

3 Days National Webinar on

Li-ion Batteries and Beyond- A Perspective for Future Energy Storage Need

Hosted by Department of Ceramic Engineering, NIT Rourkela

23rd-25th June, 2022

Keynote Speaker



Dr. (Mrs) N. Kalaiselvi

Director at CSIR-CECRI, Karaikudi
Topic: **Energy storage and devices**



Prof. Aninda Jiban Bhattacharya
SSCU, IISc Bangalore

Topic: **Beyond Li-ion Batteries for Electrification and Sustainability**



Dr. Vilas Shelke

CEO at Rechargion Energy Pvt Ltd.
Topic: **Need, Opportunity and Challenges for the commercialisation of Sodium-ion battery**



Prof. S. Ramaprabhu

Department of Physics, IIT Madras
Topic: **Advanced Nanomaterials for Next Generation Batteries**

Invited Speaker



Prof. Amartya Mukhopadhyay
MEMS, IIT Bombay

Topic: **Layered transition metal oxides for alkali metal-ion batteries**



Mr. Jubin Varghese

CEO & Founder - Gegadyne Energy
Topic: **Concept of multi-ion technology in batteries**



Prof. Siladitya Pal

Mechanical and Industrial Engineering, IIT Roorkee
Topic: **Chemo-mechanical modeling of fracture in heterogeneous cathode for LIB**



Prof. G.C. Nayak

Dept. of Chemistry & Chemical Biology, IIT (ISM) Dhanbad
Topic: **Boron nitride based Hybrid supercapacitor devices**



Mr. Nikhilesh Mishra

Founder & CTO at Grinntech
Topic: **Safety aspects of Li-ion battery BMS and beyond**



