

Discover Photovoltaics Beyond Silicon

a market set to account for 30% of the photovoltaics industry by 2012

CIGS, DSSC, Organic PV, Hybrid Compounds and more

- Technologies & opportunities beyond silicon: printable, flexible, lower cost
- Hear about enabling technologies to help combat climate change
- Tap into the ubiquity of solar energy: A new era of power generation
- Discover the HUGE potential of this emerging photovoltaic market; worth over \$3 billion by 2013
- Meet the key players
- Learn where the opportunities are

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nanotechweb.org

Keynote speakers:

			
			
Dr Nasser H. Karam Vice President	Dr John Bacon Systems Integration Engineer	Dr Arthur Frank Principal Scientist	Steven Novack Program Manager

The *World's ONLY* event dedicated to technologies, needs and opportunities beyond conventional silicon photovoltaics

- Conference
- Exhibition
- Masterclasses
- Investment Forum
- Networking Dinner
- Tours

AGENDA | DAY 2

Keynotes



NREL, United States

"Science, technology and the future of sensitized solar cells"

Dr Arthur Frank, Principal Scientist



- Industrial applications of sensitized solar cells and cell stability studies
- Effects of chemically modifying the nanostructure surface and reducing architectural disorder on the charge transport, recombination, and photovoltaic properties
- Results on InAs QDs as sensitizers in QD sensitized solar cells



INL, United States

"Solar Nanotennas: Future Energy Solutions"

Steven Novack, Program Manager



- Antennas as an alternative solar energy solution
- Modeling, materials and structures, manufacturing
- Applications: near and future plans

Inorganic PV - CIGS-Concentrators



ISET International Solar Electric Technology Inc, United States

"Manufacturing of Ink Based CIGS Solar cells and Modules"

Dr Vijay K Kapur, President



- Attributes of ISET's Ink Based Technology for CIGS Solar Cells and modules
- Thin Film CIGS Solar Cells Attributes



Soliant Energy, United States

"Rooftop concentrators: Lower system costs through higher efficiency"

Mr Brad Hines, CTO



- Overview of various solar concentrator technologies: tracking and non-tracking, silicon cells and high-efficiency triple junction cells
- Bringing the efficiency of triple junction cells to the commercial rooftop
- How higher module efficiencies dramatically lower the cost of solar electricity
- Soliant Energy's offering: the most efficient rooftop solar panel you can buy



Vitex Systems Inc, United States

"Encapsulation of (Flexible) Thin Film Solar Cells by Multilayer Thin Film Barix Barrier Coatings and Barix coated Plastic Films"

Dr Robert Jan Visser, CTO



- Introduction into Barix multilayer barrier coatings encapsulation of CdTe and CIGS solar cells
- Flexible Solar Cells industrialisation, cost, equipment



CSEM - Centre Suisse d'Electronique, Switzerland

"Solar Islands"

Dr Thomas Hinderling, CEO



- Solar Islands describes a new concept for the conversion of solar energy to usable energy (electricity or hydrogen) by means of a new way to construct large size islands which can align to the sun by simply turning to the right azimuth
- The concept describes such systems floating in the sea, and others built on land
- Solar Island can be used for CSP, but also to concentrate solar irradiation on PV panels, at a concentration between 5 and 20 suns. This opens up possibilities for large scale photovoltaic systems at extremely competitive costs

Nano-enabled Technologies



TKK Finland, Finland

"Dye solar cells on flexible substrates"

Mr Janne Halme



- status of development and remaining challenges of dye solar cells on flexible substrates
- quantification of the performance limiting factors of DSC
- optimization and electrochemical performance of stainless steel based DSC



McMaster University, Canada

"Nanowire Photovoltaics: Opportunities and Challenges"

Dr Ray LaPierre, Assistant Professor



- Semiconductor nanowires are being considered for next generation solar cells with reduced manufacturing costs and higher photoconversion efficiencies
- We report the synthesis of coaxial compound semiconductor III-V nanowires and fabrication of nanowire-based solar cells
- Enhanced carrier extraction, light trapping effects, and light absorption are presented.



