

MESSE MÜNCHEN
INTERNATIONAL



Solar Summits Freiburg

International Conference on
Renewable and Efficient Energy Use

**Topic 2008:
Silicon Materials for Photovoltaics**

Chair: Prof. Eicke R. Weber, Director, Fraunhofer Institute for Solar Energy Systems ISE

22–24 October 2008
Freiburg i. Breisgau, Germany

www.solar-summits.com



Programme Day 1 – Wednesday, 22 October 2008

9.30 – 10.00 a.m.

Reception with coffee and tea, distribution of conference papers

10.00 – 10.30 a.m.

Opening Remarks

Dr. Dieter Salomon, Lord Mayor, City of Freiburg

Norbert Bargmann, Managing Director, Messe München GmbH

Dr. Bernd Dallmann, Managing Director, FWTM / City of Freiburg

Prof. Eicke R. Weber, Director, Fraunhofer Institute for Solar Energy Systems ISE

Future of the PV Industry

10.30 – 11.00 a.m.

Sigmar Gabriel, Federal Environment Minister, Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (invited)

11.00 – 11.30 a.m.

Dr. Winfried Hoffmann, VP and Chief Technology Officer (CTO) Energy and Environmental Solutions, Applied Materials GmbH & Co. KG

11.30 – 12.00 a.m.

III-V-based solar cell approaching 50% and CPV systems approaching 30%

- Technology status and future of III-V multi-junction solar cells
- Discussion of concentrating PV technologies

Dr. Andreas Bett, Head of Department Solar Cells and Technologies, Fraunhofer Institute for Solar Energy Systems ISE

12.00 – 12.30 p.m.

Discussion round

12.30 – 1.30 p.m.

Lunch and opportunity to visit the poster exhibition

High-Efficiency Technologies

1.30 – 2.00 p.m.

High-efficiency concepts

A speaker of the industry is invited

2.00 – 2.30 p.m.

High-efficiency silicon solar cells

Dr. Stefan Glunz, Head of Department Silicon Solar Cells – Development and Characterization, Fraunhofer Institute for Solar Energy Systems ISE

2.30 – 3.00 p.m.

Discussion round

3.00 – 3.30 p.m.

Break for coffee and tea

Opportunity to visit the poster exhibition

3.30 – 4.00 p.m.

N-type vs. p-type silicon – the optimal material choice for industrial high-efficiency solar cells

- Potential of mono- and multicrystalline n-type silicon materials for the application to high-efficiency solar cells in direct comparison with their p-type counterparts

Dr. Jan Schmidt, Head of PV Materials Research, Institut für Solarenergieforschung Hameln (ISFH)

4.00 – 4.30 p.m.

Will n-base cells gain foothold in industry?

- Benefits of n-base cells: tolerance to impurities, allowing cheaper wafers, and advantages of the cell process, leading to higher efficiency
- Suitability for industrial production

Dr. Bart Geerligs, Senior Scientist, Energy Research Centre of the Netherlands (ECN)

4.30 – 5.00 p.m.

Discussion-Round and end of the first conference day

5.00 – 6.00 p.m.

Get-together and departure to the “Freiburger Solarnacht” at Fraunhofer ISE

In 2008, the well-established “Freiburger Solarnacht” takes place for the first time in autumn within the scope of the conference series “Solar Summits Freiburg”. As evidenced in the success over the past five years, the organizer of this annual event, Fraunhofer Institute for Solar Energy Systems ISE, has created a popular highlight within the branches of solar industry and the surrounding Solar Region Freiburg. Fraunhofer ISE cordially invites you on Wednesday, 22 October 2008 to the sixth “Freiburger Solarnacht”, which provides a relaxed atmosphere for conversations and discussions accompanied by music, entertainment and fine food.

Programme Day 2 – Thursday, 23 October 2008

9.30 – 10.00 a.m.

Welcome with coffee and tea

Key Notes

10.00 – 10.30 a.m.

Competition of technology routes: Thin film and umg-Si approaches

Dr. Florian Holzapfel, CTO, Q-Cells AG

10.30 – 11.00 a.m.

