

Doctor of Philosophy Programme (PhD)
Department of Chemical Sciences
PhD Advertisement for Spring Semester 2023

The Department of Chemical Sciences (**DCS**) at IISER Kolkata invites applications for regular Ph.D. programme in the Spring semester, 2023 in the disciplines of Inorganic, Organic, Physical and Theoretical chemistry.

Minimum Eligibility Criteria: Bright and motivated candidates who have passed M.Sc. examination with minimum 55% marks in any field of Chemistry or Physics. Besides satisfying minimal eligibility criteria, the candidates must have CSIR/UGC-NET **JRF**, **INSPIRE** fellowship or other **Equivalent Fellowships**.

*Candidates with INSPIRE fellowship should have **provisional** certificate at the time of application.

Please note that fulfilling the minimum essential criteria does not ensure that a candidate will be called for the interview. **Additional short-listing criteria might be set by the department based on academic records, experience and research interest of the candidates. Candidates **without** the CSIR/UGC-NET JRF, INSPIRE fellowship or other equivalent fellowships will **NOT** be shortlisted or called for interview.

***Reservations for SC/ST/OBC/EWS/DIVYANG candidates are applicable as per Government of India rules.

Interview Dates: **November 25-26, 2022**

Mode of Interviews: The mode of interview will be ‘**Off-line**’ for better interactions with the students appearing for the PhD interview. However, a candidate may be allowed for an online interview, if sufficient justifications is/are provided.

For the details of faculty profiles please see: [Click Here](#)

Specific research area	Application Information
<p><u>Dr. Parna Gupta</u> Our research focuses on the rational synthesis of multimetallic phosphorescent cyclometalated iridium(III) and platinum(II) complexes for various applications including (A) organelle specific cellular/microbial imaging and photodynamic therapy; (B) use as sensing materials within the cellular environment. https://sites.google.com/view/parna-gupta-lab/home</p>	<p>Select "PhD in Chemical Sciences (Spring 2023)" in the "Applying for" drop-down menu at the time of filling online application form Click Here</p>

**** Apart from the Department of Chemical Sciences, the candidates with a Chemistry background may apply to the following faculty members from the Department of Biological Sciences and Earth Sciences.

Interdisciplinary research area:	Application Information
<p><u>Dr. Rituparna Sinha Roy:</u> Interdisciplinary research area: Peptide based therapeutics, cancer nanomedicine, drug delivery, biomimetic chemistry, chemical biology, supramolecular chemistry, applied biomaterials, cancer biology, and regenerative nanomedicine. Minimum Essential Qualification: MSc Chemistry (minimum marks 55%) having specialization in organic chemistry, or MSc Chemistry (minimum marks 55%) with MSc project in the area of organic chemistry or MSc in Life Sciences (minimum marks 55%) having specialization in Biochemistry/Zoology/Biotechnology/Microbiology/ Human Physiology and having Chemistry as one of the pass subjects in BSc. Candidates need to have strong background in chemistry. Candidates need to have NET-JRF/UGC-JRF/ DBT-JRF/ICMR-JRF/DST-INSPIRE or equivalent independent fellowship.</p>	<p>Select "PhD in Biological Sciences (Autumn 2021)" in the "Applying for" drop-down menu at the time of filling online application form Click Here</p>
Interdisciplinary research area:	Application Information

Dr. Rahul Das Structural Biology, NMR spectroscopy and Cell signalling	Select "PhD in Biological Sciences (Autumn 2021)" in the "Applying for" drop-down menu at the time of filling online application form Click Here
Interdisciplinary research area:	Application Information
Dr. Supratim Datta Protein and microbial engineering, Biological Chemistry	Select "PhD in Biological Sciences (Autumn 2021)" in the "Applying for" drop-down menu at the time of filling online application form Click Here
Interdisciplinary research area:	Application Information
Dr. Neelanjana Sengupta Computer simulations at the biology-nanomaterial interface	Select "PhD in Biological Sciences (Autumn 2021)" in the "Applying for" drop-down menu at the time of filling online application form Click Here
Interdisciplinary research area:	Application Information
Dr. Amit Kumar Mandal Structural Proteomics, Clinical Proteomics and Imaging mass spectrometry	Select "PhD in Biological Sciences (Autumn 2021)" in the "Applying for" drop-down menu at the time of filling online application form Click Here

Interdisciplinary research area:	Application Information
Dr. Swastika Chatterjee Computational Mineral Physics Details of Computational Mineral Physics The Earth's interior is inaccessible to mankind. However, the evolution of the Earth and the other planets, as well as their present structure and dynamics, depends on processes that take place in their deep interiors. There are several ways in which the Earth's interior can be probed indirectly. First principles quantum mechanical based studies being one of them. In the last two decades it has progressively grown into an indispensable tool	Select "PhD in Earth Sciences (Autumn 2021)" in the "Applying for" drop-down menu at the time of filling online application form Click Here

which is employed in conjugation with results flowing out of seismology, cosmochemistry, geochemistry, meteoritics, and high pressure and temperature laboratory experiments to extract useful information that help us to thermodynamically model the Earth's interior. The Mineral Physics group here at IISER Kolkata performs first principles density functional theory (DFT) based studies to investigate the dynamical stability and thermoelastic properties of probable phases inside the Earth at pressure and temperature conditions up to the Earth's inner core. Thermoelastic properties of minerals and melts are the crucial link that permit the seismic tomographic images of the Earth's interior to be translated into information of geophysical significance: mineralogy, composition, and temperature. State-of-the-art high pressure experimental techniques and quantum mechanical first-principles atomistic simulations complement each other and help us obtain robust estimates of various physical and chemical parameters needed for seismic and geodynamical study of Earth interiors. For a brief overview of the scope of first principles based studies in Geo-sciences one may refer to the following review article: J. Brodholt and L Vocablo, MRS Bulletin, Vol 31, September 2006

Interdisciplinary research area:

Dr. Gaurav Shukla

Computational Mineral Physics

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