Requirement :</p> <p>Pre-installation requirement such as room size, tolerable limits of EM field and vibration (mechanical), required power rating, utility requirements are to be stated clearly, and to be verified/ surveyed by the supplier at the installation site. It is the supplier's responsibility to clearly provide details of the above mentioned requirements before delivery of the equipment.</p>
24.	<p>Delivery & Insurance Coverage:</p> <p>Vendor will be fully responsible in successful delivery (including unloading), installation and commissioning of the instrument at site of installation in B.I.T. Sindri with fully insurance coverage as per rule.</p>

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INFORMATION FORM

(To be properly filled, signed and stamped)

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Package Code : TEQIP-III/JH/bits/17

Package Name : TEQIP-III/BITSindri/OTH/NANO-STM

1) Name of the firm :

2) Official address with Pin Code :

3) e-mail address :

4) Phone/Mobile Number :

5) PAN Number :

6) TAN Number :

7) GST Number :

8) Name of official Representative :

a) Post held :

b) Phone Number :

c) e-mail Address

We declare that we are interested to supply the above mentioned equipments/Goods

Date

Signature and official stamp