Solexant, United States

"Towards Grid Parity with Printed Solar Cells"

Dr Damoder Reddy,



- Cost Drivers in Solar Cell Manufacturing
- Economics of Printing Process
- Grid Parity with Printed Solar Cells

PV Processing/Testing



Optomec, United States

"M³D Aerosol-Jet® Printing for Front-Side Metallization of Crystalline Photovoltaic Cells"

Stephen Barnes



- M³D Aerosol Jet, a solution to reduce PV production costs
- Documented wafer efficiency improvement
- Reduces both material cost and wafer breakage
- Scaleable Technology



Oak Ridge National Laboratory, United States

"Pulse Thermal Processing of Photovoltaic Material Systems"

Dr Ronald Ott



- Revolutionary next level rapid thermal annealing of thin films and nanoparticle material systems
- Able to influence and enable all 3 generations of PV systems
- Large area, short processing times, high heating rates, all lend to the ability to control microstructures at the nanoscale



Colorado State University, United States

"Practical Information From Basic Solar-Cell Measurements"

Dr James Sites, Dept of Physics

- Summary of potential solar-cell losses
- Measurements needed to quantify individual losses at the cell level
- Extension of cell-level measurement and analysis to PV modules



Imaging Technology International, United States

"Inkjet technologies for Photovoltaic Applications"

R. Bruce Morgan, CEO



- Photovoltaic fabrication equipment
- Low-cost manufacturing of thin film solar modules using inkjet printing



Northfield Automation Systems, Inc., United States

"Strategies for roll to roll processing of thin films and other electronic substrates"

Mr Mark Wegner, Executive Vice President



- Equipment platforms for managing thin film substrates
- Process flow with islands of automation.

CONFERENCE OVERVIEW

IDTechEx introduces a new unique event focusing on the new generation of photovoltaic technologies.

The photovoltaics market is growing rapidly with large implementations and power plant constructions worldwide. The market share for thin film technologies beyond silicon technologies is estimated to exceed \$3 billion USD by 2013.

This event will focus on innovative applications, research & development, pathways to new markets and adoption & commercialization efforts for emerging photovoltaics technologies away from the limitations of conventional silicon.

Thin film, organic & inorganic, concentrator and tandem cell technologies, as well as innovative approaches, such as nano-wires and nano-antennas, will all be covered by speakers from across the world.

Visits to local companies, masterclasses introducing printed electronics & photovoltaic principles and markets as well as an Investment Forum will feature in the four-day event.

All conference attendees will receive a introduction to thin film photovoltaic technologies – an exclusive guide to the market for those attending this event.

AGENDA | DAY 1

Opening Address



IDTechEx, United Kingdom

"Opening Remarks – World Photovoltaics Market"

Dr Harry Zervos, Technology Analyst

IDTechEx

- Thin Film Photovoltaics Overview: technologies, markets, players
- Adoption & Commercialization: Drivers & Challenges

Keynotes



Boeing Spectrolab, United States

"Low-Cost Solar to Electric Energy Generation Using Concentrating Photovoltaic III-V Solar Cell Technology"

Dr Nasser Karam, Vice President

- Highest efficiencies with tandem concentrator cells
- Efforts towards lower cost structures
- Development of technology suitable for terrestrial applications



NASA - Johnson Space Center, United States

"The challenge of Space Photovoltaics"

Dr John Bacon,

- Needs of manned and unmanned space flight
- Specific challenges for selected mission scenarios
- Successfully meeting challenges: Bringing new opportunities in the consumer market

Markets



IDTechEx, Inc., United States

"Photovoltaics Market in Asia"

Mr Raghu Das, CEO

IDTechEx

- Activity by biggest developers
- Technology portfolio comparison
- Timelines to commercialization



Invest in Germany, United States

"The German Photovoltaic Market and German Government PV Incentive Programs"

Mr Claus Habermeier, Director



- PV market and industry in Germany
- Government Incentive Program

Organic PV



Arizona State University, Flexible Display Center, United States

"Organic Photovoltaics research at Arizona State University"

Prof Ghassan Jabbour, Director of ASU Advanced Photovoltaics Center



- Materials
- Novel architectures
- Results & Future work



Stanford University, United States

"Charge Transport in Semicrystalline Polymer Solar Cells"

Dr Alex Mayer, Post Doctoral Scholar



- Polymer-base solar cell device operation and materials challenges.
- The importance of charge-transport for making highly efficient polymer-based solar cells.
- The potential for more ordered polymers to absorb light and transport charge in solar cells.



