Call for Abstracts
Area 8: Advances in Characterization of Photovoltaics

Dear Colleagues,

On behalf of the technical program committee it is my pleasure to invite you to submit papers for Area 8: "**Advances in Characterization of Photovoltaics**" of the **35th IEEE Photovoltaic Specialists Conference**, which will be held in **Honolulu, Hawaii**, from **June 20th-25th in 2010**. The IEEE PVSC meeting is the established international platform for presenting PV related research of high scientific level.

As the photovoltaic industry expands and the science of photovoltaics advances, characterization of the resulting materials and devices becomes increasingly important. These techniques are critical to the specification of device lifetime, determination of mechanisms of failure, improvement of encapsulation and device materials, and understanding of the fundamental nature and operating principles of photovoltaic materials and devices. We encourage people to submit papers **on detailed scientific research studies** and **visionary papers** addressing the full range of these fundamental issues and technological challenges in the field, including:

Subarea 8.1: New Characterization Methods for PV: Optoelectronic, Physical, Chemical
Optoelectronic, macroscopic and microscopic structural and chemical, and other properties of materials must be understood in detail to simulate and optimize devices. Novel characterization methods are needed to meet the demands of state-of-the-art processing. This area encompasses papers related to the development and demonstration of such techniques.

Subarea 8.2: Methods for Characterization of Defects
Particular defects often determine the performance of photovoltaics. Defects are also critical to control of process yield. This subtopic includes all methods for study of defects from the atomic to the module level in both materials and devices. This may include both manufacturing defects associated with yield and intrinsic defects controlling device performances.

Subarea 8.3: PV Cell and Module Measurement Techniques
The characterization of PV cells and modules provide both the standards by which device performances are specified and techniques for understanding the basic principles of operation of the devices. In particular, all solar technologies exhibit a lower performance in modules than in individual cells. Characterization and measurement techniques that help to determine the sources of such differences are important to the improvement of module performance.

Subarea 8.4: In-situ Characterization Methods
Process control typically requires continuous characterization within the deposition environment. Measurement of materials properties, often with non-contact and non-destructive methods, are key to control of deposition tools and to yield and process performance optimization. This subarea encompasses both novel methods and the application of existing methods in select environments.

Subarea 8.5: Process Control and Modeling
In addition to measuring the properties of materials and devices it is important to develop methods of feedback by which a process is controlled. Models are generally needed that connect in-situ or ex-situ measurements to the control parameters of the deposition tools and establish how and when to adjust them. Related to Subarea 8.5 are methods for control of the operation of photovoltaic devices themselves to optimize performance and lifetime.

Subarea 8.6: Methods for Reliability Testing and Standards
Accelerated lifetime testing is an essential, and very likely the most difficult, component of the specification of a photovoltaic device's expected performance and lifetime. Without such methods no practical estimates would be available for how long a device might last. Furthermore, standards related to all measurements, and in particular to device performance and lifetime, need to be created. This subarea encompasses all such testing methods and standards as well as topics related to associated devices such as inverters, mounting hardware, hail resistance, and other issues.

Please check our website for the 35th IEEE PVSC at **www.ieee-pvsc.org** . Extended abstracts of 3 pages in length need to be submitted before the deadline on February 15, 2010, on the conference website.

Looking forward to see you all during an exciting and thought-provoking meeting in Honolulu, Hawaii.

Sincerely yours,

Angus Rockett, *University of Illinois, USA*
Area 8 Chair

Gerald Siefer, *Fraunhofer ISE, Germany*
Manuel Romero, *National Renewable Energy Laboratory (NREL), USA*
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Area 8 International Co-Chairs