भारतीय विज्ञान शिक्षा एवं अनुसंधान संस्थान कोलकाता
INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH KOLKATA
(An Autonomous Institute under Ministry of HRD, Deptt. of Higher Education, Govt. of India)
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EoI Ref. No: IISER-K/EOI/645/G/DORD/2025-26 **Date:** 15/09/2025

EXPRESSION OF INTEREST (EOI) – NON-COMMITTAL

Indian Institute of Science Education Kolkata (hereafter referred to as "Institute") invites online Expression of Interest (EOI)-Non-Committal (hereafter referred to as "EoI") from Original Equipment Manufacturer (OEM) or their Authorized Agent (hereafter referred to as "Supplier") for ***ESI HIGH RESOLUTION MASS SPECTROMETER WITH ULTRA HIGH-PERFORMANCE LIQUID CHROMATOGRAPHY SYSTEM WITH FACILITY TO USE SUB 2 MM PARTICLE SIZE COLUMNS FOR BOTH QUALITATIVE AND QUANTITATIVE ANALYSIS AND ACCESSORIES.***

The Institute intends to finalize the proposed purchase of *ESI HIGH RESOLUTION MASS SPECTROMETER WITH ULTRA HIGH-PERFORMANCE LIQUID CHROMATOGRAPHY SYSTEM WITH FACILITY TO USE SUB 2 MM PARTICLE SIZE COLUMNS FOR BOTH QUALITATIVE AND QUANTITATIVE ANALYSIS AND ACCESSORIES* including specification and any other relevant issue in this respect.

The documents Expression of Interest [EOI] can be downloaded from Central Public Procurement (CPP) Portal https://eprocure.gov.in/eprocure/app

OR Institute website- https://www.iiserkol.ac.in/web/en/announcements/tender

Schedule of Dates:

SR. NO	PARTICULARS	DATE	TIME
1	Date of Online Publication/Download of EOI	15/09/2025	10:00AM
2	EOI Submission Start Date	15/09/2025	10:00AM
3	EOI Submission Close Date	06/10/2025	02:00PM
4	Date of Meeting for Techno commercial Clarification	07/10/2025	11..00 AM

All interested and eligible bidders are requested to upload their technical offers along with the relevant documents and requisite information in a clear and concise manner through the CPP Portal. Furthermore, bidders are hereby invited to attend the meeting, at their own cost and responsibility, for clarification and discussion on various parameters such as specifications, delivery terms, warranty, and other related matters. Submission of documents/offers through any mode other than the CPP Portal shall not be accepted under any circumstances.

Note: *All prospective bidders are advised to regularly visit the CPP Portal for any amendments or changes in the schedule of dates, venue, time, or any other related information. No separate communication in this regard shall be issued by IISER Kolkata through email, telephone, or any other mode.*

Signature of the Bidder with Company Stamp

TECHNICAL SPECIFICATION FOR ESI HIGH RESOLUTION MASS SPECTROMETER WITH ULTRA HIGH-PERFORMANCE LIQUID CHROMATOGRAPHY SYSTEM WITH FACILITY TO USE SUB 2 MM PARTICLE SIZE COLUMNS FOR BOTH QUALITATIVE AND QUANTITATIVE ANALYSIS AND ACCESSORIES

A Bidder must be a single manufacturer of the entire instrument and shall be responsible for the entire instrument and all the accessories supplied with the system. The instrument must be fully automated with automatic calibration & tuning along with all system checks so that no manual intervention is required.

