



PERIYAR UNIVERSITY

SALEM- 636011, TAMIL NADU
NAAC A Grade - State University - NIRF Rank 90

Ref. No.PU/R/PL&D3/Physics/28126/2018

Date: 27.12.2018

TENDER NOTIFICATION

Sealed Tenders (Two cover system) will be received by the Registrar, Periyar University, Periyar Palkalai Nagar, Salem – 11 for the **Purchase of Solar Simulator with I-V Characteristics for DST “FIST-Programe” Project in the Department of Physics** from reputed firms.

The detailed tender documents with specifications terms and conditions etc., can be had from our University website www.periyaruniversity.ac.in. The last date for receipt of the tender in this office is **24.01.2019 at 10.30 a.m.**

TENDER SUMMARY

Tender Ref. Number	PU/R/PL&D3/Physics/28126/2018, Date: 27.12.2018
Tender Document Cost (Rs.) (Downloadable One)	Rs. 6,720/- [(Demand Draft drawn in any Nationalized bank in favour of the Registrar, Periyar University, payable at Salem) [(Separate DD)]
Amount of EMD (Rs.)	1% of the quoted value [(Demand Draft drawn in any nationalized bank in favour of the Registrar, Periyar University, payable at Salem) [(Separate DD)]
Bid Submission	upto 10.30 A.M. on 24.01.2019
Bid Outer Cover Opening	24.01.2019, 11.30 AM
Bid Opening (Technical)	Will be decided on the day of opening
Bid Opening (Commercial)	Will be decided on the day of opening

REGISTRAR i/c



PERIYAR UNIVERSITY

SALEM- 636011, TAMIL NADU
NAAC A Grade - State University - NIRF Rank 90

From

The Registrar
Periyar University
Periyar Palkalai Nagar
Salem – 636 011.
Tamil Nadu, India.

To

No. PU/R/PL&D3/Physics/28126/2018

Date:

**NAME OF THE SUPPLY: Purchase of Solar Simulator with I-V Characteristics for DST
“FIST-Programme” Project in the Department of Physics**

Tender Conditions

- 01) Sealed tenders will be received by the Registrar upto **10.30 a.m. on 24.01.2019** for the **“Purchase of Solar Simulator with I-V Characteristics for DST “FIST-Programme” Project in the Department of Physics”** as per the specifications given in the tender schedules.
- 02) The tender shall be submitted in sealed cover superscribed as **“Tender for Purchase of Solar Simulator with I-V Characteristics for DST “FIST-Programme” Project in the Department of Physics”** for use of Periyar University due on **24.01.2019 at 10.30 a.m.**
- 03) If the last day fixed for the receipt of tender happens to be a holiday tenders will be received on the next working day upto 10.30 a.m.
- 04) Each tender shall accompany with an **Tender Document Cost of Rs. 6,720/-**. The Tender Document Cost in the form of the Demand Draft drawn in any nationalized bank in favour of the **Registrar, Periyar University, payable at Salem.** (Separate DD)
- 05) Each tender shall accompany with an **EMD at 1% of the Instrument Value.** The EMD in the form of the Demand Draft drawn in any nationalized bank in favour of the Registrar, Periyar University, payable at Salem. Tenders without E.M.D. will be summarily rejected. E.M.D. will not carry any interest.
- 06) **Tenders received late will be returned to the tenderer unopened.**
- 07) The entries in the tender schedules shall be as for as possible without scoring and corrections and over writings and shall be legible. The unavoidable correction or scoring shall be attested by full signature of the tenderer. The tenderer should sign on each page of the tender document.

