UNIVERSITY OF HYDERABAD

(A Central University established by an Act of Parliament, 1974)

Prof. C. R. Rao Road, P.O. Central University Campus, Gachibowli,
Hyderabad - 500 046, Telangana, INDIA *website: www.uohyd.ac.in*

Dr. Sunita Dey, Assistant Professor, School of Chemistry, University of Hyderabad
Telephone: 04023134842 Email: sunitadey@uohyd.ac.in

Ref. No. UH/Chem/Stores/2026/Powder XRD, dated 2nd November 2026

Sealed bids (Technical and Commercial documents in separate sealed covers; two bid system) should the office of **Dr. Sunita Dey, School of Chemistry, University of Hyderabad** on or before **by 5:00 PM, 17th November 2026.**

Quotations are invited from Indian manufacturers/ suppliers/ vendors for the supply, installation and commissioning of **"Powder XRD".**

Technical specifications

Specifications of Multipurpose High Resolution XRD System

Supplying, Installation, and Commissioning of 3KW or more, high resolution X-Ray Diffractometer (XRD) required for powder diffraction and phase analysis of polycrystalline thin film, GIXRD. The system should be fully computer controlled with hardware and software for the measurement. It should be capable of working in reflection as well as in transmission mode by keeping the sample in horizontal position, System should be supported by manufacturer for the supply of spares for at least 10 years after installation.

System to be compatible to perform In situ Nonambient X-ray diffraction and SAXS measurements as an upgrade in future.

The instrument shall comprise of following detailed specifications:

The XRD system must be equipped with intelligent sensing system in real mode and able to recognize component in the beam path including an X-ray tube, optics in both primary and secondary side along with the detector to be used. Supplied software must have the Guidance facility to guide the user for method development of different application so that a novice user may also analyse the complicated advance application. The instrument shall be designed to provide 90% visibility of the measurement chamber from the outside, enabling the user to easily monitor the sample position, sample stages, and alignment during operation without opening the enclosure, thereby improving operational convenience and safety.

S. No.	Description	
1	**X-Ray Generator** **a)** Output power: ≥3 kW **b)** Rated Voltage: Maximum up to 60 kV or better **c)** Anode Current: Maximum up to 50 mA or better **d)** Control: Fully automated through a computer using a dedicated software **e)** Voltage increment: 1 kV	

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	f) Current increment: 1 mA	
2	**Goniometer** a) Type: Higher resolution Theta/Theta, Vertical b) Scan: θ/θ coupled and θ/θ decoupled. The Goniometer should be with independent θ and 2θ drives for accurate positioning c) 2-theta range for recording diffraction profile: Lower limit $\leq -95^0$, upper limit $\geq 160^0$. (with capability of foil transmission mode keeping the sample stage in horizontal position in both reflection and transmission geometries. d) Minimum step size: $\leq 0.0001^0$ e) Angular reproducibility: +/- 0.0001^0 or lower f) Goniometer radius: ≥300 mm or more g) Maximum angular speed 15° / sec	
3	**X-Ray Tube** • Target: Cu Anode 2Kw power or more • Focus: Long fine focus (LFF) X-ray tube. The tube should have the facility to rotate from LFF to point focus and vice versa without affecting the alignment of the instrument. • Insulation: Sealed X-ray tube should have Ceramic Insulation • Nickel Filter	•
4	**Sample stage/platform/holder, changer (all the sample stage should be easily exchange based on sensor technology with no re-alignment)** **a)** Standard sample stage for powder diffraction which can allow the powder analysis with Glass sample holder/SS/Alumina with (20 nos.) **b)** One set of Zero background sample holder with multiple depths of 0.2 mm, 0.5 mm depth and flat surface for analysis of low quantity of samples to be offered. C) one number of Transmission holder d) Z axis: Sample stage should have minimum 28mm motorized movement for accommodating different thickness of samples. This should be computer controlled and should have automatic height adjustment	
5	**Optics** Optics should include necessary/appropriate soller slits, divergence slits, anti-scatter slits, receiving slits and Beta filters. All optical components and its settings must be automatically recognized, changed and aligned by XRD control software for error free analysis with the latest technologies like Multicore (iCore & dCore) / CBO auto / TWIN-TWIN / TruBeam. • Geometries: Bragg Brentano (BB) and Parallel Beam (PB) optics using Parabolic Multigrade Multilayer Mirror in the incident beam for powder as well as thin Film • Filters: Motorized Kβ-filters for Cu radiation to be offered • Easy change of optics without the need of alignment from Bragg-Brentano to Parallel Beam and vice versa should be possible with the help of multilayer multi graded mirror without the need of realignment. • Soller slits for high resolution analysis Two numbers of suitable Soller slits (changeover from software)	
6	**X-ray detector** Advanced Solid-state Hybrid Photon counting detector with Silicon sensor with >97% quantum efficiency for Cu to be offered with following specifications: Dynamic range $>6X10^{10}$cps or higher and very less background noise, Spatial resolution should be 75 micron or less. The detector should be compatible/suitable for most of the X-ray application work, i.e., powder analysis, solid samples, thin films, nanomaterial/ nanoparticle etc.	

