

CHAIRMAN'S MESSAGE

Dear Delegate,

It is my privilege and honour to invite you to participate in the 5th World Conference on Photovoltaic Energy Conversion, which will be held in Valencia, Spain.

This World Conference on Photovoltaic Energy Conversion will bring together the three most important global scientific and strategic PV Conferences: the 25th European Photovoltaic Solar Energy Conference and Exhibition, the 36th US IEEE Photovoltaic Specialists Conference and the 20th Asia/Pacific PV Science and Engineering Conference. This unique PV solar gathering will constitute the world's leading science-to-science, business-to-business and science-to-industry forum for the global PV Solar sector.

Certainly 2010 is a very decisive year for Photovoltaic Solar Energy in Europe. The European Union has set the goal of providing 20% of its energy consumption using renewable sources by the end of this decade. This would translate into more than 35% of renewable electricity. Whether PV will reach a 3%, 5% or even 12% share will be influenced by the decisions of the Member States on the implementation of their renewable energy action plans, which are in preparation till 2010, just before the Conference takes place. Similar ambitious plans are being brought forward in the US, Japan, China and India, ensuring global growth rates for PV in the coming years.

Photovoltaic electricity has recently seen a considerable drop in prices. This has been spurred also by world-wide competition and continued successes in research and development. The „Solar Europe Industry Initiative“, brought forward within the European Commission's Strategic Energy Technology Plan, will speed up the process of getting closer to grid-parity within the next decade.

I am confident that this 5th World Conference will provide the best forum to present the latest progress in solar cell development and manufacturing. The visions of how massive deployment of photovoltaic systems will look in 10 years time will be outlined. Further, the various global programmes will be confronted.

My wish is for this event to foster much stronger joint research on a global scale, for example in the spirit of recent EU-US and EU-Japan Co-operation agreements. Moreover, such opportunities should be explored and discussed during this Conference.

I am sure that you will find it worthwhile to submit your contribution to the Conference Programme, and I thank you in advance for being part of this event where the global PV community will meet and move forward.

Dr. Giovanni Federigo De Santi
Director, Institute for Energy (IE)
JRC - European Commission
Conference General Chairman

The leading platform for the world's PV specialists

Conference General Chairman:

Dr. Giovanni Federigo De Santi
Director, Institute for Energy (IE), JRC - European Commission

Conference Vice Chairman:

Prof. Makoto Konagai
Tokyo Tech, Tokyo, Japan

Conference Vice Chairman:

Dr. Robert Walters
US Naval Research Lab, Washington, DC, USA



Joint World Conference of:



The most dynamic forum for the global PV Solar sector

Institutional support:

European Commission
UNESCO – United Nations Educational, Scientific and Cultural Organization – UNESCO's Natural Science Sector
WCRE – World Council for Renewable Energy
IPVEA – International Photovoltaic Equipment Association

Institutional PV Industry Cooperation:

EPIA – European Photovoltaic Industry Association

Coordination of the Technical Programme:

European Commission DG Joint Research Centre



Event realised by WIP – Renewable Energies

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Call for Papers

abstracts to be submitted by 30 January 2010

25th European Photovoltaic Solar Energy Conference and Exhibition

5th World Conference on Photovoltaic Energy Conversion

FERIA VALENCIA
Convention & Exhibition Centre
Valencia, Spain

Conference 6 - 10 September 2010
Exhibition 6 - 9 September 2010

Joint World Conference of:



Conference General Chairman:

Dr. Giovanni Federigo De Santi
Director, Institute for Energy (IE)
JRC - European Commission

Coordination of the Technical Programme:

Dr. Heinz Ossenbrink
European Commission
DG Joint Research Centre

Chair International Advisory Committee Europe:

Prof. Wim Sinke
Energy research Centre of the Netherlands ECN
Petten, The Netherlands

PROGRAMME

The five-day programme will comprise:

- **Plenary lectures** focusing on the state-of-the-art and targets of PV
- **Oral and poster presentations** of specific research, development and demonstration projects, PV applications, PV markets
- **Exhibition of PV products and services** (6-9 Sept.)
- **EU PVSEC Industry Forum**, organised and promoted jointly with EPIA, the European Photovoltaic Industry Association
- **EU PVSEC Production Forum 2010**, organised and promoted jointly with IPVEA, the International Photovoltaic Equipment Association
- A special forum on **Building Integrated Photovoltaics**
- A dedicated area for **Industry Presentations** accessible for all visitors of the Exhibition and bookable by all Exhibitors.
- Scientific tours and a social programme

CONFERENCE SUBJECTS

SUBJECT 1: ADVANCED PHOTOVOLTAICS: NEW CONCEPTS AND ULTRA-HIGH EFFICIENCY

1.1 Fundamental Studies

Theoretical studies and visions, new measurement techniques and equipment including standards, modelling and simulation, PV and hydrogen.

1.2 New Materials, Cells and Modules

Nanotechnologies and quantum effects, new cell and module concepts, new substrates, interconnections and encapsulation, thermophotovoltaics, LED-related issues.

1.3 Organic-based PV

Polymer PV and hybrid approaches, dye-sensitized cells and modules, carbon nanotubes and other use of organic materials, stability aspects.

1.4 Solar Cells, Modules and PV Systems for Space Applications

Materials and processing for very-high efficiency (III-V) space cells and modules, thin-film alternatives, issues related to heat evacuation, stability and lifetime, reliability and performance.

1.5 Terrestrial Concentrator Systems

Materials and processing for very-high efficiency cells and modules for terrestrial applications, alignment, measurements of cells, de-

vices and system performance including standards, tracking and reliability.