Competition of technology routes: Sog-Si and eg-Si approaches

Dr. Ralf Lüdemann, Managing Director, SolarWorld Innovations GmbH

Upgraded Metallurgical Si

11.00 – 11.30 a.m.

Technological aspects in processing of upgraded metallurgical silicon

- Aspects in crystallization and wafering
- Solar cell processing – ways to deal with impurities
- The alternative route: wafer equivalents

Dr. Stefan Reber, Group Leader Crystalline Silicon Materials and Thin Film Solar Cells, Fraunhofer Institute for Solar Energy Systems ISE

11.30 – 12.00 a.m.

Metallurgical route for solar grade silicon offers an environmental-friendly alternative for solar cell feedstock production

- Needed purities for standard solar cell performance
- Results obtained by using Elkem Solar Silicon
- Power consumption and CO₂ for Elkem Solar Silicon compared to other production methods for SoG-Si

Dr. Ragnar Tronstad, Technology Director, Elkem Solar AS, Norway

12.00 – 12.30 a.m.

Discussion round

12.30 – 1.30 p.m.

Lunch and opportunity to visit the poster exhibition

1.30 – 2.00 p.m.

Defect engineering

Prof. Tonio Buonassisi, Massachusetts Institute of Technology (MIT)

2.00 – 2.30 p.m.

PV revolution through accelerated evolution; EU PV Technology Platform contributions to the success of PV

- The EU PV Technology Platform (PVTP) I

Prof. Wim Sinke, Staff Member Solar Energy at the Energy research Centre of the Netherlands and Chairman Working Group "Science, Technology & Applications" of the EU PV Technology Platform

2.30 – 3.00 p.m.

Discussion round

3.00 – 3.30 p.m.

Break for coffee and tea

Opportunity to visit the poster exhibition

3.30 – 5.00 p.m.

Rump session "Silicon for Future PV"

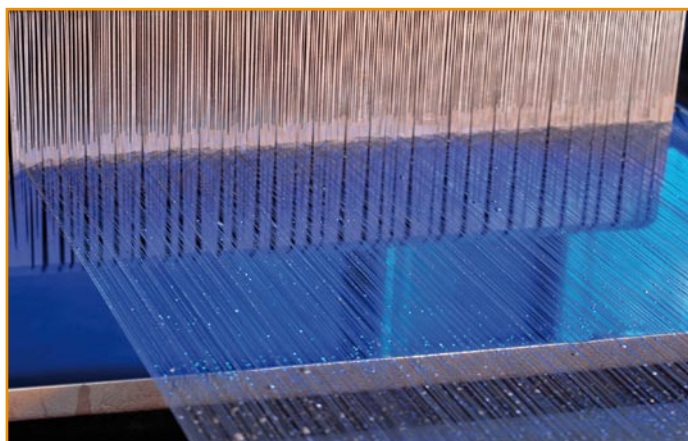
Prof. Eicke R. Weber, Fraunhofer Institute for Solar Energy Systems ISE

Silicon purity and the cost of solar electricity

Dr. Hubert A. Aulich, Executive Director German Operations, PV Crystalox Solar PLC and all Speakers of the Day

5.00 – 6.00 p.m.

Get-together



Programme Day 3 – Friday, 24 October 2008

9.30 – 10.00 a.m.

Welcome with coffee and tea

Outlook on Sustainable Energy

10.00 – 10.30 a.m.

Organic solar cells

Prof. Dr. Karl Leo, Professor of Optoelectronics,
TU Dresden and Fraunhofer IPMS

10.30 – 11.00 a.m.

Thin film technology – perspectives and challenges

Prof. Bernd Rech, Helmholtz-Zentrum Berlin für
Materialien und Energie GmbH (HMI) (invited)

11.00 – 11.30 a.m.

Break for coffee and tea

Opportunity to visit the poster exhibition

11.30 – 12.00 a.m.

Amorphous Si

Prof. Dr. Uwe Rau, Head of Institute of Energy-Research
IEF-5 Photovoltaic, Forschungszentrum Jülich

12.00 – 12.30 a.m.