S. NO	PARAMETER	REQUIRED SPECIFICATION	OFFER OF THE BIDDER
A	**ESI HIGH RESOLUTION MASS SPECTROMETER SYSTEM AS PER FOLLOWING SPECIFICATIONS**	**1. Ionization Source:** • The instrument must be equipped with combined Multi-Mode/dual electrospray ionization (ESI) and atmospheric pressure chemical ionization (APCI) as standard along with the APCI probe capable of handling flow rates up to 2 ml/min or higher. • Sample introduction must be possible directly with integrated system fluidics without any external assembly or syringe pump outside the system in case of direct infusion of the samples & also through a combination with suitable Ultra High liquid chromatographic system. The Sample Introduction Technology must be associated with automated system parameter checking along with alerts generation. It must provide a calibrant delivery system with Automated Mass Calibration to ensure the performance is accessible to both experts and non-experts. • The combined Multi-Mode / dual ionization (ESI/APCI) source must operate along with a reference spray to facilitate automated accurate mass measurements within single LCMS experiment. The instrument should be capable of internal reference mass correction for MS and MS/MS operation without losing sensitivity. The ionization must be done both in positive & negative mode. • An atmospheric pressure solids analysis probe for the direct sampling and introduction of solids and liquids must be provided as an additional source. • The ion source must be of Dual Orthogonal Off Axis or equivalent for maximizing sensitivity while maintaining system robustness. A suitable technology or device must be available to allow the source elements & the Neutral molecules and gas load to be actively exhausted for getting higher sensitivity in the system without breaking instrument vacuum, maximizing instrument uptime.	

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		• The cleaning of the source should be done without venting the system. The vacuum must remain intact during the cleaning, Source interchange or Servicing of the system with some isolation in the system. Vendors must ensure the same in writing.	
		2. Desolvation Temperature • The upper limit of the desolvation temperature must be more than 550 degree C, which should be programmable and can be used in all different probe usages including combined / dual / ESI & APCI or the solid probe for every compounds.	
		3. Quadrupole: • Instrument must have Quadrupole for isolation followed by collision cell and appropriate assembly required for high resolution mass data. Precursor ion selection should be done using Quadrupole. • Mass Range: The instrument must have a high mass filter (quadrupole) for efficient transmission of ions having mass range at least ≤ 20 to ≥ 15,000 m/z or higher or better. The calibration must be possible for the entire mass range.	
		4. Time of Flight (TOF) Mass Analyzer or other Alternative Mass Analyzer • Confuguration of the Analyzer: Quadrupole followed by Mass Analyzer with a collision cell in between should be present for HRMS. • The mass range of the mass analyzer must be at least ≤20 to ≥80,000 m/z or higher. • The mass analyzer must have linearity of response of Minimum 4 orders or better of magnitude whilst maintaining specified resolution for quantitation purposes.	
		5. Resolution • The resolution of the mass analyzer must be 40,000 FWHM or higher for the entire m/z 200-1000 range (Proof of Statement must be provided). • Data acquisition rate must be 20-30 Spectra per second or better in MS and MS/MS mode independent of any conditions. (Proof of Statement must be provided).	

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		6. Mass Accuracy & Sensitivity • The mass accuracy of the system should be a minimum of less than 0.5-1 ppm or better, for both MS & MS/MS modes on 10 consecutive repeat measurements on column analysis. (Proof of statement must be provided) • The instrument must be able to detect sub ppb/femtomole levels of compounds. • Sensitivity: ≤ 100-200 femtogram/femtomole or better on column, at S/N ratio ≥ 1200:1 or better for bolth full MS and MS/MS mode (Proof of statement must be provided for S/N ratio).	
		7. Scan modes & Capability • The instrument must be able to operate in MS, MS/MS product ion scanning, simultaneous MS and MS/MS scanning, UHPLC/Fast DDA Scan, multiple reaction monitoring or equivalent, precursor ion scan. • The software should be capable of data acquisitions whereby high and low collision energy data is acquired simultaneously to provide fragmentation data for all detectable molecular ions and multiple reaction monitoring or equivalent.	
		8. Vacuum System • A high efficiency vacuum system with turbo pumps and rotary pumps or equivalent must be provided for making the instrument sensitive enough.	
		9. Computer workstation Workstation should be provided for controlling the mass spectrometer, the UHPLC with data acquisition and data processing analysis as per the following specifications: • Memory / RAM: Minimum 64 GB or higher, Hard drives: 512 GB SSD & 10 TB SATA HDD or higher • CPU: Dual-Processor; Operating system: Windows 11, 64 - bit or latest at the time of supply. • 27-inch LCD monitor, Laser jet Printer. All hardware and software including drivers, monitor, device interfaces cards / network must be preinstalled and preconfigured on the computer provided along with Microsoft office of latest version.	
		10. Software The software should have capabilities to perform the	

