

PRESIDENCY UNIVERSITY
86/1 College Street, Kolkatta – 700 073

Tender Notice No. PU/DST-FIST/ Physics/2014-15/01.

Date: 08-12-2014

Tender for the supply of the Laboratory Equipments to the Department of Physics under DST-FIST Program & DST- project grant, Presidency University, Kolkata

TENDER NOTICE

Quotation in sealed cover addressed to “**The Registrar, Presidency University, 86/1 College Street, Kolkata-700073**” are invited **from the original manufacturer, sole authorized dealers / authorized dealers or distributors (to be certified by the original manufacturer)** for the supply of the following laboratory equipments to the Department of Physics, Presidency University. The quotations should be made by the bidders in their original letter head clearly indicating the specification, brand / manufacturer’s name, model, quantity, price (excluding tax, if any) on free delivery at site basis, rate of tax as applicable, discount, etc. separately for each item. Quotations should be accompanied with the duly filled up Application Form (**Annexure – D**). Self-attested photocopies of VAT / Sales Tax Registration Certificate, copy of the valid Trade License, copy of the PAN card, I.T. Return for the last three Assessment Years and other relevant credentials are to be enclosed with the said application form. No advance payment will be made. Payment will be made after completion of the satisfactory delivery and installation of the items as per the Purchase Order and submission of tax invoice / bill with necessary papers. **A non-refundable demand draft for Rs.1000/- (Rupees One thousand) only in favour of Presidency University payable at Kolkata should be enclosed with the quotation as application fees. The sealed cover should be duly superscribed with the Tender Notice No. and date and the words “Laboratory Equipments to the Department for department of Physics under DST-FIST Program/ DST-project grant”. Technical Bid and Price Bid are to be made in separate sealed covers and both to be placed inside the main sealed cover.**
QUOTATIONS IN THREE SEPARATE LETTER HEADS ARE REQUIRED FOR EACH ITEM

LAST DATE OF SUBMISSION OF QUOTATIONS TO THE OFFICE OF THE HEAD OF THE DEPARTMENT OF PHYSICS : 05-01-2015 up to 3.00P.M.

DATE OF OPENING OF THE QUOTATIONS: 05-01-2015 at 3.30 P.M.

The University reserves the right to accept or reject any quotation in part or full without assigning any reason.

LIST OF LABORATORY EQUIPMENTS WITH TECHNICAL SPECIFICATIONS

1. Double beam, double Monochromator, ratio recording UV/Vis/NIR Spectrophotometer with Diffuse Reflectance Accessories and complete with all necessary attachments.

Required Technical Specifications

- 1) Wavelength range 190 nm – 3000 nm (Minimum).
- 2) Optical unit should include Pre-aligned tungsten halogen lamp and deuterium lamp.
- 3) All reflecting optical system (SiO₂ coated) with holographic grating monochromator with 1440 Lines/mm UV/Vis blazed at 240 nm and 360 Lines/mm NIR blazed at 1100 nm with Littrow mounting,
- 4) Peltier cooled PbS detector for NIR.
- 5) Spectral bandwidth: from 0.17 nm – 5 nm UV/Vis (in 0.01 nm increments), spectral bandwidth from 0.2 nm – 20 nm NIR (in 0.04 nm increments).
- 6) System should have Dual Sample Compartment.
- 7) UV/Vis Resolution: ≤ 0.17 nm; NIR Resolution: ≤ 0.20 nm.
- 8) Stray Light: $\leq 0.0001\%T$ (10 g/l NaI ASTM method At 220 nm).
- 9) Wavelength Accuracy: UV/Vis ± 0.15 nm // NIR ± 0.5 nm.
- 10) Photometric Accuracy: Double Aperture Method 1 A ± 0.0012 A.
- 11) Photometric Linearity: At 3.0 A ± 0.020 A (Addition of filters UV/Vis at 546.1 nm, 2 nm slit, 1 second integration time)
- 12) Photometric Range: 6 A (UV/Vis as well as NIR).
- 13) Photometric Noise RMS: 0 A and 500 nm ≤ 0.00005 A.
- 14) Standard quartz cells for liquid sample analysis and thin film sample holder for UV-VIS-NIR range.
- 15) Integrating sphere contained in a module which simply snaps into the spectrometer and is ready to be used without any adjustment. The sphere should be Spectralon Coated - PMT / PbS detector combination. Wavelength range: 200 to 2500 nm.
- 16) Powder sample holder should be quoted.
- 17) Service Facility: Supplier should mention their details of service setup and man powers, which are responsible for after sales support. Response time should be within 48 hrs.

2. Electrochemical Analyzer/workstation.

Required Technical Specifications

For Potentiostat

- 1) 2, 3 and 4- electrode configuration.
- 2) Maximum potential: ± 10 V.

