

No. 9(2)/2022-INST

Dated: 22.11.2022

WALK-IN-INTERVIEW FOR Ph.D. - January 2023 SESSION

[Institute of Nano Science and Technology](#) (INST), Mohali will conduct **Walk-in-Interviews** on the following dates for prospective candidates for admission into its Ph. D. Program for the session beginning in January 2023.

Dates of interviews:

- 12th and 13th December 2022 for [Energy and Environment Unit](#)
- 14th December 2022 for [Chemical Biology Unit](#)
- 15th and 16th December 2022 for [Quantum Materials & Device Unit \(QMaD\)](#)

Reporting time: 09:00 am

Venue: [Institute of Nano Science and Technology, Sector 81, Mohali 140306, Punjab](#) (near IISER Mohali)

Number of vacancies: in EEU (15), CBU (19), QMaD (10)

Students with an independent source of fellowship, for example CSIR/UGC-JRF, are eligible to attend the Walk-in-Interview. Selected students will be enrolled in the Ph. D. program of Indian Institute of Science Education and Research (IISER), Mohali and the Ph. D. degree will be awarded by IISER, Mohali.

If you have any queries, email phdadmissioncoordinator@inst.ac.in

The major ongoing research areas at INST are given at the end of this document.

a) ELIGIBILITY

- M. Sc. or M. Pharm. or M. Tech. in Basic or Applied Sciences, Engineering or related areas. Students who have appeared for the final year/semester examinations are also eligible, provided that the degree will be granted on or before 20th December 2022.
- Must have qualified an independent source fellowship like, CSIR/UGC-JRF, ICMR-JRF, DBT-JRF, or any other equivalent fellowships.
- Age limit: As per the guidelines of CSIR-UGC and DST.

b) SELECTION PROCEDURE

- Interested candidates are requested to **submit an online synopsis** to express their interest in attending the interview: <https://forms.gle/qTUgyrkspsYQzZ9P9>
- Candidates should report by **9 am at Institute of Nano Science and Technology, Sector 81, Mohali**
- All **original documents** in support of date of birth, educational qualifications, fellowship (UGC/CSIR-JRF, DBT-JRF, ICMR-JRF, etc.), reservation (SC/ST/OBC-NCL/PH/EWS), research experience, publications etc. should be produced at the time of interview for verification.
- Candidates should also bring **two passport size photographs** and **one set of photocopy** of the above documents.
- No TA/DA will be paid for attending the interview.
- After the interview, the list of candidates selected for Ph. D. will be uploaded on INST website and the candidates will be intimated by email.
- Selection of students shall be done as per the provisions of The Central Educational Institutions (Reservation in Admission) Act, 2006 and amendments made thereto.
- The candidates are advised to visit INST website frequently to track the latest developments.

c) APPLICATION FEES

- **Rs.590/-** for General, OBC and EWS candidates, and **Rs.295/-** for SC, ST and PH candidates.
- Candidates will be required to remit the application fees online on the date of interview.