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		following functions: • Automated mass calibration, resolution, sensitivity check should be performed by software. • Software tools for addressing Screening, Component Identification workflows, Quantification, Deconvolution etc. must be provided. • The data processing software must incorporate an elemental composition calculator as standard. Included in the calculator must be algorithms for isotope pattern modeling that allow data interpretation of actual isotope patterns. • A goodness of fit from actual to theoretical isotopes must be included. • The Software must have increased selectivity with rapid scan rates of around 200 spectra or higher and should translate to cleaner MS/MS data and must allow both discovery and quantification from a single injection using commonly accepted and established workflows. The results must be right the first time, giving improved data quality through high selectivity and more reliable database searches. • The ability to filter out incorrect elemental composition calculations using intelligent spectral interpretation algorithms must be incorporated. • Software should give elemental formula with mass accuracy or ppm error and isotopic fit value. • The model offered by the vendor should have the capability to demonstrate the above-mentioned parameters like fast LC, high resolution, high mass accuracy in one single run along with comprehensive accurate mass precursor and fragment ion information from a single analysis. An integrated software for deconvolute multiply-charged complex spectra to represent a single peak at a range 4.5 k to 80k after interpretation should also be provided. The Software must have the facility to Auto Upgrade its versions whenever applicable during the entire Warranty Period & must be perpetual in nature.	

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		11. Instrument & Software IQ/OQ & Certification • The instrument must be Qualified/validated along with the Software. • Necessary reagents along with Documents must be provided for valid Instrument Qualification, Operational & Performance Qualification of the instrument along with Specification check during the installation. • The vendors must quote the Qualification kits with defined list of items along with valid Cat. No./Cas No/Product ID etc.	
		12. Warranty • The warranty for the Entire instrument (above items) must be 5 years comprehensive (from the date of installation) except consumables / Perishables • The Vendor must point out in writing the items where the warranty is not covered. • In case of downtime, the period should be added as extended warranty.	
B	**AN ULTRA HIGH-PERFORMANCE LIQUID CHROMATOGRAPHY SYSTEM AS AN INLET TO THE MASS SPECTROMETER WITH THE FOLLOWING SPECIFICATIONS MUST BE PROVIDED. THE CHROMATOGRAPHY SYSTEM SHOULD BE CAPABLE OF BEING OPERATED BOTH AS A HPLC & FAST UHPLC BY INTERCHANGING THE COLUMN CHEMISTRIES.**	**1. Pump** • Quaternary operating pump with an operating pressure of minimum 15000 psi or better having automatic purging of pumps controlled by software. • The flow rate range should be 0.010 to 2.000 mL/min or better, in 0.001 ml increments. • Flow rate accuracy: ±0.1 % & Flow Rate Precision: ≤ 0.075% Relative Standard Deviation or better. • Solvent Blending must be fully automatic and must program gradient methods directly in terms of pH and percent organic, pH and salt concentration, pH and ionic strength to minimize manual mobile phase preparation and reduce potential for human error in routine analysis. The system must produce at least 9 or higher different gradient curves / profiles including linear, Step, Convex, Concave etc. **2. Degasser** The instrument should have an in-built Vacuum degasser facility with minimum four lines and should be efficient to remove dissolved air online. **3. Gradient Delay Volume** • It should be 400 microlitre or better, independent of system backpressure along with Gradient Delay Volume of 300 microlitre or lower. • The Total Bandspread should be 12 microlitre or lower.	

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		4. Autosampler • Autosampler should be available with a capacity of approx. 90 vials or more of 1.5/2 ml. The autosampler should have a cooling facility up to 4 degrees or better and heating up to 40 degrees or better. • Programmable injection volume from 0.1 ul to 10 ul or better must be available with Integral, Active & Programmable needle wash. • It must have advanced features like Auto-Dilution, Auto-Addition & Load Ahead capabilities. • The carryover of the autosampler must be less than 0.002% or better. • Compressibility Compensation for the Solvents should be Automatic & Continuous. **5. Column Oven** Column Temperature Control should be from ambient to ≥ 85 deg. C or better with a Temperature control from ambient to maximum operating temperature. Temperature control precision should be 0.5°C. **6. Columns & Accessories** • C18 Hybrid Column with 1.7-2 µm, 2.1 X 150 MM – 2 Nos. with a pH level of 2 – 12. • High Strength T3 Column for polar & non-polar 1.7-2 µm, 2.1 X 100 MM – 2 No. with a pH level of 2 – 12. • Normal phase chiral column (250 x 4.6 mm x 5µ) 2 NOS • LCMS Certified Clear Glass 12 X 32 Screw Cap PTFE Vials 2ML 10000 No's. • Column usage history tracking technology must be associated with the column so that all the information related to number of injections, solvent consumption, Temperature, Pressure etc. should be available electronically & archive all of them to acquire the data & must help to create a paperless laboratory. • Instrument Calibration must be done whenever required throughout the Warranty Period and the reports must be submitted accordingly. Calibration solutions must be provided by the vendor for the same. • Ion Transfer Capillary, ESI needles or any other accessories must be provided whenever required for the entire warranty period. Vendor must confirm the same in their bids.	