- 3) Maximum current: $\pm 2A$
- 4) Potentiostat rise time: $< 1 \mu s$, $0.8 \mu s$ typical
- 5) Applied potential resolution: 0.0015% of potential range
- 6) Applied potential accuracy: $\pm 1 \text{ mV}$, $\pm 0.01\%$ of scale
- 7) Measured current resolution: 0.0015% of current range, minimum 0.3 fA
- 8) Current measurement accuracy: 0.2% if current range $\geq 1e-6 \text{ A/V}$, 1% otherwise

For Galvanostat

- 1) Galvanostat applied current range: 3nA - 2A
- 2) Applied current resolution: 0.03% of applied current range
- 3) Measured potential resolution: 0.0015% of measured range

Electrometer

- 1) Reference electrode input impedance: $1 \times 10^{12} \text{ ohm}$
- 2) Reference electrode input bandwidth: 10 MHz
- 3) Reference electrode input bias current: $\leq 10 \text{ pA}$ @ 25°C

Waveform Generation and Data Acquisition

- 1) Fast data acquisition: dual channel 16-bit ADC, 1,000,000 samples/sec simultaneously

Experimental Parameters

- 1) CV and LSV scan rate: 0.000001 to 10,000 V/s
- 2) Potential increment during scan: 0.1 mV @ 1,000 V/s
- 3) CA and CC pulse width: 0.0001 to 1000 sec
- 4) CA and CC minimum sample interval: $1 \mu s$
- 5) DPV and NPV pulse width: 0.001 to 10 sec
- 6) IMP frequency: 0.00001 Hz to 1 MHz
- 7) IMP amplitude: 0.00001 V to 0.7 V rms

Other Features

- 1) External potential input
- 2) Potential and current analog output
- 3) RDE control output : 0-10 V (corresponding to 0-10000 rpm), 16-bit, 0.003% accuracy
- 4) Digital input/output lines programmable through macro command
- 5) Flash memory for quick software update
- 6) Serial port or USB selectable for data communication
- 7) CV simulation and fitting program, user-defined mechanisms
- 8) Impedance simulation and fitting program
- 9) Maximum data length: 256K-16384K selectable

Techniques

- 1) Cyclic Voltammetry (CV)
- 2) Linear Sweep Voltammetry (LSV) with stripping
- 3) Staricase Voltammetry (SCV) with stripping
- 4) Tafel Plot (TAFEL) potentiodynamic deactivation, pitting corrosion, corrosion rate, linear Polarisation, Corrosion current etc.
- 5) Chrono Amperometry (CA)
- 6) Chrono Coulometry (CC)
- 7) Differential Pulse Voltammetry (DPV) with stripping
- 8) Normal Pulse Voltammetry (NPV) with stripping
- 9) Differential Normal pulse Voltammetry (DNPV) with stripping
- 10) Square Wave Voltammetry (SWV) with stripping
- 11) AC Voltammetry (ACV) with stripping
- 12) Second Harmonic AC Voltammetry (SHACV) with stripping
- 13) Fourier Transform AC Voltammetry (FTACV)
- 14) Amperometric i-t Curve (i-t)
- 15) Differential Pulse Amperometry (DPA)
- 16) Double Differential Pulse Amperometry (DDPA)
- 17) Triple Pulse Amperometry (TPA)
- 18) Integrated Pulse Amperometry Detection (IPAD)
- 19) Bulk Electrolysis with Coulometry (BE)
- 20) Hydrodynamic Modulation Voltammetry (HMV)
- 21) Sweep-Step Functions (SSF)
- 22) Multi-Potential Steps (STEP)
- 23) AC Impedance (IMP)
- 24) Impedance – Time (IMPT)
- 25) Impedance – Potential (IMPE) (Mott-Scottsky)
- 26) Chrono Potentiometry (CP)
- 27) Chronopotentiometry with Current Ramp (CPCR)
- 28) Multi-Current Steps (ISTEP)
- 29) Potentiometric Stripping Analysis (PSA)
- 30) Electrochemical Noise Measurement (ECN)
- 31) Open Circuit Potential – Time (OCPT)
- 32) Galvanostat
- 33) RDE control (0-10V output)
- 34) Full version of CV simulator with fitting program
- 35) Impedance Simulator and fitting program
- 36) IR Compensation
- 37) External Potential Input
- 38) Auxiliary Signal Measurement Channel
- 39) Bode and Nyquist plot can be done

Photovoltaic studies

Software provision for measurement of I-V measurements, I max, Pmax, Fill factor etc

Electrode:

- 1) Pt Working Electrode -1 No.
- 2) Ag/AgCl Reference (aq) -1 No.
- 3) Pt Wire Counter Electrode – 1 No.
- 4) 4 glass cell with one cell top

Warranty: 1 year & AMC: 1 year AMC Free of charge after warranty period

Service Facility: Supplier should mention their details of service setup and man powers, who are responsible for after sales support. Response time should be within 48 hrs

Optional

Computer: Latest version computer compatible with instruments software.

System configuration: I3 Processor, 4GB RAM, 1TB Hard Drive, 19'' LED Monitor, DVD writer, Keyboard & Mouse & speaker.

