

The **Research Institute for Sustainable Energy (RISE)** is established under TCG CREST to perform high-end research and student training in the field of clean and renewable energy to address the global energy challenge. The aim is to motivate, train and nurture young minds to contribute towards **high impact research, innovation and entrepreneurship** through academic and industrial collaboration.

Research Program (Ph.D.)

RISE has a vibrant Ph.D. program which has won the **AcSIR (Institute of National Importance)** affiliation. Under the TCG CREST-AcSIR agreement the **Ph.D.** degree for all the students registered at RISE will be granted by AcSIR following the rules and procedures laid down by AcSIR.



Facility:

XRD, XPS, Cryo Dual Ion Microscope, Colocalized AFM-Raman installed inside glove box, TGA, DSC, GC-MS, RRDE, Optical Profilometer, Probe station, AAS, 22 hands glove box, Coin and Pouch cell fabrication facility, Dilatometer, High Energy Planetary ball Mill, High Temperature Furnaces, Battery and electrochemical Work-Station, More than 500 battery channels, Environmental chamber, BET surface area measurement unit, CO₂ laser, Spray coater, Electrospinning, In-operando cell characterization facility and many others required for materials and battery research.

Opportunity :

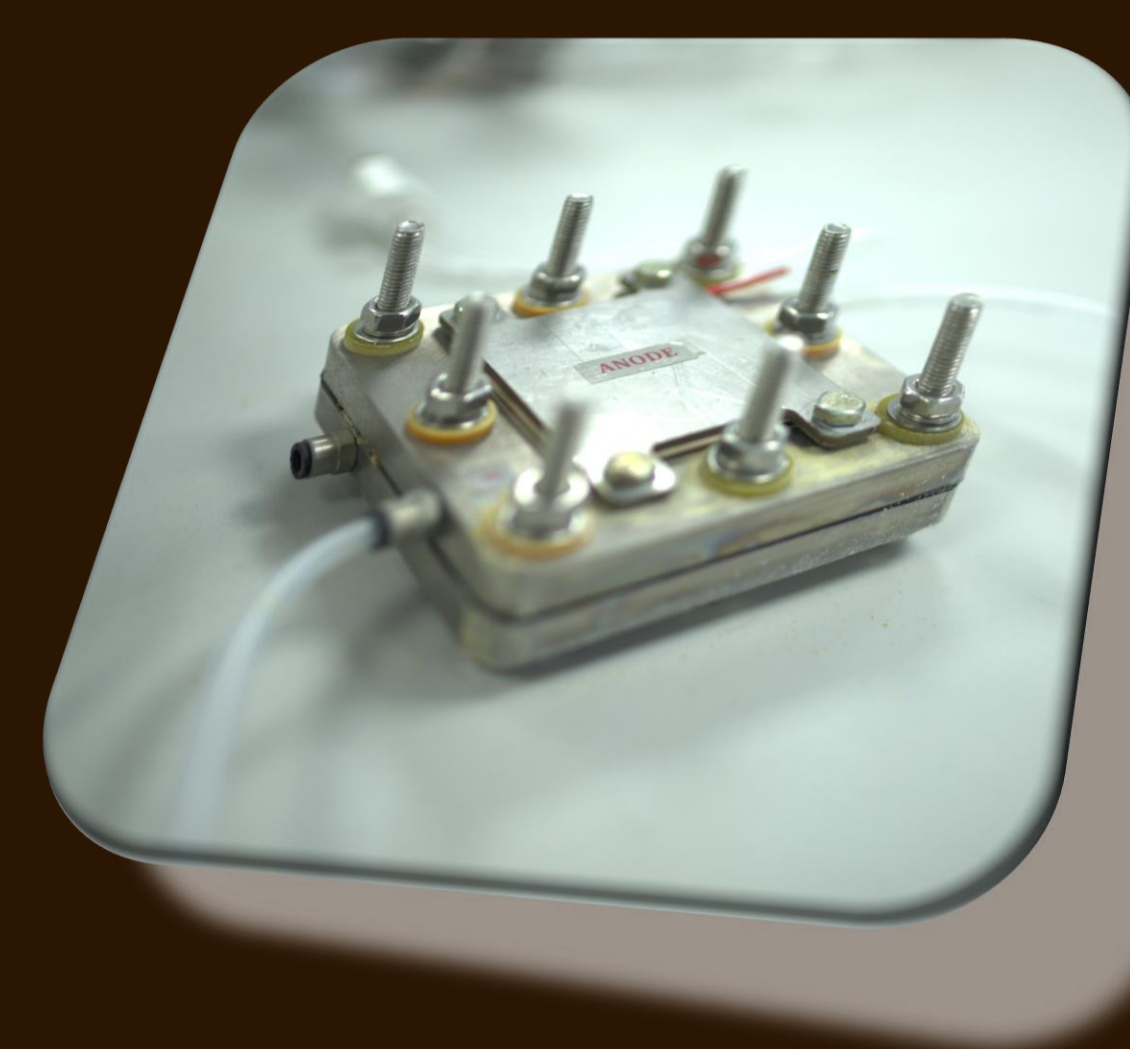
RISE is looking for faculties under the following with the following expertise