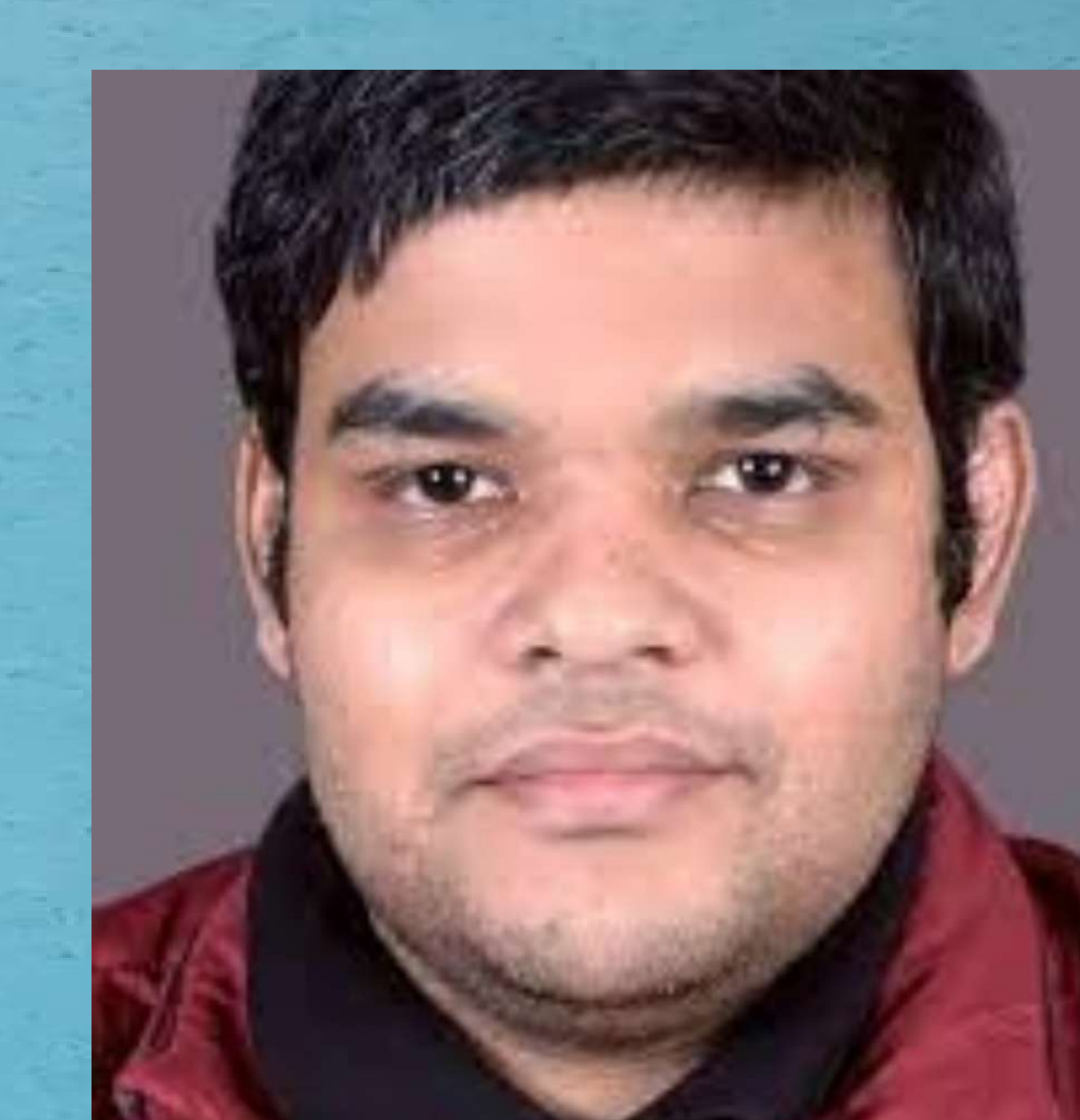
Prof. Shobit Omar

Materials Science & Engineering, IIT Kanpur
Topic: **Solid-state sodium ion batteries**



Prof. Preetam Singh

Ceramic Engineering, IIT (BHU)
Topic: **Hybrid supercapacitors for grid scale energy storage applications**



Prof. Sankha Mukherjee

MME, IIT Kharagpur
Topic: **Atomistic modelling of nanomaterials as electrodes in rechargeable batteries**

Chairman: Prof. Debasish Sarkar

Coordinator: Prof. Partha Saha

Coordinator: Prof. Ranabrata Mazumder



SCOPE OF THE WEBINAR

The scope of the webinar is to bring together engineers, researchers, scientists, and faculties from academia and industries across multiple disciplines working towards the development of electrodes and electrolytes in lithium-ion batteries and beyond for building better energy-storage systems of tomorrow. The webinar will be a suitable platform to listen some of the exciting topics from subject experts in their domain hailing from academia/industries and exchange ideas for sustainable growth and enrichment of the field. The participants will be able to learn the modern concept of materials science encompassing ceramic fabrication, chemistry, and electrochemistry related to materials development at the electrode level to battery fabrication, assembly, testing, and thermal management system at the cell level to gain in-depth theoretical and practical knowledge related to rechargeable battery systems.

ABOUT THE HOST INSTITUTE

National Institute of Technology Rourkela (NIT Rourkela) is an Institute of National Importance created under the Act of Parliament. NIT Rourkela provides quality education in a diverse and multi cultural environment. The vision of the institute is to become an internationally acclaimed institution of higher learning that will serve as a source of knowledge and expertise for the society and be a preferred destination for undergraduate and graduate studies. The institute offers Ph.D., M.Tech., B.Tech., MBA and M.Sc. programmes in 21 branches of Engineering, Management and Science. The institute research centers are engaged in consultancy, research and developmental activities and have received funding from several bodies such as BARC, BRNS, CSIR, DST, DBT, DAE, DRDO, ISRO, ICMR and other private industries. QS World University- ASIA Rankings 2022 has figured NIT Rourkela in the list of 271-280. NIT Rourkela has been placed within 801-1000 in The World University 2022 rankings and 601-800 for The World University Rankings by subject (Engineering) 2021 category. BRICS 2019 has figured NIT Rourkela in the place of 121st among top universities in Brazil, Russia, India, China and South Africa. Asia University Rankings also figured NIT Rourkela in the place of 201-250 among Asian universities. NIRF Engineering ranking 2022 has figured NIT Rourkela at 20th position in Engineering category and 41st position in overall category.