SUBJECT 2: WAFER-BASED SILICON SOLAR CELLS AND MATERIALS TECHNOLOGY

2.1 Silicon Feedstock, Crystallisation and Wafering
Efficient production technologies for silicon and wafers, solar grade silicon properties and specs, testing, performance, costs.

2.2 Mono- and Multicrystalline Silicon Materials and Cells
Device concepts and processes for wafers, sheets and ribbons, measurements and modelling.

2.3 Manufacturing Issues and Processing
Handling and automation, in-line monitoring, safety, waste treatment, economies of scale.

SUBJECT 3: THIN FILM SOLAR CELLS

3.1 Thin Film Crystalline Silicon Solar Cells and Wafer Equivalents

Theoretical studies, process technologies for thin film crystalline silicon materials and solar cells, characterisation, manufacturing and up-scaling technologies, testing, performance.

3.2 Amorphous and Microcrystalline Silicon Solar Cells
Theoretical studies, process technologies for amorphous and microcrystalline silicon cells and modules, characterisation, aspects of high volume and large area production, testing, performance.

3.3 CIS and Other (II-VI) Ternary Thin Film Solar Cells
Theoretical studies, process technologies for thin film CIS and related solar cells and modules, characterisation of materials and devices, manufacturing and up-scaling technologies, testing, performance, recycling.

3.4 CdTe Solar Cells
Theoretical studies, process technologies for CdTe solar cells and modules, characterization of materials and devices, manufacturing and up-scaling technologies, testing, performance, recycling.

3.5 Manufacturing Issues and Processing
Handling and automation, in-line monitoring, safety, waste treatment, economies of scale.

SUBJECT 4: COMPONENTS FOR PV SYSTEMS

4.1 PV Modules

Module design and manufacturing technology, measurements, testing, energy rating, quality and safety, standardisation, product life time.

4.2 Balance of System Components
Inverters and grid interfacing, batteries, charge regulators, mounting structures, trackers, cabling, measurements and testing, standardisation, and regulations.

4.3 PV System Engineering, Standards, Socio-economic Aspects, and Sustainability
System design, engineering, integration, performance analysis and simulation, standardisation, socio-economic analyses (e.g. internal and external costs & benefits), sustainability issues (e.g. energy pay-back time, materials usage, recycling).

SUBJECT 5: PV SYSTEMS

5.1 Large PV Power Plants and High Penetration of Distributed PV: System Aspects and Grid Integration
Planning, installation and grid interfacing, auxiliary grid services, monitoring and performance, aesthetics and landscape integration, cost analyses, success stories of projects and lessons learned.

5.2 Smart Grids, Intelligent Metering, and Related Issues
TSO / DSO issues, components for intelligent metering, energy demand assessment, national programmes on this topic, infrastructure (storage, management and control systems, etc.), other applications and concepts (e-Mobility), economics.

5.3 PV Components for Buildings, PV Integration in Buildings
PV in urban planning, cells and modules designed for applications in buildings and other objects (geometry, transparency, materials), visibility and aesthetics, dynamic behaviour, monitoring and performance, cost analyses, user aspects, standards and regulations.

5.4 Off-grid Applications
Stand-alone and hybrid systems, storage systems, mini-grids, PV for communication, lighting, etc.

SUBJECT 6: PV TAKING OFF: LARGE-SCALE DEPLOYMENT

6.1 Markets for Large-scale PV
Market strategies and market projections, financing and investment, large-scale PV implementation.

6.2 Awareness, Communication, Education and Training
Awareness campaigns, communication methods and tools, education and training.

6.3 Programmes, Policies and Economics; National and International Initiatives Globally
International, national and regional support strategies, policies and programmes and their impact, economics and cost development, R&D strategies and programmes, international cooperation, PV for developing nations.

REVIEW PROCEDURE

Papers will be presented in plenary, oral and poster sessions and all presented papers will be published in the Proceedings. Authors wishing to submit a contribution should read the following instructions carefully and send an abstract by using the Online Submission Form on www.photovoltaic-conference.com by 30 January 2010.

The abstract, single spaced and in English, should include:

- Applicable subject number (1 to 6) and subsection (e.g. 1.2)
- Full title
- Full name and address of one author for all correspondence
- For each author and co-authors, full name, affiliation, address, phone/fax/e-mail
- Purpose of the work
- Approach
- Scientific innovation and relevance
- Results
- Conclusions

The abstract should not exceed one page (size A4, 210 x 300mm). In addition, authors may add up to 3 explanatory pages, which will facilitate the reviewers' assessment.

DEADLINE FOR RECEIPT OF ABSTRACTS: 30 JANUARY 2010

Only contributions complying with the above specifications will be considered. Please send one copy of this complete information (abstract plus optionally up to 3 explanatory pages) as a *.pdf file by using the Online Submission Form on our Conference website www.photovoltaic-conference.com.

For questions concerning abstract submission please contact:

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The abstracts will not be accessible by public until the Conference. All authors will be notified of the decision of the Programme Committee. Authors of accepted abstracts will receive special guidelines for the preparation of the final papers for the Proceedings.

NEWS FOR AUTHORS

Citability of Papers: all presented plenary, oral and visual final papers will be published online and coded by a digital identifier (DOI code) provided by the German National Library of Science and Technology. This guarantees an unequivocal and permanent identification and citability of all papers of the Conference Proceedings.

Peer Review: a selected number of accepted papers will be invited for a Peer Review Process for publication in a renowned scientific journal.

All papers will benefit from the even broader attention that this upcoming joint gathering of European, Asian/Pacific and American PV communities in Valencia will receive.