Signature of the Bidder with Company Stamp

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		7. Photo diode array detector • Wavelength range: 190-800 nm or better. • Wavelength repeatability: ± 0.1 nm or better. • Wavelength Accuracy: ± 1 nm or better. • Optical resolution: 1.2 nm or better. • Date Acquisition: Up to 80 Hz or higher. • Light Source (2 Nos): Deuterium Arc lamp which should cover the entire range with minimum noise; Lamp should the guaranteed for a minimum of 2000 hrs of operation without drop in the energy level with appropriate backup from software and hardware. It should be associated with Lamp optimization software to ensure consistent high sensitivity applications & reproducible integration to new lamp or old lamp. • Flow cell Design: Taper / Tapered Slit design only to avoid total internal reflection. (Document must be submitted) • Flow Cell Volume: 8.5 ul for analytical cell & 16.3 ul for semi-preparative cell or better. • Spectral Resolution/Optical Band pass: 1.2nm per photodiode with a total of 512 photodiodes, digital and optical (3D mode) • Operating mode: Both 2D and 3D • Digital Resolution: 1.2 nm (2D mode) or better. • Sensitivity Setting Range: 0.0001 – 2.0000 ABSORBANCE UNITS FULL SCALE or better.	
		Warranty • The warranty for the Entire instrument (above items) must be 5 years comprehensive (from the date of installation) except consumables / Perishables like UHPLC Columns • The Vendor must point out in writing the items where the warranty is not covered. • In case of downtime, the period should be added as extended warranty.	
C	**BINARY GRADIENT HIGH PERFORMANCE LIQUID CHROMATOGRAPHY SYSTEM AS PER BELOW SPECIFICATIONS**	1. **Pump (or solvent delivery system) - 2 no.'s** • 2 Nos. of integrated High Performance Liquid Chromatography pumps as Binary Gradient with dual reciprocating pistons and non-circular gear driven, free standing pump should be provided to work in Isocratic & Binary Gradient mode. A pump drawing / design must be shared in the Bid. • Programmable flow range: 0.000 to 10.000 mL/min per pump with 0.01 mL/min increment or better for all kinds of application. • Flow Precision: 0.1% RSD or better.	

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		• Maximum Pressure: 6000 psi throughout entire Flow rate from 0.00 to 10.000 ml/min or higher. • The system delay volume should be less than 200 µl for higher sensitivity. Data Sheets must be properly mentioned. • Flow accuracy: + 1% or better • The system should be capable of withstanding the retention time variations of less than 0.1% for highly reproducible peak performance. • Should have the capability to operate in at least 10 or more various gradient curve mode including Linear, Step, Concave, Convex. Exponential etc. 2. **Manual injector:** • The manual injector should be fully integrated with the pump. No separate free-standing panel should be there for the injection. A sketch / drawing should also need to be provided along with the technical details which must show the same. • It should come with 5, 20, 50 and 200µl sample loops along with 25µl syringe. • Should have the construction for sample load without interruption of flow. 3. **Original manufacturer's licensed software:** • The software should be quoted with a relational secured oracle database independent of operating system and an interface for the software to the database for strong integrity and security of data. • The Software must come with 2 numbers base licenses and 5 numbers of named user's licenses for the creation of separate usernames and passwords. • The software must come with in-built system suitability facility for method validation, System performance, reproducibility, tracking and plotting trends and processing and reporting. • Should have option for manual integration. All meta data should be automatically managed, linked and versioned along with customized reporting format. • Audit trail ID Should be available with audit summary report which should be available at glance. • The software should be able to show the capability of the system to operate in at least 10 or more various gradient curve mode including linear, step, concave, convex. exponential etc. along with apex integration and Gaussian skimming.	

