

Second Announcement

7th SOPHIA Workshop PV-Module Reliability

July 6th – 7th, 2017

Fraunhofer Institute for Solar Energy Systems ISE,
Freiburg, Germany

OBJECTIVES

INNOVATIONS IN MATERIALS AND APPLICATIONS ARE CALLING FOR NEW PERFORMANCE AND DURABILITY ASSESSMENT

The Fraunhofer Institute for Solar Energy Systems ISE is proud to present the 2017 SOPHIA-workshop 'PV-Module Reliability' in Freiburg, Germany, from July 6th to July 7th. The 2017 workshop will feature reliability aspects in connection to new challenges imposed by novel applications of PV modules, new light sources and test cycles.

- **New applications of PV modules providing new challenges for performance and durability assessment,** as there are the usage of albedo by bifacial PV-modules, the combination of PV-modules with solar-thermal collectors (PVT) and the integration into building envelopes (BIPV or BAPV).
- **Innovative devices providing new challenges for performance and durability assessment,** as there are hetero-junction PV-cells, organic PV, bifacial cells requiring new measurement and testing set-ups and procedures.
- **Novel light sources providing new challenges for performance and durability assessment.** The spectral sensitivity of the quantum efficiency and the photodegradation of innovative materials requires another glance on the spectral distribution of the solar simulator used for measurement and testing. LEDs promise new possibilities for tailoring the spectra.
- **New combined cycles provide new options and challenges for durability assessment.** Most of the standardized type approval tests are performed for one single stress factor only. But nature is diverse. Degradation modes based on combined stress factors are neglected. On the other hand, to combine different stress factors correlating the natural abundance, like ultraviolet light, temperature, thermomechanical stress, based on temperature cycles, mechanical stress, humidity, pollutants and soiling, or to control the stress levels is a big challenge. The questions how to realize such combined tests or to simulate them by applying sequential stress tests or to carry out representative tests on a mini-module level are to be discussed.

Regular Registration fees : 400 EUR – Early Bird Discount until June 5th: 300 EUR -
Registration fees for students: 350 EUR – Early Bird Discount for students until June 5th: 250 EUR

For more information and for **registration** please visit the workshop's website:

www.pv-reliability.com

Structure

The program topics will be presented by experts and further developed in discussion groups.

Block 1: New applications of PV-modules providing new challenges for performance and durability assessment
a) Testing of PhotoVoltaicThermal modules: Korbinian Kramer, ISE Freiburg, GER
b) Requirements for BIPV and chances for European markets: Helen Rose Wilson, ISE Freiburg, GER
c) Standardised performance measurements of BiFacial Modules and special impact on durability assessment: Nicolas Bassi, Meyer Burger, GER

Block 2: Innovative devices providing new challenges for performance and durability assessment
a) Performance and quality testing of CPV: Gerald Siefer, ISE Freiburg, GER
b) Reliability aspects of novel module technologies: Interconnection with Multibusbar, conductive adhesives or low-temperature soldering: Ulrich Eitner, ISE Freiburg, GER
c) Durability aspects of polymeric PV-alternatives for the future: Martin Hermenau, Heliatek, GER

Bonus Block: International Activities
a) PVQAT: Peter Hacke, NREL, USA
b) IEA-PVPS-Task13: Ulrike Jahn, TÜV Rheinland, GER
c) NREL-Module Reliability Workshop: Peter Hacke, NREL, USA
d) SAYURI-PV Workshop activities: Keiichiro Sakurai, AIST, JP

Block 3: New stresses
a) The effect of sandblasting on module glazing: Boris Agea Blanco, BAM, GER
b) New functional coatings for PV-modules – testing and evaluation of AS coatings: Ian Bennett, DSM, NL
c) Thermo-Mechanics or only mechanics?: Rico Meier, IMWS Halle, GER
d) Multi-Stress chamber: Gerhard Kleiss, SWIN, GER

Block 4: UV and light
a) New approaches for solar simulator classification and impact on measurement precision for PV modules: Werner Hermann, TÜV Rheinland, GER
b) LEDs instead of broad-band irradiation: Torsten Brammer, Wavelabs, GER
c) Effects of UV Light Intensity and Wavelength on Degradation of PV Backsheets and Laminates: Xiaohong Gu, NIST, USA

Block 5: New equipment
a) Multi-Stress cabinet for mini-module aging – examination of laminate aging using luminescence spectroscopy: Beate Röder, HU Berlin, GER
b) Combined Stress testing with In-situ measurements for PV devices: a case study for Cu(In,Ga)Se₂ solar cells: Pepijn Veling, Eternal Sun, NL & Mirjam Theelen, TNO, NL

Block 6: New combined cycles
a) New combined cycles provide new options and challenges for durability assessment: Axel Borne, Dupont, CH
b) New combined cycles provide new options and challenges for durability assessment: Michael Köhl, ISE Freiburg, GER
c) New combined cycles provide new options and challenges for durability assessment: Peter Hacke, NREL, USA
d) Combined-/Sequential-Tests: Experiences in Japan: Keiichiro Sakurai, AIST, JP

Discussion: Future ALT standards

Bonus Presentation: New combined cycles for future test standards in IEC TC82 WG2: Tony Sample, convenor of IEC TC82 WG2

Plenary discussion with presentation of discussion group results

Optional: Visit of the facilities of ISE/Test Lab PV Modules