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	a) The Detector should be capable of working with samples which yield fluorescence. b) Global Counts: minimum $6X10^{10}$cps or higher c) It should offer good angular resolution and perfect profile shapes with minimum defective channels/pixels and operable for all kinds of radiations ex. Cu, Co, Cr, Fe & Mn. d) Suitable hardware or software for suppressing secondary fluorescence to be offered. e) Functioning of detector in both scanning and static mode. f) The 1D detector should capable of working in 0D and 1D mode. g) 2.2^0 or better 2 theta coverage at a time. h) Minimum 250 silicon strips/ channels/pixels or more.	
7	**Standards** a) suitable standard sample for checking the accuracy of the peak position over the entire goniometer angular range.	
8	**Cooling system:** A suitable external water chiller compatible with the main instrument whose Make and detailed specifications to be provided with the installation requirements. External filter/traps should be provided for minimizing the dust settlements from the chiller to the target area.	
9	**Software** a) Data collection - Licensed version of the software to control the complete XRD instrument, auto component recognition of all the components, system diagnosis and programming for data collection to be offered. b) Data analysis - Licensed version of data evaluation software for background correction, profile fitting, search match, qualitative analysis, lattice parameter refinement, crystallite size determination, Rietveld based standard less quantitative analysis to be offered with Suitable Database c)Software for data collection and data analysis of thin film GIXRD analysis to be offered. d)Data analysis software should be with minimum 10 users licenses for use by multiple scientists and researchers. e) COD data base should be installed.	
10	**Uninterrupted Power Supply** : Minimum 15 KVA or higher On-line UPS to provide sufficient power to run the: XRD system and complete chiller including pump and cooling circuit compressor. Minimum 30 minutes back up is needed. The UPS is to be supplied with a stand for batteries.	
11	**Computer and printer:** State-of-the-art latest computer for control of the system for various measurement options. Monitor dimension should be about24 inch or more. laser colour printer should be provided.	
12	**Spares and consumables:** a) Essential and most required spares and consumables for general maintenance and smooth operation of the system should be included in the offer for the period of at least 1 (one) year.	
13	**Manuals:** All the operational manual, application manual as well as service manual along with	

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	schematic in English are to be provided both as soft copy and printed. Test Reports for all the modes of operation to be provided.	
14	**Other mandatory requirements** • A List of recent installations of the offered model of XRD in India should be provided. • After sales service will be a component for technical evaluation of the equipment. • All pre-installation requirements such as room size, mechanical vibration and required power rating for the XRD as well as for water chiller to be provided.	
15	**Training at Site:** The vendor should provide operational training and application training for minimum of five days for x-ray diffraction at site comprising of Data collection, measurements and data analysis of Standard Powder diffraction, Grazing Incidence Diffraction (GID),and other ordered application . This training should be given after successful installation and commissioning of the XRD system. The total training period can be divided/ can be suitably distributed.	
16	**Warranty: Warranty:** **The quoted XRD System with all accessories must be provided with complete & comprehensive warranty for 3 years including X-Ray Generator, X-ray tube, electronics, motors, detector. During warranty period if any part is required for replacement, then same to be arranged on DAP basis without any cost to buyer.** **All Third-party indigenous items like chiller, ups, computer, Printer should be with standard one year warranty**	

Terms & conditions

S. No.	Clause	Description
1	Reference Number	The **Reference No. UH/Chem/Stores/2026/Powder XRD** of the Notice InvitingTender **dated 2nd November 2026** should be clearly mentioned on all envelopes and any correspondence including e-mails with the University.
2	Mode of submission	Hand-written (manuscript) bids and bids submitted through e-mail shall not be accepted. All pages of the tender document must be signed by the authorized representatives of bidder, in token of having accepted the termsand conditions incorporated in the tender notice.

