



## School and Hands-on Training on Photovoltaics for Solar Energy Harvesting

Organized by

**CSIR-Central Electrochemical Research Institute**

In Collaboration with

**Society for Advancement of Electrochemical  
Science and Technology**

at

Abdul Kalam Auditorium

CSIR-Central Electrochemical Research Institute, Karaikudi  
18-20 September, 2017



### About CSIR-CECRI & SAEST

CSIR-Central Electrochemical Research Institute (CECRI) took roots in the patriotic fervour of Dr. RM. Alagappa Chettiar, Pandit Jawaharlal Nehru and Dr. Shanthi Swarup Bhatnagar. It was founded by Alagappa Chettiar, who donated 300 acres of land and Rs. 15 lakhs in 1948. The institute was dedicated to the nation as the 12th national laboratory under the Council of Scientific and Industrial Research (CSIR). The institute works on a gamut of problems covering all facets of electrochemical science and technology: Corrosion Science and Engineering, Electrochemical Materials Science, Electrochemical Power Sources, Electrochemical Pollution Control, Fundamental Electrochemistry, Electrometallurgy, Industrial Metal Finishing, Functional Materials, and Nanoscale Electrochemistry. CSIR-CECRI, a proud family of 500 members (130 of whom are scientists), is the largest research establishment for electrochemistry in South Asia. It serves as a launching pad for a multitude of technologies for the Indian electrochemical industry. The 750 patents, 250 processes, 600 sponsored and grant-in-aid projects, 450 licensees and 5,500 research and review papers that the institute boasts of are ample testimony to its leadership in nation building.

More Details visit CSIR-CECRI Website: [www.cecri.res.in](http://www.cecri.res.in)

The Society for Advancement of Electrochemical Science and Technology (SAEST) is a professional body of electrochemists and technologists that provides a common platform for scientific researchers, technocrats and industrialists to exchange knowledge in electrochemical science and technology and its allied fields. To realize this goal, SAEST organizes a number of national and international conferences/seminars/symposia. Electrochemistry is truly an interdisciplinary science, swathing chemistry, physics, materials science as well as chemical, metallurgical, electrical, electronics and civil engineering. Besides, electrochemistry spreads its tentacles to disparate areas such as space, nuclear, medicine and transportation.

More Details visit SAEST Website: <http://www.saest.com>

### Registration

Registration fee includes lunch, refreshment, course materials and practical kits. The registration fee may be paid online or in the form of a crossed DD and should reach SAEST on or before September 10, 2017. DD should be drawn in favour of **SAEST, Karaikudi** and payable at Karaikudi.

Details of online payment (RTGS) to  
**SAEST, Karaikudi**  
**Indian Bank, A.C. Campus Branch, Karaikudi,**  
**A/c. No.: 530826817**  
**IFSC Code: IDIB000A008.**

Category	Registration Fee (Rs.)
Research Scholar/PG Students	1,000/-
Post-Doc/RA	1,500/-
Faculty/Scientist	2,000/-

Deadline for Registration and Payment of fee: **September 10, 2017**  
Number of registrations is limited to 50 on first come first service basis.

### Contact

Organizer (PSEH – 2017)  
CSIR-Central Electrochemical Research Institute  
Karaikudi - 630 003, Tamil Nadu, India.  
E-mail: [solarschool2017@gmail.com](mailto:solarschool2017@gmail.com)  
Website: <https://solarschool2017.wixsite.com/cecri>

#### Further details contact school coordinators

Dr. Subhendu Kumar Panda  
Mobile: +91-7598114003

Dr. A. Pandikumar  
Mobile: +91-9994228483

## About the School

The CSIR-CECRI pleased to announce the "School and Hands-on Training on Photovoltaics for Solar Energy Harvesting", in association with SAEST, Karaikudi. Three days (18<sup>th</sup> - 20<sup>th</sup> September 2017) tutorial course and practical classes will be conducted by one of the pioneer in photovoltaic scientist Prof. Kuppaswamy Kalyanasundaram, EPFL, Swiss Federal Institute of Technology, Laussane, Switzerland, who is working with the father of dye-sensitized solar cells, Prof. Michael Grätzel. The main objective of this school is to disseminate knowledge and introduce the principles of solar energy harvesting through photovoltaic technology to young scholars and researchers. In addition to formal lectures, there will be opportunities for the workshop participants to examine closely various solar powering devices for portable electronics, home powering and BOS components; also few Do-it-yourself exercises on powering rechargeable batteries, mobile phones and LED lamps using solar cells.

## Biography of Tutor



Prof. Dr. K. Kalyanasundaram obtained his Ph.D in Physical Chemistry (1976) from the Univ. of Notre Dame, Indiana 46556, USA. His doctoral research focused on Photochemical & Spectroscopic Studies of Micellar Systems. He successfully completed his post-doctoral fellowship tenure (1976-1979) at the Royal Institution, London, UK (under Lord George Porter, FRS). His research interest involves photochemical conversion and storage of solar energy; Photophysics and photochemistry of transition metal complexes;

Photochemistry in micro-heterogeneous systems. He is author over 100 research publications in international journals and 5 research Monographs in above areas.

## Technical Programs

### Day-1 (18.09.2017)

- 9.30- 11.00 Introduction: Features of Solar Radiation and Harvesting of solar energy  
Lecture 1
- 11.15- 12.45 Photovoltaic solar cells: operating principles of p-n junction  
Lecture 2
- 14.00- 15.30 Design of high efficiency solar cells  
Lecture 3
- 15.45- 17.15 1<sup>st</sup> Generation (wafer based crystalline) Solar cell  
Lecture 4

### Day-2 (19.09.2017)

- 9.30- 11.00 2<sup>nd</sup> Generation (thin films) Solar Cells  
Lecture 5
- 11.15- 12.45 PV System components (BOS) and their functions  
Lecture 6
- 02.00- 17.00 Hands on Training and Demonstration  
Do-it-yourself exercises on powering rechargeable batteries, mobile phones and LED lamps using solar cells.

### Day-3 (20.09.2017)

- 9.30- 11.00 PV Systems in practical use  
Lecture 7
- 11.15- 12.45 3<sup>rd</sup> Generation Solar Cells  
Lecture 8
- 02.00- 17.00 Hands on Training and Demonstration  
Practical and examination of various solar powering devices for portable electronics, home powering and BOS components.