Massachusetts Institute of Technology, United States

"Organic solar concentrators"

Dr Jon Mapel, Post-Doctorate Researcher



- Organic materials for non-tracking optical concentration to III-V solar cells
- Increasing conversion efficiency and optical flux gain



Plextronics Inc, United States

"Plexcore PV - A New Organic Ink System Enabling 5% OPV Efficiency"

Mr Andy Hannah, CEO



- Advances in Plexcore active layer technology
- 5.4% Efficiency from Single Layer Organic Solar Cells



Solarmer Energy, Inc, United States

"Developing New Device Structures for Polymer Solar cell Applications"

Dr Gang Li, Senior Research Fellow



- Solarmer Organic Photovoltaics technology
- Device Structure development
- Improvements/Advances



Global Photonic Energy Corporation, United States

"The Path to Commercial Organic Solar Cells"

Mr Aaron Wadell, Chief Operating Officer



- Power Output
- Lifetime
- Manufacturability & Cost

Investment Forum

Hear from investors and companies seeking funding in this lively session

REPORT OFFER

- **NEW REPORT** "Printed and Thin Film Photovoltaics and Batteries"
- Assessment of progress of key companies by technology: CIGS, CdTe, DSSC, Organic PV, a-Si
- Activities of a cutting-edge research institutes and Universities
- Impartial 20-year forecasts for the thin film photovoltaic and batteries markets
- Basic scientific principles & materials
- High-speed printing technologies overview
- 30% discount for conference attendees
– **Save \$750!**



ORDER FORM

To register simply complete the registration form below and post or fax it back to IDTechEx. Alternatively, you can register online at: www.IDTechEx.com/pvUSA
If you have any questions please email s.lee@IDTechEx.com or call 1 617 959 7436



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Terms & Conditions

Hotel and travel costs are not included in the price. Substitutions may be allowed at any time but please let us know. Cancellations must be made in writing 28 days before the event, upon which a 15% cancellation fee is payable. If a cancellation is made less than 28 days before the start of the event, no refund will be given. IDTechEx reserves the right to alter the location or content of the event at any time. IDTechEx retains the right of refusal. Only one promotional code may be used per purchase. The information in this brochure was correct at time of going to print but all prices and programmes may be subject to change.

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PRODUCT DESCRIPTION	\$
Best Value Packages	
2 Day Conference, Exhibition, Networking Dinner, 3 Masterclasses, online access to presentation slides and audio records (save 25%)	<input type="checkbox"/> \$3275
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Audio Copies of Main Conference Presentations (attendees only)	<input type="checkbox"/> \$299
Networking Dinner, June 17, Evening	<input type="checkbox"/> \$89
Masterclass 1: Photovoltaics: Principles - New Technologies - Markets	<input type="checkbox"/> \$799
Masterclass 2: Introduction to Printed Electronics - Energy Harvesting	<input type="checkbox"/> \$799
Masterclass 3: Photovoltaics: Fabrication Techniques	<input type="checkbox"/> \$799
Photovoltaics USA 2008 - Conference Proceedings Only (Presentations + Audio) Only for those who cannot attend the event.	<input type="checkbox"/> \$1500
Printed and Thin Film Photovoltaics and Batteries – Electronic copy (30% discount for conference attendees)	<input type="checkbox"/> \$2500 1750
Total	

MASTERCLASSES

The three optional masterclasses are interactive, expert-led tutorials. At each masterclass you will hear from consultants and academics, giving you insight into the world of photovoltaics and printed, flexible electronics technologies. Printed handouts, samples and access to tours will be provided.

