



**DIVECHA CENTRE
FOR CLIMATE CHANGE**

Divecha Centre for Climate Change

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SEMINAR NOTICE

Title: Solid-State Li-Ion Batteries: Is the Future Solid?

**Speakers: Dr. Naga Phani B Aetukuri,
Assistant Professor
Solid State and Structural Chemistry Unit,
IISc Bangalore.**

Date: 21st July 2022(Thursday)

Time: 3:30 pm – 5:00 pm

Venue: Hybrid mode (DCCC Auditorium and Online using MS Teams)

Abstract:

The widespread adoption of renewable energy sources is indispensable for decarbonization. The intermittency in energy generation from renewable energy sources necessitates that energy be stored for on-demand consumption. Hence there is a need for inexpensive energy storage options.

Lithium-ion batteries have the necessary techno-economic attributes for decreasing the levelized cost of storage. The flammable organic liquid electrolyte in Li-ion batteries is often responsible for battery fires. The solid-state Li-ion batteries which use metallic lithium as an anode and an inorganic solid-state electrolyte have higher energy density, and long cycle life.

However, the growth of filaments of lithium through solid state electrolytes renders them unusable at high current densities. The origins of this filament growth in solid state electrolytes is totally unexpected. In this talk, we will discuss several possible mechanistic origins of lithium filament growth through inorganic solid electrolytes. We will present our recent work that provides a descriptor framework for enabling high current density solid state lithium metal batteries without the necessity for an external stack pressure. We will touch upon the techno-commercial requirements that are to be met if batteries were to enable total electrification of transportation including grid storage and electric aviation

All are Welcome