- **3-D modelling** of lithium-ion batteries at the electrode scale.
- Advanced characterization in Spectroscopy, microscopy, diffraction, Scattering (**X-ray Crystallography, Neutron Diffraction, and Electron Diffraction**)
- **Electrochemistry** in Battery and Catalysis (Green Hydrogen, CO₂ reduction, Ammonia synthesis).

Research Areas



- **Advanced Energy Storage**
(Li/Na-ion battery, solid-state battery, Anode Free Battery, fast Charging Graphite)



- **Photo/electro-catalysis**
(CO₂ Electroreduction, Green Hydrogen, Fuel cell)



- **Computational Modelling**
(DFT, Molecular Dynamics, Machine Learning)



- **Advanced Characterization**
(XRD, XPS, Impedance Spectroscopy, SEM, Raman and AFM)



- **Microbial Fuel Cell**

Centre for High Impact Neuroscience & Translational Applications (CHINTA), TCG CREST

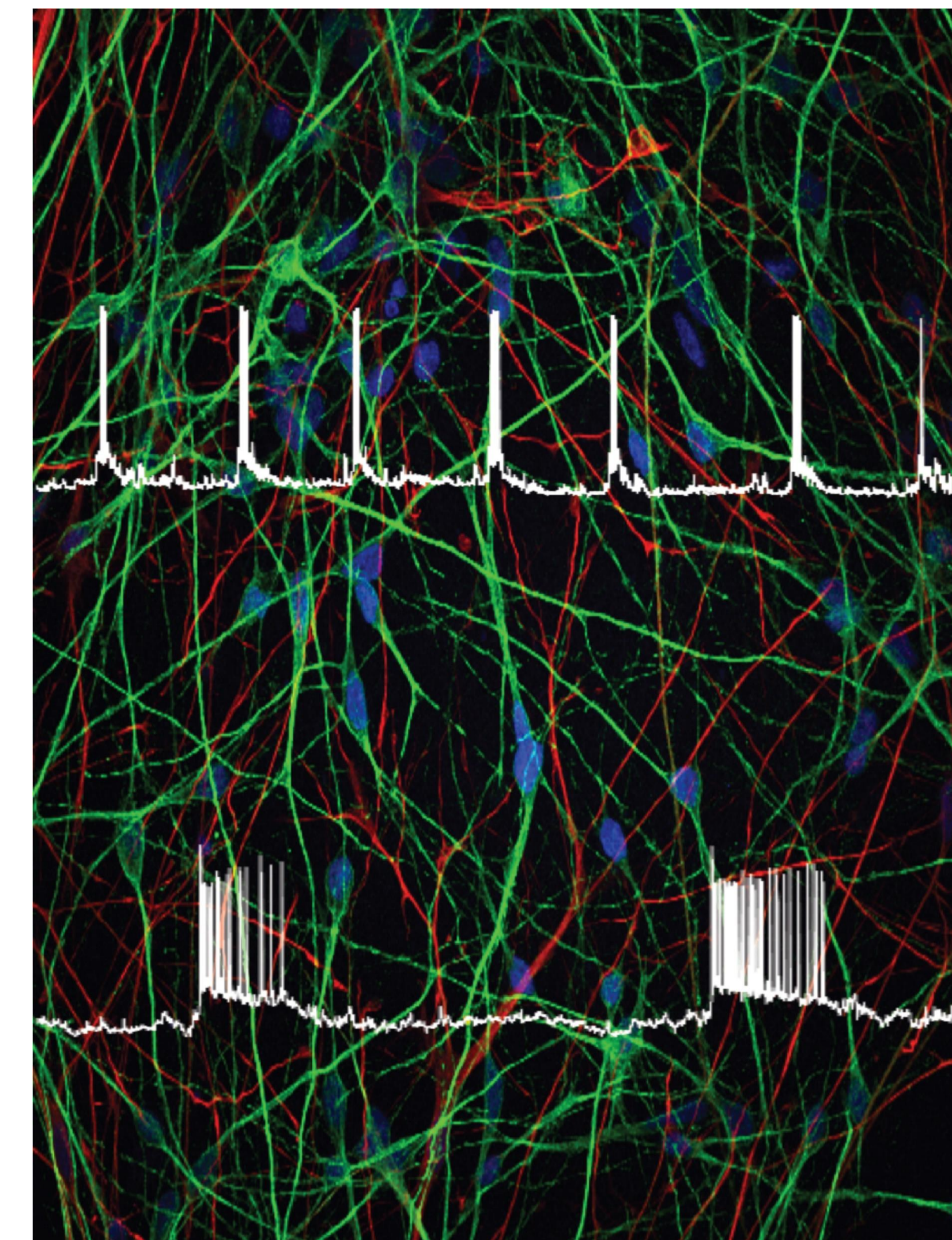
Brain disorders represent a major and growing global public health threat. The urgent unmet need is for therapies that will prolong and improve/maintain quality of life. The continued failure to discover new medicines reflects bottlenecks at pivotal stages of drug development, and new interdisciplinary approaches in discovery neuroscience. It is in this context that CHINTA, based in TCG-CREST Kolkata, aims to prioritize innovations in powerful pre-clinical assay platforms that will examine the effects of disease-induced changes, and interventions against them, across multiple levels of neural organization. To this end, we will exploit innovative technologies based on a range of model systems, including animal models and patient derived neural stem cells. We have also established an extensive collaborative network of leading neuroscience institutions, and visiting faculty programs.

