

ADVERTISEMENT FOR RECRUITMENT OF EXCEPTIONAL TALENTS @ DCS IISER KOLKATA

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The Indian Institute of Science Education and Research (IISER) Kolkata was established by the Ministry of Human Resource Development (MHRD), Government of India in the year 2006. The basic mandate of the IISERs is to provide quality science education and to carry out cutting-edge research in basic and frontier areas of science involving both undergraduate and postgraduate students. Through seamless and modular education programmes, where even undergraduates can work on pressing research problems of our times, IISERs provide an opportunity for young students to enjoy and experience the excitement of research in science at a very early stage. In essence, IISERs are devoted to integrated teaching and research with a complementary dynamic - thus nurturing both curiosity and creativity. IISER Kolkata is positioned as one of the top emerging institutes in the world following several indices and also boasts a premier position in the country on the national ranking platform NIRF. Department of Chemical Sciences of IISER Kolkata is one of the leading hubs cultivating chemistry and nurturing excellence on a global niveau. The department is stringed with laureates of highest national and international repute and accolades and a vibrant visitor program and aims to excel by recruiting new talents that can augment and advance the already very high standing of the department. The department invites applications from Indian nationals, who are driven, dynamic with strong motivation and a flair for teaching and research for the post of Assistant Professor in the following areas in an intellectually very stimulating environment.

1. Assistant Professor Position in Membrane Science and Technology

The aspirant should be an individual engaged in research activities on wastewater systems, advanced water treatment (both ultrafiltration and nanofiltration membrane processes), water recycling, and chemical analysis for process control and water quality monitoring with demonstrated expertise in membrane filtration technology, including hollow fibre, capillary, and flat sheet membrane synthesis and fabrication.

Applicants should have Ph.D. degree in science and engineering, especially in water science and technology, process engineering, environmental or chemical engineering, or related branches, with an emphasis on water treatment, preferably in membrane filtration with a mandatory three years of post-doctoral experience. Special knowledge in chemical, physical, and biological water treatment processes with a focus on the membrane or hybrid membrane processes used for water reuse, seawater desalination, or industrial process water treatment is seen as an advantage.

2. Assistant Professor Position in Battery and Energy Storage Sciences

The aspirant should be an individual engaged in research activities on lithium-ion (Li-ion) battery, advanced lead-acid battery, flow & metal-air batteries, sodium-ion battery, based on highly abundant multivalent metals such as Mg, Ca, Al and Zn and other energy systems with a demonstrated expertise to develop advanced diagnostics and prognostics to determine degradation mechanisms and predict the lifetime of the battery, the investigation of the growth behaviour of metal anodes for safety purposes, scrutiny of anode efficiency and cathode storage mechanism and other energy systems. Applicants should have research experience in experimental and computational studies of battery and other energy systems particularly, algorithm development for signal processing and fault diagnostics, algorithm development for machine learning and failure prognostics, computer

modelling of cell/battery designs, lifetime performance, electrochemical analysis, and battery materials characterization.

Applicants should have Ph.D. degree in science and engineering, especially in metal-ion battery and aforementioned related energy storage systems with a mandatory three years of post-doctoral experience. Special knowledge in experimental and computational studies of battery and other energy systems particularly, algorithm development for signal processing and fault diagnostics is seen as an advantage.

3. Assistant Professor Position in Bioelectronics, Device fabrication, Soft-Robotics, AI and Brain Research

The aspirant should be an individual engaged in research activities advancing the understanding and treatment of disorders of human nervous systems using but not limited to bio-electronics, soft-robotics, AI, device fabrication and brain science by developing flexible neural fiber-probes, tools for robotaxis in microsurgery, soft-morphing robots on an integrated device platform for the treatment of injuries to nervous system, and intricate microsurgeries with challenges for reaching spatially, using chemical, mechanical, piezoelectric sensing and guiding.

Applicants should have Ph.D. degree at the interface between neuroscience, materials chemistry, electrophysiology, AI, robotics and electronics with a mandatory three years of post-doctoral experience. Expertise may involve device fabrication, tissue engineering, biomedical research with a preferable expertise in developing and handling minimally-invasive ways to modulate electrical signals in deep brain structures. Prior industrial exposure developing such solutions is an additional asset for this position.

4. Assistant Professor Position on Super high resolution microscopy (STED) and ultrafast and operando spectroscopy and CARS, HRS, 2D-IR.

The aspirant should be an individual engaged in research activities related to super resolution microscopy (STED etc.), Ultrafast (femtosecond) stimulated Raman spectroscopy, time-resolved resonance Raman, coherent anti-Stokes Raman (CARS), and hyper Raman spectroscopy, 2D-IR spectroscopy to develop and augment very high level contemporary heterogeneous catalysis research problems. The incumbent is expected to establish a leading facility to address futuristic problems pertaining to instrumentation and science development in these areas with a possibility to contribute and augment ongoing physical chemistry and catalysis research of the department.

Applicants should have Ph.D. degree with training in pioneering laboratories from leading institutes of the world and with hands on experience in developing and using these spectroscopies and imaging techniques which should be evident from the publications and/or patent records involving the applicant. The applicants must have a mandatory three years of post-doctoral experience.

5. Assistant Professor in the area of Heterogeneous Catalysis and/or Continuous Flow Chemistry

The aspirant should be an individual engaged in research activities on continuous flow chemistry as applied to fine chemicals synthesis, sustainability sciences particularly in the development of flow-based approaches to novel transformations, the synthesis of bioactive heterocycles, and the total synthesis of natural products, with the potential to translate into pharmaceutical, biopharmaceutical and biomedical applications. Research areas broadly defined as heterogeneous catalysis in the context of above arenas as well as those that complement the existing expertise of the faculty in the department are welcome. Research interests in the study of catalytic reactions related to clean energy and environment, and

sustainability by application of operando spectroscopy are especially welcome.

The applicant should have a PhD degree in chemistry or a closely related discipline with a mandatory three years of post-doctoral experience and is expected to establish an internationally recognized, externally-funded vibrant research program on heterogeneous catalysis in the department.