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3	Two Bid System *(This clause is applicable only when NIT is invited involving two bid system)*	As the purchase is a high value plant, machinery, etc., of a complex and technical nature, bids are required to be submitted in two parts as under: ***(i) Technical bid consisting of all technical details along with commercial terms and conditions; and*** ***(ii) Financial bid indicating item-wise price for the items mentioned in the technical bid.*** The technical bid and the financial bid should be sealed by the bidder in separate covers duly super-scribed and both these sealed covers are to be put in a bigger cover which should also be sealed and super-scribed. The technical bids are to be opened by the Purchasing Department / Centre at the first instance and evaluated by a duly constituted Purchase Committee. After such evaluation of technical bids, financial bids of only those firms/suppliers which are found technically suitable will be opened, for determining the lowest bid.
4	Certificate from original manufacturers	If the bid is not from the original equipment manufacturer, the suppliers/ dealers should submit an 'authorized agency certificate' from the manufacturer. Tenders received without Authorization Certificate from the original manufacturer will summarily be rejected. Imported purchases should normally be made directly from the foreign principal manufacturers. In the event of purchase made through an Indian agent of the foreign company, authorization letter issued by the foreign company / manufacturer should be submitted along with technical bid. No commission shall be payable to Indian Agent.
5	Make and Model	The Vendor/Supplier is required to clearly mention the make, model, size and other specifications along with the unit price. Items with better specifications may also be offered / quoted and the decision of the University in this regard is final. Appropriate brochures / pamphlets / literature (original and not photo copies) for each item providing full technical details must be attached to enable their verification.
6	Bidder Details	The bidder's complete correspondence address, phone numbers and e-mail ids, and website details (if any), must be clearly mentioned in the technical bid documents. (Pamphlet / Brochure depicting the profile and organisation structure may be enclosed.) The details of PAN, GSTIN, EPF, ESIC, Registered License Certificate, Labour License etc., may be mentioned and supporting documents shall be enclosed along with the technical bid.
7	Validity of bids	Prices quoted in the bid (financial bid) shall be valid for a minimum period of 90 days from the date of opening of the financial bids. No upward revision of the prices will be permitted during the said validity period.

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8	Basic Price	The bidder should clearly indicate price per unit on FOR, UoH, Hyderabad basis. In respect of imported items, the prices should be quoted on the basis of CIP / CIF Hyderabad. *If the bidder quotes nil charges / consideration in respect of service contracts, the bid shall be treated as unresponsive and will not be considered.*
9	Taxes: GST& Customs Duty	The bidder should clearly indicate all applicable taxes separately for each item along with **HSN Code** and then arrive at a total price of all the items indicated in the Notice Inviting Tender. GST is applicable for all indigenous items. However, the University is entitled for concessional rate of GST @ 5% on all items mentioned vide GoI Notifications No. 45/2017-Central Tax (Rate) and 47/2017-Integrated Tax (Rate) dated 14.11.2017 read with GoI Notification No.09/2018 - Central Tax (Rate) dated 25.01.2018 as amended from time to time. Customs Duty is applicable for all imported items. However, the University is entitled for exemption / concessional rate (at 5.5% of the total value) of Customs Duty on all imported items mentioned vide GoI Notification No. 51/96- Customs dated: 23.07.1996, No. 28/2003 - Customs dated: 01.03.2003, No.43/2017 - Customs dated: 30.06.2017 and DSIR Certificate No. TU/V/RG-CDE (58)/2016 dated: 20.02.2018, as amended from time to time.
10	Other costs / charges	The bidder should clearly indicate all applicable other charges, if any, separately viz., transportation, packing, loading, unloading, insurance, installation, commissioning, testing, training, etc.,
11	Earnest Money Deposit (EMD) / Bid Security	The bidders should furnish bid security for Rs.5,00,000/- (**Rupees Five lakhs only**) along with their technical bid in the form of Account Payee Demand Draft / Banker's Cheque from any of the Commercial Banks in an acceptable form, drawn in favour of Finance Officer, University of Hyderabad, payable at Hyderabad. If the bidder furnishes a Fixed Deposit Receipt / Bank Guarantee, the instrument shall be issued in favour of Finance Officer, University of Hyderabad, payable at Hyderabad and shall be valid for a period of 135 days from the date of opening technical bids. The MSE units registered with MSME and certificates obtained from NSIC under the Single Point Registration Scheme (SPRS) shall be exempted from payment of Earnest Money Deposit (EMD) on production of requisite proof in respect of valid certification from NSIC.