We are actively recruiting highly skilled and motivated neuroscientists as Assistant and Associate Professors specializing in a broad range of basic and clinical neuroscience. Positions for postdoctoral fellows (PDFs) and visiting scientists are also available.

For more information contact:

Prof. Sumantra "Shona" Chattarji, Director, CHINTA, TCG CREST

Email: shona.chattarji@tcgcrest.org



Confocal image of human cortical neurons (green) co-cultured with human astrocytes (red). Recordings in these co-cultures reveal that Fragile X Syndrome (FXS) cortical neurons fire frequent short duration spontaneous bursts of action potentials (*top*) compared to less frequent, longer duration, bursts of control neurons (*bottom*).

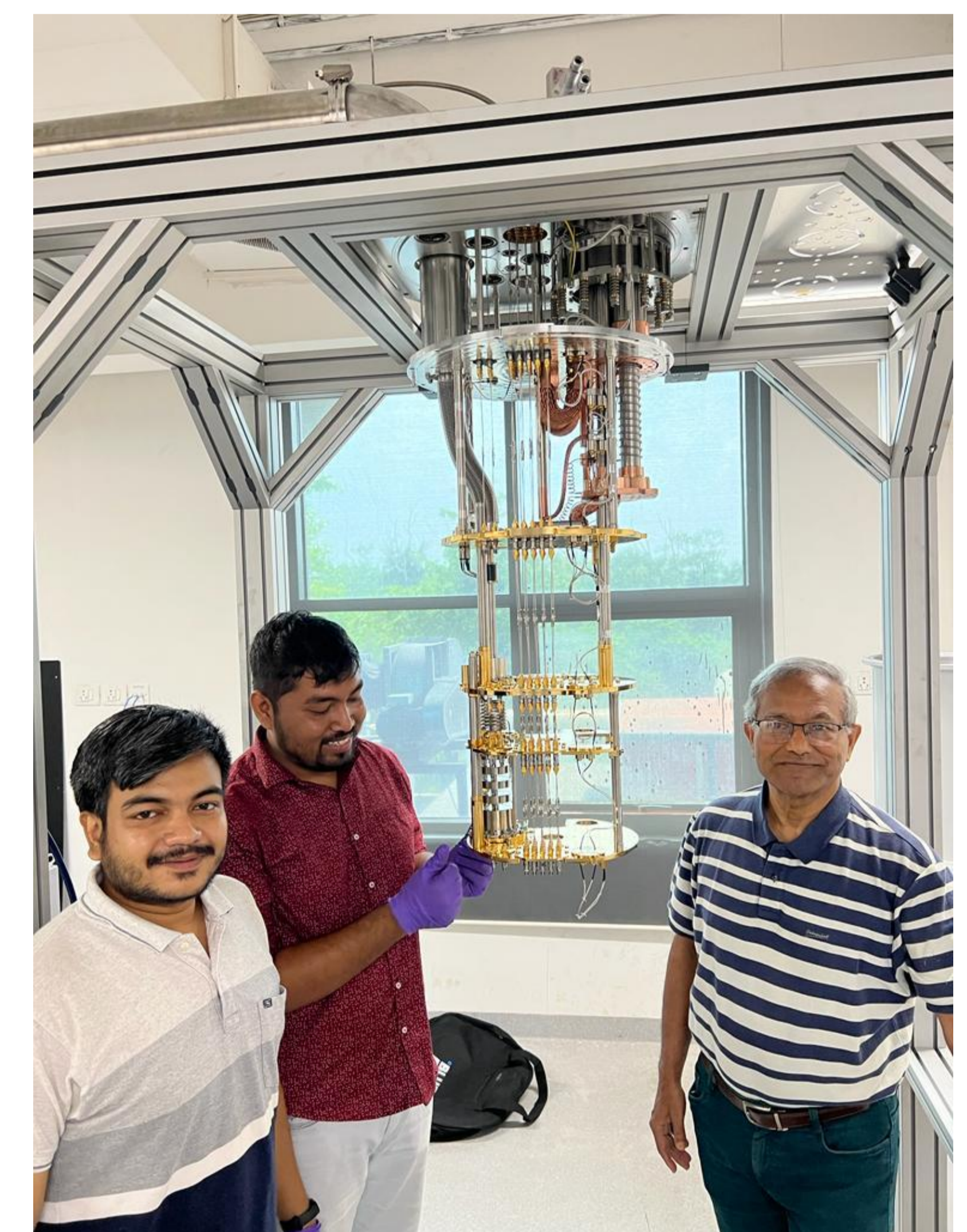
Centre for Quantum Engineering Research and Education (CQuERE), TCG CREST