- 08) **In the tender schedule, the tenderer should quote his rate and tax for each item separately in figures and words in the corresponding column.**
- 09) If the rates quoted in the schedule differ in words and figures, the lowest quoted rate will be taken.
- 10) No revision of rates will be accepted. Rates quoted shall be firm.
- 11) The rates quoted shall be for delivery at University Campus inclusive of charges such as packing and forwarding. Discount if any should be indicated prominently. The tenderer is solely responsible till delivery in good condition.
- 12) **The tenderer should produce the materials as per the specifications given in the tender schedule.**
- 13) Tender shall be submitted only in this official form and the tenderer should sign on each page of the tenderer enclosed without any omission. Tenders with price variation will not be accepted.
- 14) The tender shall be valid for a period of One year from the date of opening. Tenderer should not withdraw his tender after the tenders are opened. In case the tender is withdrawn after opening, the E.M.D. will be forfeited.
- 15) The E.M.D. of the unsuccessful tenderers will be refunded on their request immediately after the disposal of tender by the competent authority.
- 16) **The successful tenderer shall also furnish security deposit at 2% of the value of the order. The Security Deposit will be refunded after one year from the date of supply of materials.**
- 17) In case of failure by the tenderer to supply items demanded within the period prescribed, the Registrar shall have the power to purchase from others in lieu of rejected or not delivered goods, the excess cost and expenses will be worked out and recovered from the tenderer.
- 18) Successful tenderer should execute an agreement on stamp paper to the value of ` 20/- within seven days from the date of receipt of intimation about acceptance of the tender. Failure to execute the agreement in the stipulated time will entail in forfeiture of the E.M.D.
- 19) Any dispute arising out of this contract shall be settled only on the court having jurisdiction of Salem.
- 20) The authority competent to accept the tender reserves the right to reject the tender without assigning reasons thereof.
- 21) Regarding the acceptance of supply with reference to the specifications and quality of materials supplied, the decision of the Registrar shall be final. The rejected materials should be removed within 15 days at Tenderer's cost.
- 22) This University's General rules for the supply of the materials and works will apply on this purchase also.

- 23) The goods should be supplied within 15 days of the receipt of order.
- 24) If the tenderer fails in the due performance of his supply within the time fixed, the tenderer is liable to pay as liquidated damages upto 2% per month for the supply value of such portion of the materials as have not been delivered.
- 25) The tender schedule is not transferable and it should be used only by the tenderer to whom it is officially issued.
- 26) Percentage of payment to be withheld for the effective performance of the contract, provided that withheld amounts do not exceed ten percent of the total value of contract.
- 27) The cost must include the warranty maintenance for 5 years from the date of intallation.
- 28) Complete address of the firm including year of establishment, Phone No., Fax No., E- mail address etc., may be furnished.
- 29) The tenderers shall be responsible for erection & installation of the equipment at destination site and for making it fully operational. Payment and terms and conditions if any for the same would be specified by the tenderer separately.
- 30) Canvassing in connection with tender/quotation is strictly prohibited.
- 31) The tenderer should produce solvency certificate at the time of submitting tender form. The tenderer shall furnish the Income Tax clearance certificate and copy of PAN card along with the tender documents.
- 32) The tenderer shall enclose audited statement of the firm for the last three years.
- 33) The tenderer shall attach the copy of GST/TIN/Sales Tax Certificate.
- 34) List of details of works executed and list of customers for the last three years shall be attached.
- 35) The tenderer shall submit the tender by “Two cover system”

“Two cover system” means a procedure under which the tenderers are required to simultaneously submit two separate sealed covers, one containing the Earnest Money Deposit and the details of their capability to undertake the tender (Technical Specification) which will be opened first and the second cover containing the price quotation which will be opened only if the tenderer is found qualified to execute the tender on technical Specification.

This tender is submitted subject to and agreeing to the above conditions.

Details of EMD Enclosed

S.No.	Demand Draft No. / Date & Name of the Bank	Amount

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S.No.	Demand Draft No. / Date & Name of the Bank	Amount

TENDER SCHEDULE

Purchase of Solar Simulator with I-V Characteristics for DST “FIST-Programme” Project in the Department of Physics

The quantities given below are approximate and are likely to be increased/ reduced.
The rates should be quoted for the brand mentioned only.

The rates should be inclusive of all taxes. Taxes must be exhibited separately in the bill. If not, deduction of tax (GST) will be made at the final payment.

The Unit rates noted below are those governing payments.

The rates quoted are for delivery at the University Campus

Sl. No.	Description of the Equipment	Qty.	Rate in Rs. (Without Tax)	Amount in Rs. (With Tax)
1.	Solar Simulator with I-V Characteristics	1 No.		

Specifications enclosed as Annexure

Details of the Equipment

Name of the item: Solar Simulator with (I-V) Characteristics

Quantity: One

Technical Specifications:

Solar Simulator integrated with **Potentiostat** unit for measuring performance parameters of various types of solar cells and photoelectrochemical cells.

