



Faculty Development Program



VIT[®]
Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

Title : Advances in Energy storage Technologies

Date : 2026-03-20 - 2026-03-20

Time : 10:00 - 17:30

Venue : TECHNOLOGY TOWER - 311

Event Outcome

- Outcome 1: Curriculum Modernization and Research Catalyst
- Outcome 2: Enhanced Industry-Academia Alignment



Resource Person 1 - Details

Name : Dr Sreekuttan M Unni

Designation : Scientist E, CECRI Chennai Unit CSIR Madras Complex Taramani

University/ Company : CECRI Chennai Unit CSIR Madras Complex Taramani, Chennai

Address : India, 600113.



Resource Person 2 - Details

Name : Sreekuttan M Unni

Designation : Scientist E, CECRI Chennai Unit CSIR Madras Complex Taramani

University/ Company : CECRI Chennai Unit CSIR Madras Complex Taramani, Chennai

Address : India, 600113.



Resource Person 3 - Details

Name : Bosu Babu Dasari

Designation : Assistant Professor, SAS

University/ Company : VIT AP University, Amaravathi

Address : India, 522241.



Resource Person 4 - Details

Name : Bosu Babu Dasari

Designation : Assistant Professor, SAS

University/ Company : VIT AP University, Amaravathi

Address : India, 522241.

Resource Person's Profile :

1. Profile of Dr Sreekuttan M Unni

Presently Principal Scientist in CECRI, Chennai, He did PhD in Chemical Sciences from CSIR NCL, Pune in 2015. Areas of Interest. Electrocatalysis (Oxygen reduction, Nitrogen reduction, Water splitting, CO₂ reduction etc.), Polymer Electrolyte Membrane Fuel Cells, Metal-air sulphur battery and supercapacitor, Electrochemical synthesis of value-added chemicals

2. Profile of Sreekuttan M Unni

Dr. Sreekuttan Unni did his Ph.D (Chemical Sciences) in 2015 from CSIR-National Chemical Laboratory, Pune. He is currently working as Scientist E in CECRI, Taramani since 2017. He was a JSPS Post doctoral fellow in Tokyo Institute of Technology, Japan from 2015 to 2017. Raman-Charpak Fellow in University of Poitiers, France from 2013 to 2014. His areas of interest include Electrocatalysis (Oxygen reduction, Nitrogen reduction, Water splitting, CO₂ reduction etc.), Polymer Electrolyte Membrane

3. Profile of Bosu Babu Dasari

Dr. Bosu Babu did his PhD on Development of energy storage materials from CSIR-Central Electrochemical Research Institute and later Post Doc on Developing next-generation battery technologies, from Karlsruhe Institute of Technology (KIT) Germany. His specialisations are Design and development of advanced cathode and anode materials for high-performance lithium-ion, lithium-sulfur, and all-solid-state batteries, contributing to cutting-edge advancements in energy storage technologies.

4. Profile of Bosu Babu Dasari

I am an innovative and dedicated researcher with over a decade of hands-on experience in electrochemistry specializing in energy storage devices such as lithium-ion and sulfur batteries. Battery Development In depth knowledge of cathode chemistry and extensive use of characterization techniques. Practical Skills Proven ability in fabricating pouch type Li metal batteries demonstrating a blend of theoretical insight and practical

The global transition toward renewable energy sources, such as solar and wind, necessitates robust and scalable energy storage technologies to mitigate the inherent intermittency of these resources. This paper reviews recent and pivotal advances across various energy storage domains, highlighting improvements in efficiency, safety, and cost-effectiveness. While conventional lithium-ion batteries remain the industry standard, intensive research has catalyzed breakthroughs in solid-state electrolytes, promising significantly higher energy densities and eliminating flammability risks. Concurrently, alternative electro-chemical chemistries specifically sodium-ion and metal-air batteries are emerging as resource-abundant, cost-competitive alternatives for both portable and stationary applications.

Battery Electrodes: They store and release energy chemically through the bulk movement and reaction of ions entering and exiting the electrode material.

Fuel Cells: They continuously generate electricity via an electrochemical reaction at catalytic electrodes, relying on a constant external supply of fuel (like hydrogen) and an oxidant.

Supercapacitor Electrodes: They store energy rapidly by physically accumulating electrostatic charge at the interface between a highly porous material and an electrolyte, without relying on chemical reactions.

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**Coordinator's: Prof. UMA SATHYAKAM P 13570 - Associate Professor Grade 2 -
SELECT
Prof. MAHALAKSHMI P 10116 - Professor Higher Academic Grade -
SELECT**