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		• Should have option for versatility for multitasking without multiple software packages. • Customizable data reports, online help and answer wizards must be available. Versioning of Results generated should be available. • Should have option for data integrity along with advanced security measures and regulatory compliance. Software should have fully interactive system suitability and pass/ Fail criteria for faster decision making. The raw data should be available for processing at any time after modification of 'n' number of times. 4. Branded Desktop with Software required to run the machine should come with the instrument. 5. Online UPS with 2KVA & 30 mins Backup should be supplied with the instrument. 6. A thorough Demonstration, Commissioning & Detailed training on Instrument must be provided by the vendors on site. The instrument must have provision for upgradation & addition of further detectors & modules without any extra modifications in the current set up & the quoted Software must be advanced enough to accept future changes. 7. Warranty: 1 Year comprehensive on the entire instruments except consumables or perishables.	
D	**NITROGEN GENERATOR**	• A noise free imported Nitrogen Gas Generator with in-built compressor having max pressure 100 psi & flow rate >30 liters/min must be supplied along with other auxiliary Gas cylinders which should be provided to operate the system. • The warranty must be 5 years comprehensive (from the date of installation) except consumables items.	
E	**UPS**	• The vendor must provide 10-15 KVA online UPS with a minimum 60 mins backup with the system which must be optimum & suitable for the respective technologies. • The warranty must be 5 years comprehensive (from the date of installation) except consumables items.	
F	**OTHERS**	• Suitable sturdy table for keeping the instrument and computer workstation must be provides • The system must be attended within 48 hrs of reporting. • The other auxiliary gases along with regulators should also be supplied along with the system. • Training and Installation: Installation must be done at the user's site with no extra costs	

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		involved. A two week (at least) general entry-level training-cum- workshop and advanced- level training- cum- workshop must be arranged at the user's site by the vendor on experimental and data analysis part, with no extra cost involved. • Additional utilities or personnel under this turnkey requirement for smooth operating & running of the instrument must be provided by the bidder for 5 years. • Proof of Performance documents must be provided with the Compliance sheet. The vendors must submit/upload all the Technical Data Sheets as per their claim in original & authenticated. Standards/reagents & MS Grade Solvents required for successful installation must be supplied. • The bidder must submit at least 10 or more, latest customer details / PO copies / references of the same Quoted / similar model supplied in Eastern India within last 5 years along with the Service Support details which must be present in Eastern India with Certified Service Engineers details, Address in Eastern India, along with names & verified email id's. • Quotes for AMC charges after expiration of the warranty period must be provided for 3 years as an optional item.	

N.B.: *Bidders must mandatorily upload their detailed Technical Offer, together with the Compliance/Deviation Statement, on their official letterhead. The documents shall be duly signed and stamped by the authorized signatory of the bidder*

For and on behalf of [Name of the Company/Firm]

(Signature of Authorized Signatory with Seal/Stamp of the Company**)**

Name : .....

Designation : .....

Company Name : .....

Contact No. : .....

Email ID : .....

Signature of the Bidder with Company Stamp

ANNEXURE-1

BASIC INFORMATION FORM

PARTICULAR	BIDDER REMARKS
Name and address of the Company/Organization/Authorized Agent	
Details of the Signatory / Concern person Name, Contact no and Email ID:	
Name and address of the foreign principal with Contact no and Email ID:	
Country of Origin	
Details of service Centre available .:	
Whether the item/equipment is duty free (Upload proper documents / declaration in case of duty-free item):	
HSN Code of the Offered Model	
Details (Contact person Contact Number, email ID, Name of the Organization, year of installation) of user of similar items available in India	
Approximate period of the Time for Delivery and Installation from the Date of Purchase Order	
Any instruction regarding the site readiness for the installation of the System	

For and on behalf of [Name of the Company/Firm]

(Signature of Authorized Signatory with Seal/Stamp of the Company**)**
Name : .....
Designation : .....
Company Name : .....
Contact No. : .....
Email ID : .....

Signature of the Bidder with Company Stamp