LITHIUM-ION BATTERIES AND BEYOND-A PERSPECTIVE FOR FUTURE ENERGY STORAGE NEED

Patron

Prof. K. Umamaheshwar Rao

Chairman

Prof. Debasish Sarkar

Coordinator

Prof. Partha Saha

Coordinator

Prof. Ranabrata Mazumder

REGISTRATION FEE

There is no registration fee. However, the [Google form](#) must be filled on or before 21st June 2022. The participants will be intimated via email regarding the joining details in the virtual program.

REGISTER HERE



GOOGLE FORM:

<https://forms.gle/6Lyjoxa8Trh98Cas7>

WEBINAR LINK:

<https://youtube.com/playlist?list=PLzax2idOggQyAW4XFUSPGTrfAKjKGstM->

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NATIONAL
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23-25 June 2022



Hosted by:
Dept. of Ceramic Engineering
NIT Rourkela

ABOUT THE DEPARTMENT

The Department of Ceramic Engineering at NIT Rourkela was established by Prof. B.N. Samaddar in 1994 and has traversed a long path specialized in the development of traditional and advanced ceramics and nurturing future ceramists for the nation. It boasts state-of-the-art high-temperature furnaces going up to 2000K and sophisticated analytical instruments like FESEM, XRD, dilatometer, DSC, TGA, BET surface area, electrochemical workstation, Arbin battery tester, etc. The faculty members conduct sponsored research from industry, DST, DBT, BRNS, NRB, Nanomission, focusing development of futuristic materials like solid oxide fuel cells, lithium-ion batteries, graphene-based supercapacitors, nanomaterials for water, energy, and environment, advanced ceramics from polymeric precursors, materials development for tokamak fusion reactors, nanocarriers for drug delivery to name a few as well as improved industrial products like advanced refractories and glass.

DEPARTMENTAL REPRESENTATIVES

Prof. Arindam Paul
Prof. Arun Chowdhury
Prof. Bibhuti Bhusan Nayak
Prof. Debasish Sarkar
Prof. Japes Bera
Prof. Partha Saha
Prof. Ranabrata Mazumder
Prof. Ritwik Sarkar
Prof. Santanu Bhattacharyya
Prof. Shantanu Kumar Behera
Prof. Sudip Dasgupta
Prof. Sumit Kumar Pal
Prof.(Ms.) Sunipa Bhattacharyya
Prof. Swadesh Kumar Pratihara

STUDENT REPRESENTATIVES

Siddhartha Nanda
Deepshikha Bramha
Uday Kumar
Abhishek Kumar
Tandra Rani Mohanta
Yogendra Mahton
Meeta Kamde
Monika Singh
Ayushi

ABOUT THE WEBINAR

The 3 days webinar is intended to explore some of the exciting topics, including silicon-based anodes replacing graphite for futuristic electric vehicles, 4.0 V NMC-based cathodes, modeling, and simulation to understand the capacity fade and SEI formation at the electrode-electrolyte interface, beyond Li-ion batteries systems including Mg-ion, Na-ion, K-ion chemistries for future energy storage need, etc., as well as selective modern-day applications of Li-ion batteries and challenges faced by the industry. This online webinar will increase the scientific knowledge and technical know-how of budding researchers, scientists, and engineers working in academia and industries to understand the intricacies of battery fabrication, testing, abuse test, and battery management systems (BMS). The program will include keynote and invited speakers covering dedicated sessions on various aspects of lithium-ion batteries and beyond by eminent scientists and industry experts from India.

CONTACT US

Prof. Partha Saha
+91 70081 14012
sahap@nitrkl.ac.in

Prof. Ranabrata Mazumdar
+91 9438391787
ranabrata@nitrkl.ac.in

Tandra Mohanta
+91 82208 11662
tandra.rani2313@gmail.com

Abhishek Kumar
+91 70006 93074
abhishekbittu291@gmail.com

Siddhartha Nanda
+91 80933 08828
nanda.siddhartha2018@gmail.com

TARGET AUDIENCE

Undergraduate, postgraduate, and doctorate students from various science and engineering disciplines (Chemistry, Physics, Nanotechnology, Polymer Science, Ceramic, Chemical, Electrical, Mechanical, Metallurgical, Materials, etc.) working in the relevant areas aligned to the realm of the webinar.

