



## NATIONAL CENTRE FOR PHOTOVOLTAIC RESEARCH AND EDUCATION

Continuing Education Programme 2-Day Short-Term Course on

### “Perovskite Solar Cells”

#### **Introduction:**

Organic – inorganic hybrid perovskite semiconductors have recently revolutionized the field of low cost, solution-processed photovoltaics. It has garnered world-wide interest due to the tremendously high efficiency numbers in an extremely short time span in comparison to the progress seen in other PV materials. In just 4 years of research, these materials have enabled a rapid progression of solar cell efficiency from 4 to over 22 %, making this technology competitive with traditional silicon solar cells. The materials are also suitable for use in solution - processed lasers and light emitting diodes, which satisfy important criterion “good absorbers are good emitters”. The success of this remarkable class of materials lies in its combination of unique optoelectronic properties. Candidates of this course will be exposed to the understanding of the physics underlying perovskite optoelectronic devices: from material properties to device physics. Useful experimental techniques will be described, and a strong emphasis placed on experimental results from the literature to reflect the rapidly evolving nature of this field. The use of the cells based on perovskites in a tandem architecture with the well-established Si and thin film technologies, along with the challenges and possible solution will be discussed. The concerns of large area and stability, which these materials are plagued with, will also be one of the main highlight of this course.

#### **Course Contents:**

- General Background on PVs
- Introduction to Perovskites Semiconductors
- Charge Generation in Perovskite Semiconductors
- Perovskite as Sensitizer and thin-film material in Solar Cells
- Materials Processing for Perovskite Solar cells

- Characterization Techniques (Basics to advance)
- Design Optimization of Perovskite PVs
- Si- Perovskite Tandem Solar Cells
- Light Emitting Applications
- Summary and Future Outlook

**Course Coordinators:** Prof. Balasubramanian Kavaipatti, NCPRE, IIT Bombay

**Date:** 25<sup>th</sup> – 26<sup>th</sup> September, 2017.

**Venue:** Seminar Hall, Vanvihar, IIT Bombay, Mumbai

**Registration Details:**

There are limited numbers of seats for the course. Please fill the online registration form available on our website. Once your profile has been approved by the course coordinators, (you will receive a mail regarding the same), you need to send the hard copy of completed Registration Form, along with the fees to the address given below. The fees can be paid **online** (details given below) or by **demand draft** in favour of “**Registrar IIT Bombay - CEP Account.**”

**Deadline for submitting the application: 10<sup>th</sup> September, 2017**

**Course Fee:**

The course fee per participants will be as follows:

<b>Participants</b>	<b>Fees</b>
Individual/Industry personnel	11500/- *
Personnel from Academic Institutions, NGO & Government Organizations	6900/-*
Current Students	4600/-*

\* Fees inclusive of 18% service tax.

The fee includes course material, lunch and refreshments. Limited accommodation may be available for academic participants, but is not included in the above fee.

For information on other Solar Photovoltaic (PV) courses, please visit

<http://www.ncpre.iitb.ac.in/events.php>

**Online Payment Details:**

**Bank Details**

Name of the Bank : State Bank of India  
Bank Branch : IIT Powai  
Address : A.S. Marg, Powai (IIT Main Gate),  
Mumbai- 400 076 India.  
Phone with code : +91-22-25728555

**Bank Code and A/c No.**

Beneficiary : Registrar, IIT Bombay  
Bank A/c No. : 10725729128  
Account Type : CURRENT  
MICR Code : 400002034  
IFSC Code : SBIN0001109  
SWIFT code : SBININBB519  
Purpose / Reference : CEP course  
Email ID : [cep@iitb.ac.in](mailto:cep@iitb.ac.in)

The Participants should give the following details regarding on-line payment:

1. Name of the person who deposits the amount in Bank
2. Transaction No.
3. Date of Transaction
4. Amount
5. Bank & Branch Name

**Contact/Address to send DD:**

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