3. Broadband Light source with Optical Chopper, Monochromator etc.

Technical Specifications

1. Broadband Light Source with housing, power supply, Lamp
Lamp: Xenon lamp

Power: 150 W

Broadband Optical Power at focal point: 15 W

Input Power Supply: 210–240 VAC , 50 Hz

Power Rating: 0 to 150 watts

Operating Voltage: 10 to 24 volts

Operating Current: 0 to 8 amps

Ripple at Max Current: < 10 mV

2. Digital Optical Chopper
Chopper control: Two stepper motor controller
Number of phases per motor: 2
Output current per phase: Maximum 1A
Stepper motor voltage: 5 to 10 V
Stepping modes: Full, Half and Micro (1/8) steps
Chopper slew rate: 0 to 62,500 micro steps per second
Chopping speed: 0 to 500 Hz with 5 sector blade
 0 to 3,000 Hz with 30 sector blade
Chopping accuracy: 0.016 Hz with 5 sector blade
 0.096 Hz with 30 sector blade
Communication interface: USB 2.0
Software: MoCo 3.0 program, LabVIEW™ driver & source code

3. Monochromator

Optical scheme: Optimized Czerny-Turner

Spectral range: 300 – 1500 nm

F/Number : 1 : 3.6

Focal length: 142 mm

Diffraction gratings: 40 x 40 x 10 mm, turret with 2 gratings

Grating 1 Ruling: 1200 l/mm

Blaze wavelength: 400 nm

Grating 2 Ruling: 600 l/mm

Blaze wavelength: 750 nm

Resolution: < 1 nm

Entrance slits: Automatic and manual adjustment

Slit width: 0 – 3 mm

Slit height : 10 mm

Step size: 0.5 μ m

Exit slits: Manual adjustment (micrometer driven)

Slit width: 0 – 3 mm

Slit height: 10 mm

Micrometer reading accuracy: +/- 1 μ m

Step size: 0.5 μ m

Precision: +/- 10 μ m

Computer interface: Full-Speed USB interface

4. Motor driven Filters Wheel with 4 standard order separating filters

5. Achromatic condenser AFA with SMA-905 optical fiber connector for Exit port

6. Mechanical adapter for Xe source for Entrance port

For any further clarification regarding specifications only, the Head, Department of Physics may be contacted through e-mail (somak@presiuniv.ac.in).

Sd/-

Registrar

Presidency University, Kolkata

ANNEXURE – I

APPLICATION FORM

FORMAT TO BE FILLED BY THE MANUFACTURERS / INDIAN AGENTS (ON BEHALF OF THEIR FOREIGN PRINCIPLES) OR THEIR AUTHORIZED COUNTRY DISTRIBUTORS/ REPRESENTING DEALERS/ REGIONAL AGENCIES, SUBMITTING QUOTATION FOR SUPPLY OF LABORATORY EQUIPMENTS FOR DEPARTMENT OF PHYSICS, PRESIDENCY UNIVERSITY, KOLKATA

Tender Notice No.

Date:

1. Name of the Quoter:
2. Status of the Quoter:
(attach documents, if registered company/partnership/sole-proprietorship)
3. Address (Head Office / Registered Office) with Phone No. and e-mail id:
4. Present Address with Phone No. and e-mail id:
5. Whether OEM/representing Foreign Principal /Authorised Dealer / Authorised Distributor :
(attach self-attested copy of the valid certificate of authorization from OEM)
6. Name of Proprietor / Managing partner/ Managing Director / Authorised Signatory:
(attach details)
7. Details of tie-ups for supply/services, if any :
(attach details, agreements, escalation matrix)
8. Income Tax return / Clearance Certificate for the last three Assessment Years (attach self attested copy) :
9. Name and address of at least three largest Customers with value of purchase order:
(attach copies of documentary evidences)
10. Income Tax Permanent A/c No. (attach copy) :
11. VAT / CST Registration No. :
(attach copy of the certificate)

12. Trade Licence / ROC Certificate No.:
(attach copy of the certificates)

13. Details of Tender Fees Bank Draft No., issuing branch and date:

DECLARATION

1. I, ----- Son /Daughter of Shri -----
-----, Proprietor/Partner/CEO/MD/Director/ Authorized Signatory of M/s.
----- am competent to sign this declaration and execute
this tender document.
2. I have carefully read and understood all the terms and conditions of the tender and hereby
convey my acceptance of the same.
3. The information/ documents furnished along with the above application are true and authentic
to the best of my knowledge and belief.
4. I/ we am / are well aware of the fact that furnishing of any false information/ fabricated
document would lead to rejection of my tender at any stage besides liabilities towards
prosecution under appropriate law.
5. Each page of the tender document and papers submitted by my Company is authenticated,
sealed and signed, and I take full responsibility for the entire documents submitted.
6. I/ our firm / company am / is not currently debarred or blacklisted in PRESIDENCY
UNIVERSITY, Kolkata or in any national organization or educational institute/university for any
supplies, products or services,.

Signature of the Authorized Person

Date : ----- Full Name_____

Place : ----- Designation with Seal