



Call for Abstracts

Area 5: Amorphous, Nano and Film Si Technologies

Dear Colleagues,

On behalf of the technical program committee it is my pleasure to invite you to submit papers for Area 5: “**Amorphous, Nano and Film Si Technologies**” 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.

In an era with an increasing demand for PV, many companies have invested in the mass production of thin silicon-film PV technology, driven by the availability of turn-key production lines and shortage in the crystalline silicon supply in the last several years. The field of thin-film photovoltaics based on amorphous, nano/microcrystalline and polycrystalline silicon on non Si-substrates has matured through three decades of advances in the design and processing of high-quality materials, solar cells and modules. Despite these great advances, many fundamental and technological issues of great importance still remain in order to achieve further progress. We would like to devote Area 5 to these important hot topics, which have been categorized in four subareas as presented below. 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 5.1: Fundamental properties of thin silicon films

Due to the wide variety of process technologies, thin-film silicon possesses a diverse range of microstructures and material phases, from fully amorphous to fully polycrystalline, as well as mixed-phase, such as nano- and microcrystalline silicon with amorphous silicon. In subarea 5.1 we would like to address the progress in the fundamental understanding of these materials by studies on the properties of the diverse silicon phases, like its microstructure, opto-electronic (meta)-stability and mechanisms involved, SiGe and other Si based alloys, novel doped layers and prevention of possible oxidation of polycrystalline and mixed-phase materials.

Subarea 5.2: Processing issues for thin silicon films and devices

An important issue is the progress in and the development of novel processing technologies to further reduce the cost/price of thin silicon film PV products. In subarea 5.2, important processing issues concerning high throughput of thin amorphous and nano/microcrystalline silicon, such as homogenous deposition over large areas, high deposition rates, deposition on flexible substrates, novel precursor gasses, processing routes for polycrystalline silicon on non-silicon substrates, approaches for equipment



cleaning, encapsulation of devices, sustainable clean processing technologies and approaches for processing and surface passivation of silicon nanocrystals will be addressed.

Subarea 5.3: Novel concepts for thin silicon solar cell devices

A further increase in the efficiency of thin silicon film based PV products will enhance its competitiveness in the renewable energy market. In subarea 5.3, novel concepts to increase the light trapping, currents, voltages and the utilization efficiency of the solar spectrum in thin silicon film solar cells will be addressed, like enhanced light trapping using plasmonic films, texturing of interfaces, multi-layers, intermediate reflective layer, advanced transparent conductive oxide layers and films with new functionalities like spectral conversion, etc.

Subarea 5.4: Amorphous, nano/microcrystalline and silicon film devices and modules

In subarea 5.4 all topics related to state-of-the art amorphous/microcrystalline and silicon film solar cells and modules, such as multijunction structures, characterization of performance and long-term reliability, will be addressed.

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,

Arno Smets, *Eindhoven University of Technology, the Netherlands*
Area 5 Chair

Sumit Argarwal, *Colorado School of Mines, USA*
Takuya Matsui, *National Inst. of Advanced Industrial Science and Technology, Japan*
Area 5 International Co-Chairs