Advances on solar energy and energy conservation technologies for the built environment

- Presentation of the state of the art regarding the energy and environmental quality in the built environment
- Recent progress and achievements
- Description of the main problems concerning buildings and open built environment
- Future priorities and objectives

Prof. Mattheos Santamouris, National and Kapodistrian
University of Athens

12.30 – 1.00 p.m.

Discussion round and conclusions of the
Solar Summit 2008

Prof. Volker Wittwer, Deputy Director,
Fraunhofer Institute for Solar Energy ISE

1.00 – 2.00 p.m.

Lunch and end of the conference

Departure to visit the Fraunhofer ISE

Programme Committee Solar Summits Freiburg 2008:

Prof. Masafumi Yamaguchi, Toyota Technological Institute

Dr. Jef Poortsma, IMEC

Dr. G. Paul Wyers, ECN Solar Energy

Prof. Eicke Weber, Fraunhofer ISE

Prof. Gerhard Willeke, Fraunhofer ISE

Prof. Volker Wittwer, Fraunhofer ISE

Dr. Ralf Lüdemann, SolarWorld Innovations GmbH

Dr. Wolfgang Koch, Koch Solar Consultancy GmbH

Poster Exhibition:

An additional approach for the presentation of projects/work is available for conference participants.

The Solar Summit poster session is designed to give scientists and students an opportunity to present their ideas to a large and diverse international audience.

Any participant thinking of contributing a poster is encouraged to register online by 15 September at the latest.

Members of the Congress Organising Committee will judge the poster application before the Congress. Please note, that for a poster to be displayed, the principal author must register for the congress and be present at the poster viewing session.



**Location: FREIBURG
GREEN CITY**

Freiburg is the sunniest city in Germany. Its pleasant setting at the foot of the Black Forest attracts visitors from all over the world.

Another one of Freiburg's outstanding qualities is its pronounced commitment to environmental issues. Over 500 solar projects with a wide range of applications and a dense network of research organizations, commercial enterprises and institutions have made the city and SolarRegion Freiburg the no. 1 location for solar energy in Germany. SolarRegion Freiburg draws its strength from many different sources. Naturally, they include the distinguished research institutes and scientific associations that promote the cause of solar energy here – with a very pronounced emphasis on practical application. That strong orientation to actual practice is exactly what makes partnerships in this field so attractive to industry. The scientific sector planted the seed that would eventually evolve into the SolarRegion and attract large numbers of solar enterprises to support it. The City of Freiburg actively promotes the transfer of technologies and ideas – giving rise to a lively mix that is so characteristic of the SolarRegion.



Venue: Freiburg Concert Hall

The Freiburg Concert Hall, flooded with sunlight, provides a high-class background for congresses and concerts, for exhibitions and presentations, for receptions and balls, for symposia and for many other events.



Arrival

Freiburg's unique position in both the national and the international traffic network is exemplary as a result of its proximity to airports, high-speed ICE trains and the motorway. As a result, the Concert Hall can be reached easily by all kinds of transport. You can reach Freiburg comfortably.

By car: From the North and the South via the A5 Rhine Valley motorway. Frankfurt-Basle, exit "Freiburg Stadtmitte". From the motorway approach road "Mitte" to the Freiburg Concert Hall it is about 10 minutes drive, the route is signposted. 950 parking spaces are available in the concert hall building and the station garage.

By train: Freiburg lies on the ICE / IC route Frankfurt – Karlsruhe – Freiburg – Basle and it is only a few steps from the Main Station in Freiburg to the Concert Hall.

By plane: Airport Basle-Mulhouse-Freiburg (Euro Airport) is the nearest airport to Freiburg and only 60 km away. It accommodates international scheduled and charter flights. It can be reached from Freiburg by the airport bus or by bus and train, changing at Basle. You can reach the airport by car via the A5 motorway in the direction of Basle then via the motorway junction Neuenburg via Ottmarsheim/Mulhouse on the A35 or shortly before the motorway customs point via the Palmrhein-bruecke, Huningue and St. Louis.

Your accommodation in or around Freiburg

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Registration

Please register online at www.solar-summits.com.

Service-Hotline: (+49 89) 2 10 98 60

Venue

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