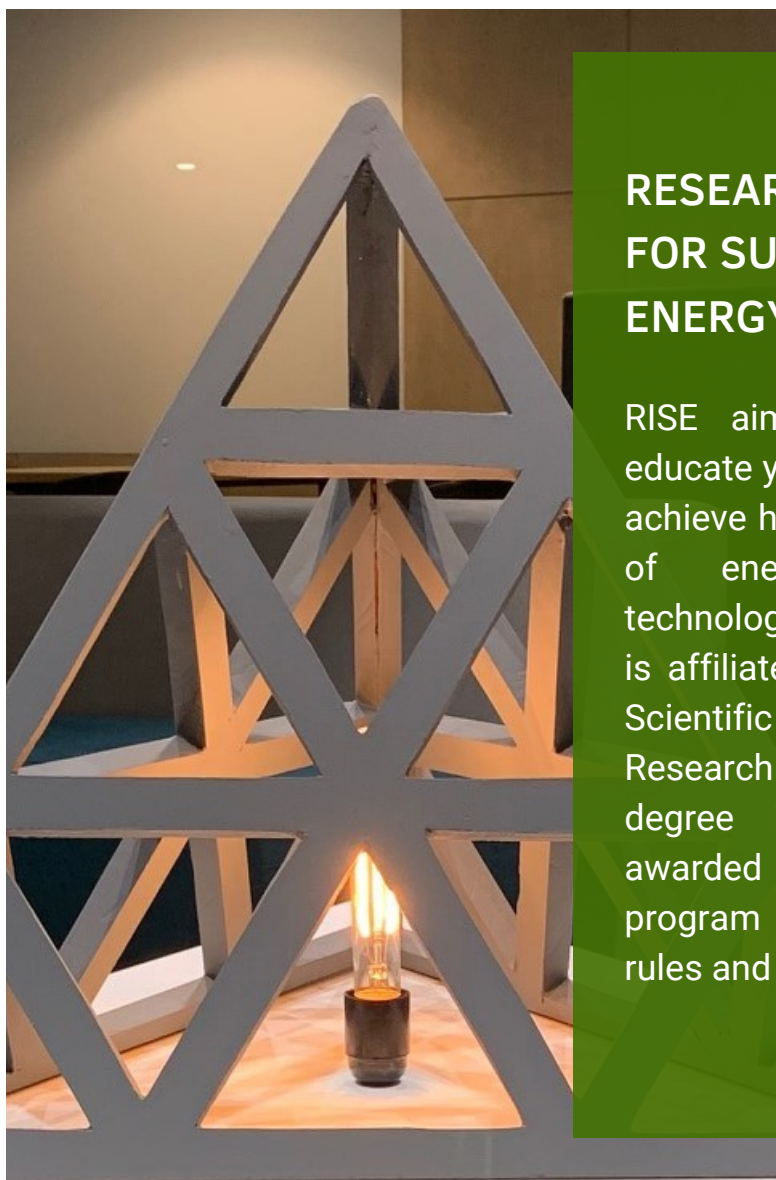




# TCG

Centres for Research and Education  
in Science and Technology

# PH.D. PROGRAM



## RESEARCH INSTITUTE FOR SUSTAINABLE ENERGY ( RISE )

RISE aims to motivate and educate young minds to set and achieve higher goals in the field of energy science and technology. RISE at TCG CREST is affiliated to the Academy of Scientific and Innovative Research (AcSIR) and the Ph.D. degree in Science will be awarded by AcSIR. The Ph.D. program shall be as per the rules and regulations of AcSIR.

### SUBJECT ELIGIBILITY

Highly motivated students with M.Sc in Physics / Chemistry / Microbiology or students with ME / MTech in Mechanical Engineering / Chemical Engineering / Biotechnology and other related areas of Material Science may apply. Students who have already qualified NET / INSPIRE / JEST / GATE / DST / DBT / RGNF or other national level test conducted by a national level body will be preferred. Complete eligibility details available inside.

### APPLICATION DEADLINE

31st May, 2023



visit <https://tcgcrest.org/rise-programs/> for more details

# Ph.D. @ RISE

We have set up state-of-the-art laboratories and research facilities, digital classrooms, conference rooms and other infrastructure providing the students and faculty an ideal ambience for creative exchange and collaboration.

RISE understands that research cannot be restricted by any boundaries and has therefore set out to establish several National and International collaborations right from the inception. This includes reputed Indian institutions like IITs, IISERs, TIFR, RRCAT and other global Institutions like University of Chicago, University of California, San Diego, University of Delft, Rice University and Uppsala University.

## Research Areas

- Li/Na-ion batteries
- Solid-state batteries
- Li/Na metal and Anode-free batteries
- Microstructural chemistry, mechanics, and dynamics
- Aqueous / non-aqueous electrolyte design
- Green hydrogen
- Carbon dioxide reduction
- Microbial fuel cells
- Waste valorisation
- DFT and molecular dynamics modelling for energy storage devices and catalysis (photocatalysis/electrocatalysis)

Focus

# Why RISE ?

**tcg crest**

Inventing Harmonious Future

RISE houses state-of-the-art facilities (on par with the most advanced battery and hydrogen research labs in the world) for conducting high-end research on advanced energy storage systems and green hydrogen research. In addition to advanced synthesis and characterization facilities, RISE also has in-operando electrochemical XPS / XRD / SEM / RAMAN / AFM measurements, which are uniquely designed. RISE is building special facilities for conducting microbiological / biotechnological research related to clean energy. RISE also has strengths in advanced computational modelling studies including Density Functional Theory (DFT) and Molecular Dynamics simulations.

