



Indian Institute of Technology Kanpur
Department of Material Science & Engineering
Kanpur 208016, India

Dr. Tanmoy Maiti

Assistant Professor

Tel: +91-512-259-6599/6994

Email: tmaiti@iitk.ac.in

Date: 16 July 2015

Closing date: 27th July 2015

Ref. No. SERB/MSE/TM/2015-2016/02

Sub: Request for submission of quotation for low temperature closed cycle Cryostat for electrical and magnetic testing

For the Plasmonics and Perovskites Lab located in WL204A, it requires the quotation for a Closed Cycle Cryostat for electrical and magnetic testing complying with or better than all of the specifications mentioned in **Appendix A**. The closing date for the above item is **5 PM, 27th July 2015**.

The prospective supplies are required to send quotation in two parts in sealed envelopes, as "Technical Bid" and "Financial Bid". The Technical Bid should contain detailed technical specification of the product being offered and should not mention any prices. The Financial Bid should include the detailed price quotation clearly including the cost of the equipment, taxes, service charges if any, shipping and handling charges. The two separate and sealed envelopes should be clearly marked appropriately as "Technical Bid" and "Price Bid".

Terms and Conditions:

1. Maximum education discount, if any should be offered
2. Validity of quotation should be at least for 60 days
3. Prices should include delivery up to IIT Kanpur
4. Prices should be on **CIF and FOB separately** (if imported)
5. **Warranty** should be for at least **three years** after installation.
6. Delivery period: **Within 80 days** from the date of purchase order
7. Normal payment terms for the Institute will be applicable (90% on delivery of the items and the remaining 10% after satisfactory installation/ inspection)
8. Quotation should carry proper certifications like agency certificate, proprietary certificate, etc.
9. An undertaking that the vendor will supply all the spares and services for the equipment for at least 5 years from the date of commissioning

Kindly send the Technical and Financial bids in sealed envelopes latest by **5 PM, 27th July 2015** to:

Dr. Tanmoy Maiti

409 Faculty Building

Department of Material Science & Engineering

IIT Kanpur, U.P. 208016, India.

E-mail: tmaiti@iitk.ac.in

Phone: 0512-259-6599 (O), 08004862506 (cell)

Technical Specifications for Low Temperature Closed Cycle Cryostat for electrical and magnetic testing

Required Specification**:

Sl. No.	Parameter	Required Specification
1.	Description	Cryogen free Closed cycle cryostat for electrical, magnetic and thermal transport measurements.
2.	Model Name	Clearly mention make, model and model number of the equipment being offered. The quotation should include schematics of the cryostat, specification sheet with detailed performance information.
3.	Cryo-cooling	<ul style="list-style-type: none"> • Specify cryocooler, cooling rate, cooling power and cool-down time to reach base temperature. • Provide at least 10' gas line set & head power cable
4.	Temperature range	800 K – 6.5 K. (1000K to 6.5K will be preferred) MUST have the capability to achieving heating and cooling rate minimum 2 K/min so that user can collect the electrical measurement data at every 2 K temperature difference in both heating and cooling cycle in the temperature range from 6.5 K to 800 K.
5.	Extension of Temperature range (upto 4K):	Please Quote as optional item in a separate list to further extend the capability of this cryostat to reach 4 K temperature.
6.	Interface/ Sample holder	<ul style="list-style-type: none"> • We will use as top-loading i.e. our sample will be on top of the cold head/ finger. • Vacuum shroud and radiation shield material should be compatible with magnetic measurement and outer diameter should be as narrow as possible (< 2 inch) to get the uniform magnetic field • Sample holder or sample stage should be capable of doing electrical experiments at high external dc field (upto 10 kV) in the temperature range mentioned.
7.	Connections: Wiring for transport/electrical experiment:	<ul style="list-style-type: none"> • Wiring for low noise electrical experiment to be installed with 4 BNC hermetic feedthrough and 4 coax leads for sample attachment. • In addition provide one SHV hermetic feedthrough with coax leads installed & thermally anchored with 4 inch free length capable of handling high DC field (upto 10 kV). This will be used to apply high dc bias to the sample.
8.	Temperature measurement	<ul style="list-style-type: none"> • At least one platinum sensor and one diode based temperature sensors in addition to thermocouple for high accuracy measurement (control and sample temperature measurement) and controlling over full temperature range. • Please Quote extra separate sensor for magnetic measurement in the above temperature range (6.5K – 800 K) if required.
9.	Temperature controller	<ul style="list-style-type: none"> • Model Lakeshore 336 or equivalent with wiring to connect to the cryostat • Driver for computer to use with software like Labview. Both GPIB and RS232 connector MUST be provided. If possible add one usb port as well (combination of GPIB, RS232 and USB port will be preferred in selection)