The Centre for Quantum Engineering Research and Education is dedicated to performing cutting edge research and high-quality education at the PhD level in quantum science and engineering. The research areas currently being pursued at CQuERE include theoretical research in quantum computation, quantum machine learning, quantum communication, quantum information, and experimental research in quantum computing using superconducting qubits, quantum sensing using photonic integrated circuits and nitrogen vacancy centres and quantum sensing using cold atoms. CQuERE is keen to recruit excellent faculty candidates in the afore-mentioned areas of in quantum science and engineering.

For more information contact:

Professor Bhanu Pratap Das, Director, CQuERE, TCG CREST

Email: bhanu.das@tcgcrest.org



Dilution refrigerator installed at CQuERE for superconducting quantum computing

About Institute for Advancing Intelligence (IAI), TCG CREST

The Institute for Advancing Intelligence (IAI) was established under the TCG Centres for Research and Education in Science and Technology (CREST) to offer a cutting-edge, self-funded educational environment focused on quantitative, computational, technological, and analytical disciplines, including valuable research collaborations with leading global institutions—a unique offering currently unavailable in India. The Institute's mission encompasses active participation in extensive interdisciplinary research endeavors focused on addressing critical national challenges. It also seeks to cultivate a cadre of forward-thinking young researchers dedicated to conducting translational research in advanced domains, including deep machine learning, computer vision, speech engineering, language models, cryptology and security, as well as pertinent fields of applied mathematics.



Job Description: We are actively searching for highly skilled and motivated candidates to fill positions as Assistant and Associate Professors specializing in Artificial Intelligence (AI) and Machine Learning (ML). Additionally, there are opportunities available for postdoctoral fellows (PDFs) and visiting scientists. IAI, TCG CREST has established its campus in Sector V, Salt Lake City, Kolkata, India, equipped with cutting-edge laboratories and research facilities and technology-enhanced resources for both in-person and online academic activities.

Main Responsibilities: Perform world-class and translational research in the state-of-the-art AI/ML methods, engage in scholarly research activities, including publishing in reputable journals and presenting at prestigious international conferences, mentor and advise Ph. D. students, Obtain Governmental and industrial funding for goal-oriented research projects and consultancy.

Qualifications:

- Minimum 3 years of post-Ph.D. research experience for Assistant Professor position. If the academic record is excellent but post-Ph. D. experience is less than 3 years, you can apply for a PDF or Visiting Scientist position.
- A Ph.D. degree in a relevant field such as Computer Science, Machine Learning, Data Science, Metaverse or a related discipline from a reputed institute in India or abroad.
- Excellent track record of publications and collaborative research innovations.

For more information contact: Prof. Swagatam Das, Deputy Director, IAI TCG CREST.

E-mail: swagatam.das@tcgcrest.org