## Selection Process

Ph.D. applicants will be shortlisted for interview based on their previous academic records and their performance in national level tests conducted by national level body like CSIR / UGC / NET / DBT / DST etc. Final selection of the candidates will be solely made based on their performance in the interview.

Reservation policy of Govt. of India will be followed.

## Institute Fellowship & Travel Support

For selected candidates who may not receive fellowships directly from the national level bodies will be provided with Institute Fellowships by TCG-CREST. The fellowship amount will be the same as that provided by national funding agencies.

National and international travel support may be provided to ALL candidates selected to the Ph.D. program as per the norms of TCG CREST.

# AcSIR Eligibility

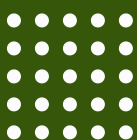
## General Eligibility Requirements of AcSIR

### Ph.D. in Science

Candidates with a Master's degree in Science or equivalent are eligible to apply. The candidate should be having a valid National level fellowship (JRF/ SRF of various funding agencies, e.g. CSIR, UGC, DBT, DST etc.) or any other equivalent fellowship like INSPIRE, RGNF etc. Project Assistants, Senior Research Fellows, Group-IV Scientists and Group-III Technical Staff of CSIR are also eligible to apply (as per relevant AcSIR rules). Candidates with a Master's degree in Science or equivalent are eligible to apply with endorsement from Industry, Academic or Research Institutes for required academic leave and financial support during the program.

### Ph.D. in Engineering

- (i) A Master's degree in Engineering or Technology following a four-year engineering/technology or 4/5 year science degree; or an integrated minimum-5-year M Tech degree; or equivalent. AND (ii) At least one of the following
  - (a) Awarded a national-level fellowship (such as NET JRF) tenable at CSIR institutes
  - (b) Meeting all the conditions required for eligibility for the CSIR-SRF
  - (c) Meeting all the conditions for award of the INSPIRE fellowship (typically awarded to students ranked first in the University)
  - (d) Meeting all the conditions stipulated by AcSIR for Project Assistants to register for a Ph.D.
  - (e) Meeting all the conditions stipulated by AcSIR for industry-sponsored students. Project Assistants, Senior Research Fellows, Group-IV Scientists and Group-III Technical Staff of CSIR are also eligible to apply (as per relevant AcSIR rules)





## Satishchandra B. Ogale

A Physicist and Materials Scientist with an academic career spanning over 43 years; Professor Ogale's current research focus is on Materials Innovation for Clean Energy & Sustainability.



## Gour P. Das

Professor Gour P. Das is a Condensed Matter Physicist cum Materials Scientist, whose research interests include electronic structure and properties of materials ranging from energy storage to quantum structures.



## Abhik Banerjee

Dr. Abhik Banerjee is a battery scientist working on next-gen solid-state, anode free and Na-ion battery technology and is involved with the development of new materials for rechargeable batteries.



## Bidisa Das

Dr. Bidisa Das is a computational scientist, and she studies the electronic structure of molecules, surfaces and bulk materials to model chemical processes in energy science and environment.



## Dheeraj Kumar Singh

Dr. Dheeraj Kumar Singh is currently involved in complex electro-chemo-mechanics of solid state batteries. His research interests involve studying interfacial charge and mass transfer kinetics.



## Arpita Nandy

Dr. Arpita Nandy is currently exploring integrated bioelectrochemical systems, for environmental remediation, and renewable fuel production from organic waste through bio-assisted methods.

# About TCG CREST

The Chatterjee Group (TCG) launched the TCG Centres for Research and Education in Science and Technology (TCG CREST), a not-for-profit organisation, with an aspiration to become a leading member of the global science and technology driven innovation ecosystem by collaborating with the global centres of excellence. TCG CREST is focused on creation of strong networks with reputed knowledge centres of the world – universities, research institutions, technology innovators and academic communities. It passionately inculcates a culture of continual knowledge exchange through joint projects, research, student exchange, faculty exchange, collaborative workshops, seminars and colloquiums for knowledge creation, knowledge application and knowledge dissemination for the overall benefit of human society.



# About AcSIR

The AcSIR was established as an Institution of National Importance by an Act of Parliament in 2010 and has been set-up based on a 'Hub and Spoke' model where the hub (AcSIR-HQ at Ghaziabad) is responsible for centralized administrative functions. The spokes are located in the 38 CSIR institutes/units (AcSIR Academic Centres) and 19 non-CSIR Institutes (AcSIR Associate Academic Centres) spread along the length and breadth of India, which act as the academic campuses of AcSIR.

AcSIR is the largest Academic Institution for doctoral research in India having awarded 577 PhD degrees in STEM in 2022 and with more than 6100 students currently registered for PhD. Presently, AcSIR is ranked 3rd by "Scimago Institutions Ranking" (2023), 12th by "Nature Index" (2021-22) and 18th by "NIRF" (2022) in the Research Category, among the academic institutions in India.

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