



Call for Abstracts

Area 3: III-V and Concentrator Technologies

Dear Colleagues,

Are you interested in III-V solar cell technologies? Are you interested in high- or low-concentration photovoltaics or the design of concentrator optics and CPV system components? In this case, the 35th IEEE PVSC conference will be an important venue for presenting your latest research results and for learning more about the current status of the growing CPV community!

On behalf of the technical program committee it is my pleasure to invite you to submit papers for Area 3: “**III-V and Concentrator 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 a high scientific level.

Following the tradition of previous conferences, the upcoming 35th IEEE PVSC Area 3 will focus on III-V solar cell and concentrator photovoltaic technologies. Within this exciting and expanding field, the IEEE PVSC is supporting the scientific exchange between researchers and engineers from Universities, national labs, research centers and companies around the globe. With concentrator PV currently making the transition from prototype installations to being an important player in the renewable energy business, the interdisciplinary exchange of information between scientists and engineers from different technological areas is essential. We have categorized Area 3 into 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 3.1: III-V Epitaxy, Materials, Processing and Devices; III-V Concentrator Solar Cells

The highest solar electric conversion efficiencies are today obtained with concentrator solar cells made of III-V compound semiconductors. Single- and multijunction devices have been developed and efficiencies today exceed 41%. These devices are the basis for the growing field of high concentration photovoltaics (HCPV). Subarea 3.1 includes papers on all aspects of III-V solar cell development including theoretical device modeling, epitaxy, solar cell processing and characterization. Materials science is an important prerequisite for the improvement of state-of-the-art as well as next generation multijunction solar cell devices and we would be happy to see many papers in this field. Industrial III-V solar cell manufacturing, cost reduction and improvements in reliability are further aspects to be included in Subarea 3.1.

Subarea 3.2: High Concentration PV Modules, Optics and Receivers

The development of concentrator modules and components in the high concentration range of 300 – 2000 suns is included in Subarea 3.2. Primary and secondary optics





(reflective or refractive) need to achieve high optical efficiencies at low manufacturing cost as well as long term stability. Material research is an important aspect in this field. Theoretical modeling and development of optical components and coatings are subjects of this subarea. Another topic is the development of solar cell receivers for CPV systems with/without active cooling. Automated manufacturing of CPV modules is necessary for reducing cost and papers on all aspects of the industrialization of CPV are welcome. Papers on indoor as well as outdoor characterization of concentrator modules and receivers, the development of appropriate solar simulators and measurement setups, are also expected in Subarea 3.2.

Subarea 3.3: High Concentration PV Systems and Power Plants

Several concentrator PV Plants in the MW power range have been built within the last years. Aspects related to power prediction, field layout and design, system performance monitoring and the evaluation of field data are included in Subarea 3.3. Comparison of field performance with other PV technologies is important for the development of a reliable rating for CPV plants. The development of CPV inverters and tracking units with high accuracy, as well as prospects for cost reduction in large manufacturing volumes are important. Further aspects are related to reliability and the development of industry standards for CPV systems and components. We encourage submission of papers addressing the development of financing schemes for large scale CPV power plants and political programs supporting the growth of the High Concentration PV industry. Contributions on life cycle assessment and ecological impact are welcome.

Subarea 3.4: Low concentration PV - Si Concentrator Cells, Modules, and Systems

Low concentration CPV modules and systems in the range of 3-300 suns are gaining increasing attention and power plants with one- and two-axis tracking have been widely deployed in recent years. Whereas standard Si solar cells are used in the very low concentration range, adapted cell structures are necessary for higher concentration ratios. Research and manufacturing of Si concentrator solar cells is included in Subarea 3.4. We are inviting the submission of papers on low concentration optics, modules and CPV systems. This includes field data, reliability and cost analysis for low concentration PV modules and systems.

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. We are looking forward to an inspiring conference program and to meeting you on the beautiful island of Oahu in June 2010. Me ke Aloha pumehana,

Frank Dimroth, *Fraunhofer ISE, Germany*

Sarah Kurtz, *National Renewable Energy Laboratory (NREL), USA*

Kenji Araki, *Daido Steel, Japan*

John Geisz, *National Renewable Energy Laboratory (NREL), USA*

Gabriel Sala, *Universidad Politécnic de Madrid (UPM), Spain*

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