

INTRODUCTION

Recent years have attracted worldwide attention of scientific community to foster innovation toward improved performance (energy/power), safety and life of energy storage devices for vehicle electrification, renewable energy integration and grid storage. Lithium-ion batteries, for example, are leading the race for electric drive vehicles. These are complex, dynamical systems, which include a multitude of coupled physicochemical processes encompassing electronic, ionic, diffusive transport in solid/electrolyte phases, electrochemical and phase change reactions and stress generation in multi-scale porous electrodes. The performance and lifetime of such electrochemical energy storage devices is dependent on complex reaction/transport processes spanning across multiple length and time scales. Computational models and characterization of mechanical, thermal and electrochemical processes play an important role in providing insight into the coupled multiphysics interactions. Course participants will learn these topics through lectures. Also case studies and assignments will be shared to stimulate research motivation of participants.

OBJECTIVES

The objective of the workshop is to enable practical understanding of energy storage technologies and developments in energy storage research producing engineering solutions. The workshop seeks to engage and educate the individuals regarding the basics of energy storage via tangible, hands-on exercises.

CONTENTS

Fundamentals of Energy Storage will be presented. Recent developments will be emphasized including new and emerging computations aspects. Real-world case studies will be presented to highlight the benefits and challenges of energy storage for various applications.

PROGRAMME

Technical sessions and discussions will be conducted by the expert faculties/engineers of various premier organizations like Purdue university, IITs, NITs, Universities and leading industries.

TENTATIVE SPEAKERS

Dr. Partha P. Mukherjee, Purdue University, USA

Dr. S. Mitra, IIT Bombay, India

Dr. J. Chakraborty, IIT Kharagpur, India

Dr. U. K. Sen, Ather Energy, India

Patron: Prof. Sivaji Bandyopadhyay
Director, NIT Silchar

Chairman: Prof. P.K. Patowari,
Head of the Department, ME

Advisory members
Prof. K. M. Pandey
Prof. R.D. Misra,
Prof. D.H. Das,
Dr. K. Chakraborty,
Dr. K.K. Sharma,
Prof. P. Chowdhury,
Dr. L. Roy,
Prof. S. K. Pattnayak,
Dr. S. Halder,
Dr. S. Bhoumik,
Dr. Jagadish,
Dr. D. Bhanja,
Dr. S. Nath,
Dr. P. DebRoy,
Dr. A.B. Deoghare,
Dr. S. Debbarma,
Dr. S. Dey,
Dr. B. Das,
Dr. S. R. Maity.

Coordinators: Dr. Sukumar Pati
Assistant Professor, ME Deptt.

Dr. Pitambar Randive
Assistant Professor, ME Deptt.

Five Days Workshop

On

Fundamentals of Energy Storage (Under TEQIP – III)

July 23 - 27, 2018

National Institute of Technology, Silchar (Assam)

REGISTRATION FORM

1. Name:
2. Designation:
3. Institution/Organization:
4. Address for communication:
5. E mail:
6. Phone/Mobile No:
7. Highest educational qualification:
8. Accommodation required (Tick): Yes/No
9. Any other information:
10. Details of Registration Fee:
11. D. D. No.: Date:
Bank:
- Place:
- Date:

Signature of the applicant

Recommended by HOD/Section in-charge:

(Sign and Seal of HOD/Section in-charge)

REGISTRATION DETAILS

- Internal Students: ₹. 500/-
- External Students: ₹. 1000/-
- Internal Faculty members: ₹. 1000/-
- External Faculty members: ₹. 3000/-
- Industry Persons: ₹. 5000/-

The registration fee includes registration kit and lunch. All participants have to pay the registration fees before submitting application either (i) via DD in favour of Director NIT Silchar, Payable at State Bank of India, NIT Silchar branch or (ii) online transfer to the account of the **Director, NIT Silchar** (A/C No.: 10521277057, Branch: NIT Silchar). Brochure and registration form can also be downloaded from: <http://www.nits.ac.in/>
Submission Process:

Scanned copies of both registration form along with D.D. (or online transfer proof) are to be sent to sukumarpati@gmail.com on or before 15th July 2018. The original hard copies of registration form and D.D. has to be submitted at the registration desk, just before the commencement of the workshop.

ABOUT THE INSTITUTE

National Institute of Technology (NIT) Silchar, an Institute of National Importance under the NIT Act was established in 1967 as Regional Engineering College (REC) Silchar in Assam. In year 2002, it was upgraded to the status of an NIT from REC. NIT Silchar is situated on the banks of river Barak and on a sprawling campus spread over 600 acres of land on the outskirts of Silchar. The landscape of NIT Silchar campus is beautiful with natural lakes and hillocks,

surrounded by tea gardens. NIT Silchar is a fully residential institution with nine hostels for boys and two hostels for girls. It has six engineering degree offering branches and five non-engineering branches. It conducts various programmes, including organizing the workshops, seminars, conferences, invited talks etc. in collaboration with different academic departments, institutes and reputed multinational and national industries.

ELIGIBILITY

This program is open to industrial personnel, faculty members and research scholars/PG students of technical institutions, engineering colleges, polytechnics, universities and other recognized institutions.

ACCOMMODATION AND TRAVEL

All the out station participants will be provided accommodation on payment basis in the Guest House/Hostels of the institute. No TA and DA will be paid to the participants.

HOW TO REACH NIT SILCHAR

There are daily flights from Kolkata, Guwahati. Taxi are available from Airport to NIT Silchar, Silchar is also well connected by road and train from Guwahati.

ADDRESS FOR COMMUNICATION

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Email: sukumarpati@gmail.com

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Organized by

**Department of Mechanical Engineering
National Institute of Technology Silchar**

Silchar-788010

Assam-India