Chemical Biology	Energy & Environment	Quantum Materials & Devices
<p><i>Cancer Nanomedicine</i></p> <ul style="list-style-type: none"> ▪ Epigenetic based ▪ Hyperthermia based ▪ Photo-thermal therapy ▪ Photo-therapy ▪ Combinatorial nanomedicine approach <p><i>Nano-therapeutics</i></p> <ul style="list-style-type: none"> ▪ Infectious diseases: tuberculosis, leishmaniosis ▪ Neurodegenerative diseases: Alzheimer's disease, Parkinsonism ▪ Lifestyle diseases: rheumatoid arthritis, osteoarthritis ▪ Autoimmune disease: ulcerative colitis <p><i>Bio-mimetic and Tissue Engineering</i></p> <ul style="list-style-type: none"> ▪ Regenerative nanomedicine ▪ Stem cell nanomedicine ▪ Supramolecular nanomaterial scaffolds ▪ Smart hydrogels ▪ Hybrid organic-inorganic nanomaterials <p><i>Biomolecular Phenomenon at Nanoscale</i></p> <ul style="list-style-type: none"> ▪ Disease mechanism ▪ Self-assembling bio-nanomaterials ▪ Nano-confinements ▪ Biological nano-machines <p><i>Nano-diagnostic</i></p> <ul style="list-style-type: none"> ▪ Biosensors: SERS, electrochemical or fluorescence based techniques ▪ Theranostics: biomaterials for theranostics <p><i>Agri-nanotechnology</i></p> <ul style="list-style-type: none"> ▪ Nano-fertilizers ▪ Nano-pesticides <p><i>Nano-toxicology</i></p> <ul style="list-style-type: none"> ▪ Cell and tissue toxicity ▪ Nanomaterial toxicity ▪ Developmental, neurological, behavioural nano-toxicity 	<p><i>Inorganic & Materials Chemistry</i></p> <ul style="list-style-type: none"> ▪ Electrochemistry (fuel cells, batteries & supercapacitors) ▪ Energy storage & conversion ▪ Framework materials (COF & MOF) ▪ Photocatalysis (water splitting & CO₂ reduction) ▪ Solar cells (perovskites, quantum dots & dye sensitized solar cells) ▪ Solid state chemistry ▪ X-ray scattering <p><i>Organic & Polymer Chemistry</i></p> <ul style="list-style-type: none"> ▪ Biomaterials & drug delivery ▪ Chemosensors ▪ Flexible optoelectronics ▪ Luminescent materials ▪ Catalysis (organic transformations, photocatalysis, biomass conversion) ▪ Nanomotors & micropumps ▪ Synthetic methodology ▪ Small molecule & polymer synthesis ▪ Stimuli-responsive supramolecular materials <p><i>Spectroscopy & Physical Chemistry</i></p> <ul style="list-style-type: none"> ▪ Biosensing ▪ Device fabrication ▪ Luminescence spectroscopy ▪ Nanophotonics ▪ Single molecule spectroscopy ▪ Ultrafast spectroscopy <p><i>Environmental Chemistry</i></p> <ul style="list-style-type: none"> ▪ CO₂ sequestration & N₂ fixation ▪ Microfluidics based sensing of pollutants ▪ Sensing ▪ Waste management ▪ Water & air purification 	<p><i>Experimental aspects of Material and Device Physics</i></p> <ul style="list-style-type: none"> ▪ Low dimensional materials and artificial superstructures ▪ Nanoscale piezo, ferro and pyro-electricity ▪ Photovoltaics ▪ Micro and nano structured device ▪ Nano devices and sensors ▪ Spintronics ▪ Organic-inorganic hybrid nanostructured devices, self-powered electronics, sensors and actuators ▪ Flow fabrication of nanostructures for light driven properties ▪ Microfluidics for sensing and delivery ▪ Physics in Nanodimension objects <p><i>Computational Nanoscience</i></p> <ul style="list-style-type: none"> ▪ Theoretical condensed matter physics ▪ Exploiting piezoelectricity, electronic charge, spin and valley degrees of freedom at the nanoscale for next-generation electronics ▪ Nanomaterials and their interfaces for power conversion: e.g., photovoltaics, photocatalysis, sensors ▪ Designing of spin-interfaces and spintronics materials ▪ Single molecule magnets and molecular magnetism <p><i>Computational Chemistry</i></p> <ul style="list-style-type: none"> ▪ Electron transfer in proteins & enzymatic chemical reactions ▪ Electron transport at molecular nano-junctions <p><i>Computational Biology and Biophysics</i></p> <ul style="list-style-type: none"> ▪ Molecular Dynamics Simulations of Protein and Protein-Ligand Interactions ▪ Anti-malarial drug activities and drug designing ▪ Regulation of enzymatic activities of CBS enzymes