

CALL FOR PAPERS

Special Session on Photovoltaics: Characterization, Modeling and Simulation Methods

to be held in the frame of
IECON 2013 - The 39th Annual Conference of the IEEE Industrial Electronics Society
10th - 13th of November 2013, Austria Center, Vienna, Austria



TOPIC OF THE SPECIAL SESSION

Innovation in photovoltaics is closely linked to the support of measurement and characterization. Measurements are needed at all different levels of R&D: from the investigation of the operating principles of solar cells to the standards for the performance of installed PV systems. Understanding the relations between structure, physical properties, and the resulting PV performance is an exemplary problem in materials science and engineering, and most critical for the development of the next generation of PV. This session is intended for the presentation of the latest developments in the characterization of photovoltaics. We encourage members of the PV community to submit their contributions addressing the full range of scientific and technological challenges in the field, including the following topics:

Characterization Methods

Defects in photovoltaic materials and solar cells, advanced methods and instruments for the characterization of solar cells and modules characterization methods for the photovoltaic industry: in-situ measurements, process control,

SPECIAL SESSION ORGANISATION

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The organizers look forward to welcoming you to Vienna, Austria from 10th to 13th November 2013.

Important Dates

Regular Paper submission:	April 01, 2013
Notification of acceptance:	June 15, 2013
Final submission:	August 01, 2013



defect monitoring. Performance, reliability testing, and standards modelling/simulation of electrical, optical and thermal properties

Defects in Photovoltaic Materials and Solar Cells

The presence of defects often limits the performance of solar cells and process yield. Relevant to this subarea are all methods for the characterization of defects and their influence on the PV performance, including (opto)electronic measurements, structure, composition, stress fields, and mechanical properties. It includes both intrinsic defects of the PV materials and manufacturing defects related to yield.

Advanced Methods and Instruments for the Characterization of Solar Cells and Modules

In the last decade, major improvements in methods and instrumentation for the characterization of PV have been made. This subarea will provide a better understanding of the most recent developments in characterization methods and the capabilities offered by the latest generation of instruments available to the PV community and how their research can be assisted by these new capabilities.

Characterization Methods for the Photovoltaic Industry: In-Situ Measurements, Process Control, Defect Monitoring

Process control typically requires continuous measurements integrated (and compatible) with the manufacturing equipment. These measurements, often required to be on contact and non-destructive, are essential to control manufacturing parameters and to yield and process performance optimization. In addition to this, it is important to develop feedback methods by which a process is controlled. This subarea includes both novel methods, and the application of existing methods in selected environments.

Performance, Reliability Testing and Standards

Standardization of measurements to determine the performance, reliability, and lifetime of PV modules and systems gains increasingly in importance as the global installed PV power continues to expand. The standardization of accelerated lifetime tests is of particular importance to estimate the PV performance over time. This subarea encompasses all relevant testing methods and standards as well as topics related to system components such as inverters, mounting hardware, resistance to harsh environmental conditions, and other issues.

Modeling/Simulation of Electrical, Optical and Thermal Properties

In order to improve performance, reliability, and lifetime of PV cells, modules and systems, the development of improved modeling tools for simulating the electrical, optical and thermal properties of the device and its resulting performance is highly advantageous. This subarea involves all simulation/modeling approaches regarding the performance of photovoltaic devices with respect to their electrical, optical and thermal properties.

SUBMISSION OF PAPERS

The working language of the conference is English. Submit the full paper as PDF following the IEEE layout requirements by using the templates given at the conference web page. Accepted and presented papers will be published in an IEEE Proceedings volume and will be sent to IEEE Xplore. In addition, selected authors are encouraged to submit their papers for publication in the IEEE Transactions on Industrial Electronics or in the IEEE Transactions on Industrial Informatics.

THE CONFERENCE

IECON 2013 is the 39th Annual Conference of the IEEE Industrial Electronics Society, focusing on industrial and manufacturing theory and applications of electronics, controls, communications, instrumentation and computational intelligence. The objectives of the conference are to provide high quality research and professional interactions for the advancement of science, technology, and fellowship.

Papers with new research results are encouraged for submission. IECON 2013

will be held concurrently with the 7th IEEE International Conference on E-Learning in Industrial Electronics (ICE-LIE 2013). Participation in any of these events just requires a single conference registration fee. The world's industry, research, and academia are cordially invited to participate in the wealth of presentations, tutorials, special sessions and social activities, and furthermore, enjoy beautiful Vienna.