S.No.	Description	
A. Solar Simulator System		
1.	Type of light Source	Xenon Short Arc Lamp (150W, Steady State continuous) with Beam downwards illumination.
2.	Filter	Air mass (AM) filter 1.5 Global
3.	Illumination area	25x25mm (1x1") or higher at 1 sun
4.	Class	AAA system as international standard ASTM E-927,
5.	Spectral Match AM 1.5G	+ 25% or 0.75-1.25
6.	Non-Uniformity Irradiance	< $\pm 3\%$
7.	Short term Temporal Instability	< $\pm 2\%$
8.	Long term Temporal Instability	< $\pm 2\%$
9.	Collimation angle	$\leq \pm 12^\circ$
10.	Direction of irradiance	Horizontal Focusing
11.	Irradiance Intensity	1000 W/m ²
12.	Center Beam Line Height (mm)	137 or smaller
13.	Touch Screen Controls	Lamp settings, fan on/off, lamp on/off , lamp status
14.	Cooling mechanism	Necessary Cooling mechanism should be provided for maintaining optimal cooling for lamp
15.	Safety systems	Safety interlock over ride, over temperature Warning, lamp status indicator etc.
16.	Power Supply	Single Phase 200-230 V, 50Hz
17.	Output Power (W)	100~150W adjustable
18.	Power Supply Input	220-240V/ 50Hz
19.	Operating Current (A)	5~ 12 Amps Adjustable
B. I-V Measurement Unit (Potentiostat)		
20.	Electrode Configurations	3 (CE, RE, WE) or 2 electrode
21.	Max. Current	$\pm 95\text{mA}$ or higher
22.	Min current range	10.0nA or lower
23.	Number of current ranges	8 ranges or more
24.	Current Resolution	0.3pA or lower
25.	Max. Controlling Voltage	$\pm 4\text{ V}$ or higher
26.	Max. Compliance Voltage	$\pm 10.0\text{V}$ or higher
27.	Scan rate	10V /sec or high

28.	Input Bias Current @ 25 °C	< 20 pA
29.	Computer Interface	USB
30.	<p>Techniques Cyclic Voltammetry (CV) Linear Sweep Voltammetry (LSV) Open circuit potential vs. time (OCP) ChronoAmperometry (CA) Tafel plot (TAFEL) Differential Pulse Voltammetry (DPV) Normal Pulse Voltammetry (NPV) Multi-Step Potential (MSP) Square Wave Voltammetry (SWV) Anodic (Cathodic) Stripping Voltammetry</p> <p>Optional techniques AC Impedance (IMP) Impedance – Time (IMPT) Impedance – Potential (IMPE)</p>	
31.	<p>Software Features:</p> <ol style="list-style-type: none"> a) User Interface <ul style="list-style-type: none"> ➤ 32-bit Windows application ➤ Multi-Document Interface ➤ Toolbar: quick access to frequently used commands b) File Management c) Instrument Control d) Graphic Display, Present data plot, overlay plots: several sets of data overlaid for comparison, add data to overlay: adding data files to overlay plot, parallel plots: several sets of data plotted side by side e) Up gradation of the software will be done once a year or as and when updated versions of software is available. 	
32.	Dummy Cell for calibration	
33.	Fully Interfaced to computer with necessary cabling, test leads, adaptors etc.	
C. Other Essential Requirements for I-V characteristics and Solar Simulator		
34.	Photoelectrochemical Water Splitting Cell: Glass 50 ml reservoir with 20mm Quartz Window, Black Acrylic Enclosure, Silicon Caps	
35.	<p>Electrodes</p> <ol style="list-style-type: none"> a) Pt wire electrode (1No.) b) Ag/AgCl reference electrodes with 6mm dia , 72 mm Length in 3M NaCl (1 No.) c) L-type GC working electrode with 3 mm dia. (1 No.) d) Electrode polishing kit (1 No.) e) 20ml glass vial (4 Nos) 	
36.	Warranty period: Min. One Year.	
37.	Necessary User Manuals to be provided	
38.	Laptop or PC should be provided to use the potentiostat	