Technical Specifications for Low Temperature Closed Cycle Cryostat for electrical and magnetic testing

10.	Software and Interface	<ul style="list-style-type: none"> • PC interface with data acquisition, program storage and processing analysis facility. • Should be capable of conducting both cooling and heating cycle fully controlled by computer and capable of integrating basic electrical measurement unit like LCR so that user can collect the measurement data at every temperature from the computer and see the data on the display monitor of the computer. • <i>It is to be noted that driver and necessary software for the LCR meter will be provided by user</i>
11.	Computer or Laptop	<p><u>Quote as optional accessories:</u></p> <ul style="list-style-type: none"> • The unit should come with a high performance computer with the latest version of Windows operating system. • Minimum Configuration: Intel core i3 processor, 4GB RAM, 500 Gb Hard Disk, 24" Display with other essential peripherals
12.	Chiller	<p><u>Quote as optional accessories:</u></p> <p>Water Chiller unit capable of supplying chilled water to atleast 2 cryostat.</p>
13.	Power Supply and UPS	<p><u>Quote as optional accessories:</u></p> <ul style="list-style-type: none"> • Specify the requirements of the power supply for the offered Cryostat • Quote for UPS with the minimum back-up of 30 or 15 minutes to run the equipment
14.	Other accessories	<p><u>Quote as optional accessories:</u></p> <ul style="list-style-type: none"> • Please quote any other accessories needed for carrying out low temperature measurements like <ol style="list-style-type: none"> (i) Cryogenic Grease (ii) Thermal Conductive grease (iii) Flash-Dry Silver Paste (Ag colloidal suspension, SPI) (iv) Platinum paste
15.	Documentation	<ul style="list-style-type: none"> • Two sets of operating manual for the equipment and control system should be provided in hard copies • A soft copy of the above manuals should also be provided in a CD/DVD
16.	Safety Norms	<ul style="list-style-type: none"> • The instrument should be compliant with international norms for safety and environment
17.	Installation, Commissioning and Training	<ol style="list-style-type: none"> a. The delivery should be considered complete only after successful commissioning of the instrument b. The pre-installation requirements should be communicated to IIT Kanpur well in advance of the installation c. The Installation, commissioning and training should be done only by well trained factory engineers d. The supplier should provide training to at least two candidates at the installation site to make them familiar with smooth operation of the instrument

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electrical and magnetic testing**

18.	After-sales Service	<p>a. The supplier should provide a prompt after-sales service such as regular instrument maintenance, troubleshooting and fixing</p> <p>b. The list of service centers in India should be included.</p>
19.	Warranty	Must have warranty for atleast three years
20.	Annual Maintenance Cost	<p><u>Quote as optional accessories:</u></p> <p>Include the cost of annual maintenance for each year for five years after the guarantee/ warranty period. Provide the amount and the terms. Note that those providing better after sales service and support with proven track record will be given preference</p>
21.	Cryostat in India	Provide the list of institutes in India where similar model of cryostat is installed.
<p align="center">**Additional optional accessories should be indicated separately along with their price. The above specs are desirable and the actual numbers achievable for your system should be indicated.</p>		