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		(This clause shall be incorporated in all the NIT, where the estimated cost of purchase exceeds Rs. 2.5 lakh.)
12	Warranty	The bidders should offer a minimum period of 3 years warranty for all the quoted items from the date of successful installation of the equipment/ item. The quoted price shall be inclusive of warranty costs. AMC/FMC charges for fourth and fifth year shall be quoted separately, if applicable.
13	Comprehensive Annual Maintenance Contract (CAMC)	Bidders shall quote Comprehensive Annual Maintenance (CAMC) charges for a period of 2 years after expiry of the initial warranty period of 3 year. In all other cases, rate for at least three years' CAMC be quoted.
14	Agreement	An Agreement in the format prescribed by the University of Hyderabad is required to be entered into by the Suppliers or their authorised Representative with the University in respect of purchase of Goods / Services valuing Rs. 10 lakh and above, within a period of 15 days from the date of issue of Purchase Order / Work Order. In cases of CAMC, agreements are to be entered into on case to case basis duly customizing the format of agreement. In cases of works awarded by University Works Department, template of agreement finalised by Internal Audit Office, UoH is to be adopted.
15	Performance Security / Performance Bank Guarantee	Successful bidder should submit a Performance Security (in all cases of purchases valuing above Rs. 10 lakh in the form of Performance Bank Guarantee for an amount equivalent to 97% of the total basic price of the Goods / Services (exclusive of taxes and duties) within a period of 15 days from the date of issue of Purchase Order/ Work Order. Performance Security should remain valid for the entire warranty period plus additional (grace) period of 60 days, from the date of successful installation of the equipment/item. Performance Security shall be submitted in the form of Account Payee Demand Draft / Fixed Deposit Receipt / Banker's Cheque / Bank Guarantee from any of the Commercial Banks in an acceptable form, drawn in favour of Finance Officer, University of Hyderabad, payable at Hyderabad.
16	Payment	**97 %** of the total cost will be released after delivery, satisfactory installation, commissioning, testing and training (if any), against submission of valid TAX Invoice (with **HSN** code) with GSTIN number of the supplier. The remaining **3 %** will be released on submission of a Performance Bank Guarantee (PBG) for an equivalent amount.

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		In case of purchases from foreign manufacturers/suppliers, Letter of Credit (LC) will be opened for 100% of the purchase value and **97 %** shall be released after signing the Agreement and shipment / submission of documents. As regards balance payment, it will be released on submission of PBG for equivalent amount (in Indian currency) or completion of the warranty period as per the terms included in the NIT and Purchase Order.
17	Delivery Location	The items shall be delivered to: Dean, School of Chemistry, University of Hyderabad, Gachibowli, Hyderabad - 500 046, India
18	Delivery Period	The supplier should be able to deliver the items within 90 days *(mention the required delivery period by the proposer)* from the date of issue of the purchase order.
19	Liquidated damages for late Delivery	In the event of delay in delivery beyond stipulated period indicated in the Purchase Order, liquidated damages @ 1% per each week of delay subject to a maximum of 5% of the cost of the order will be levied and collected by the University, by way of deduction from the payments due to the vendor/supplier.
20	Risk Purchase Clause	If the Supplier fails to deliver the ordered materials within the stipulated delivery period specified in the Purchase Order, the University may resort to procure such items and in such a manner as deemed appropriate, goods or services similar to those undelivered, and the Supplier will be liable to reimburse the University for any excess costs for such similar goods or services.
21	Right to reject	The University reserves the right to reject any or all the bids or accept a part of the quotation without assigning any reasons therefor. The decision of the University in this regard is final and binding on all the suppliers.
22	Resolution of Disputes	Any disputes arising out of this contract shall be referred to the University, and if any of the parties hereto is dissatisfied with the decision, the dispute shall be referred to the decision of the Arbitrator, who should be acceptable to both the parties, to be appointed by the Vice-Chancellor of the University. The decision of such Arbitrator shall be final and binding on both the parties.
23	Jurisdiction of Courts	Disputes, if any, arising during course of execution of the order are to be settled within the jurisdiction of Hyderabad / Ranga Reddy District Courts only.

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24	Opening of tenders / bids	The bids will be opened in the office of **School of Chemistry, University of Hyderabad, Hyderabad on 19.11.2026 at 03:00 pm** in the presence of bidders or their authorized representatives. The authorized representative shall bring the authorization letter and submit the same to the University before opening of bids. On failure to do so, the Representative loses the right to participate in the bid opening process.
25	Delay in submission	The University will not in any way be responsible for any postal / courier delay. Bids received beyond the stipulated date and time of submission are summarily rejected. Tenders' incomplete in any respect will be summarily rejected.
26	Due date of submission of bids	Sealed Bids should be submitted to the office of Dean, School of Chemistry, University of Hyderabad, Gachibowli, Hyderabad - 500 046 on or **before 17th November 2026 at 05:00 pm.** Bids received thereafter shall not be considered. *(Minimum time to be allowed for submission of bids should be three weeks for procurement of indigenous items and four weeks in case of imported items from the date of publication of the Notice Inviting Tender in CPP Portal and University of Hyderabad Website)*

Signature of Dean

Name: Prof. Samar Kumar

Dean, School of Chemistry

University of Hyderabad

DEAN
School of Chemistry
University of Hyderabad
Hyderabad-500046, Telangana.

Sunita Dey
2/11/2026

Faculty Incharge
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