Masterclass 1: Photovoltaics: Principles – New Technologies – Markets

June 16, Morning Session | Hyatt Regency Tech Center

Speakers:

Dr Harry Zervos, Technical Analyst - **IDTechEx**
 Professor Ghassan Jabbour, Director of Research - **Arizona State University**

A masterclass designed to give an overview of the principles of the different emerging photovoltaic technologies, focusing on thin film solar cells such as CIGS and CdTe, organic photovoltaics, hybrid organic/inorganic solar cells, dye-sensitized solar cells (DSSC's).

Lowest cost, highest efficiency, electricity from heat as well as light, tightly rollable and optically transparent PV – all the things that conventional silicon will never achieve.

Masterclass 2: Introduction to Printed Electronics – Energy Harvesting

June 16, Afternoon Session | Hyatt Regency Tech Center

Speakers:

Raghu Das - **IDTechEx**
 Joe Keating, Senior Applications Engineer - **Infinite Power Solutions**

An introductory masterclass to printed and potentially printed electronics technologies and predictions on market growth. The masterclass will be covering displays, conductors, lighting, solar cells, batteries, logic as well as progress from key developers.

Masterclass 3: Photovoltaics: Fabrication Techniques

June 19, Morning Session | Hyatt Regency Tech Center


Speakers:

Susann Reuter, Director - **IDTechEx**
 Mark Hartney, Chief Technical Officer - **USDC**

A masterclass that assesses the major fabrication techniques for the new photovoltaics. With a number of different technologies used, a variety of manufacturing techniques are available, depending on materials, demands for specific properties, performance and efficiencies.

TOURS

Many companies are involved in photovoltaics in the Denver area; IDTechEx has arranged visits on the masterclass days to three nearby organizations; space is limited on these tours and those attending the masterclasses will take priority.

Monday June 16	Thursday June 19
Infinite Power Solutions	imaging Technology international
A leading organisation manufacturing and developing thin-film energy storage devices	One of the top suppliers of development tools for the inkjet industry, iTi are designers, developers and manufacturers of digital systems that incorporate inkjet technology for industrial applications
National Renewable Energy Laboratory	 <p>For more information on the tours visit www.IDTechEx.com/pvUSA</p>
The facility of the US Department of Energy (DOE) for renewable energy and energy efficiency research, development and deployment	

INVESTMENT FORUM

The investment forum will take place on the afternoon of June 17 and forms part of the main conference. Investors and companies seeking funding will present their technology offerings and their view on the growth of the thin film photovoltaic market. An essential networking opportunity that will round off the first day of the conference.

NETWORKING DINNER

The Networking Dinner is taking place on the evening of Tuesday June 17. Join us to dine and network at the award-winning 1515 Restaurant in Downtown Denver.



IDTechEx
PHOTOVOLTAICS
 BEYOND CONVENTIONAL SILICON
 USA 08

June 17-18, 2008
Denver, USA

**ATTEND THIS PREMIER EVENT ON THE NEW
 OPPORTUNITY OF INNOVATIVE PHOTOVOLTAIC
 TECHNOLOGIES BEYOND CONVENTIONAL SILICON**

BENEFIT FROM

- Top speakers, both from the academic world and industry
- All aspects of the new generation of photovoltaics, from scientific principles to market growth forecasts and manufacturing will be covered
- A two-day exhibition, IDTechEx investment forum, optional masterclasses and company tours in the Denver area
- Find out how these technologies will pave the way towards ubiquitous adoption

Speakers include

Boeing Spectrolab
 ISET Inc.
 MIT
 CSEM
 Global Photonic Energy Corp.

CSU
 ASU
 Solarmer
 Stanford University
 INL

Solexant
 McMaster University
 Soliant
 ORNL
 Invest in Germany

TKK Finland
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An Essential Event

for all those interested in the future of photovoltaic technologies.

IDTechEx



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PHOTOVOLTAICS
 BEYOND CONVENTIONAL SILICON
 USA 08

June 17-18, 2008, Denver, USA

Speakers Include:

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 MIT
 CSEM
 Global Photonic Energy Corp.
 CSU
 ASU
 Solarmer
 Stanford University
 INL
 Solexant
 McMaster University
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