

Tuesday, 15 September 2015

ORAL PRESENTATIONS 2BO.1

08:30 - 10:00 Silicon Feedstock and Direct Wafers

Chairpersons:

Donald Wood
Hemlock Semiconductor, United States
Kai Petter
Hanwha Q Cells, Germany

- 2BO.1.1 Increasing the Capacity of a Granular Fluid Bed Reactor to Reduce Polysilicon Production Costs**
C. Fero, J. Gum & K. Papp
GT Advanced Technologies, Missoula, United States
- 2BO.1.2 Low Cost and High Quality Polysilicon Production by Upscaled Centrifuge CVD Reactor with Hot Harvest**
W.O. Filtvedt & H. Klette
Institute for Energy Technology, Kjeller, Norway
S. Sørensen & J. Filtvedt
Dynatec Engineering, Askim, Norway
- 2BO.1.3 A Novel Silicon Crushing Method by High Voltage Pulses**
J. Käppeler, J. Kolly & M. Morach
Selfrag, Kerzers, Switzerland
- 2BO.1.4 A Tool for In-Line Quantitative Chemical Analysis of Molten Metallurgical and Solar Grade Silicon**
L. Patatut, M. Serasset, M. Benmansour & D. Pelletier
CEA, Le Bourget du Lac, France
- 2BO.1.5 N-Type and P-Type Si Foils Fabricated in a Quasi-Inline Epi Reactor with Bulk Lifetimes Exceeding 500 μ s**
S. Janz, N. Milenkovic, M. Drießen & S. Reber
Fraunhofer ISE, Freiburg, Germany
- 2BO.1.6 Crystallization in the SDS Process: Tests on Single Crystalline Silicon Wafers**
J.M. Pó, D.M. Pera, I. Costa, P.M. Sousa, K. Lobato, J. Maia Alves, J.M. Serra & A.M. Vallêra
University of Lisbon, Portugal

ORAL PRESENTATIONS 3BO.5

08:30 - 10:00 Thin-Film Si Cells and Modules

Chairpersons:

Ivan Gordon
imec, Belgium
Carlos Molpeceres
UPM, Spain

- 3BO.5.1 Hydrogenated Amorphous Silicon: Nanostructure and Defects**
J. Melskens, S.W.H. Eijt, H. Schut, E. Brück, M. Zeman & A. Smets
Delft University of Technology, Netherlands

- 3BO.5.2 High Efficiency High Rate Microcrystalline Silicon Thin Film Solar Cells**
C. Strobel, S. Leszczynski, U. Merkel, D.D. Fischer, M. Albert & J.W. Bartha
Technical University of Dresden, Germany
J. Kuske
FAP, Dresden, Germany

- 3BO.5.3 Modification of the Buffer Layers on the Performance of Superstrate Hydrogenated Microcrystalline Silicon Solar Cells**
L. Bai, B. Liu, J. Fang, Q. Huang, B. Li, D.K. Zhang, C. Wei, J. Sun, Y. Zhao & X. Zhang
Nankai University, Tianjin, China

- 3BO.5.4 Deposition of Silicon Layers with Rates Up to 300 μ m/s"**
J.-P. HeiB, B. Pfefferling, S. Saager & D. Temmler
Fraunhofer FEP, Dresden, Germany

- 3BO.5.5 Application of Thin-Film Silicon Solar Cells in 4-Terminal Hybrid Tandem Solar Modules**
D. Zhang, M. Dörenkämper, W.J. Soppe & R.E.I. Schropp
ECN, Eindhoven, Netherlands
A. Lambertz & M. Meier
Forschungszentrum Jülich, Germany

- 3BO.5.6 FP7 Project Fast Track: Highlights and Achievements in the European Thin-Film Silicon Community**
M. Meier, A. Gordijn, M. Ghosh & S. Michard
Forschungszentrum Jülich, Germany
F.-J. Haug, J.W. Schüttauf, M. Boccard, M. Stuckelberger, S. Hänni & E. Moulin
EPFL, Neuchâtel, Switzerland
W. Soppe
ECN, Eindhoven, Netherlands
J. Holovsky, N. Neykova, A. Poruba & M. Vanecek
ASCR, Prague, Czech Republic
A. Campa & M. Topic
University of Ljubljana, Slovenia
D.Y. Kim & R. van Swaaij
Delft University of Technology, Netherlands
C. Strobel
Technical University of Dresden, Freital, Germany
L.V. Mercaldo, I. Usatii & P. Delli Veneri
ENEA, Portici, Italy
P. Roca i Cabarrocas, E.-V. Johnson, P. Bulkin & S. Abolmasov
CNRS, Palaiseau, France
E. Hamers
HyET Solar, Arnhem, Netherlands
A. Battaglia
3Sun, Aci Castello, Italy
B. Tinkham
Solayer, Kesselsdorf, Germany
O. Steinke
FAP, Dresden, Germany
K. Du Mong
DSM Advanced Surfaces, Urmond, Netherlands
P. Evans & D. Sheel
University of Salford, United Kingdom
B. Wattenberg
Singulus Stangi Solar, Fürstfeldbruck, Germany
R. van Erven
Morphotonics BV, Veldhoven, Netherlands
A. Molinari
Uniresearch, Delft, Netherlands



ORAL PRESENTATIONS 5BO.9

08:30 - 10:00 Improving system integration

Chairpersons:

David Rosewater
Sandia National Laboratories, United States
Marion Perrin
CEA, France

- 5BO.9.1 Management of Voltage on LV Distribution Networks with Pre-Existing High Levels of Uncontrolled PV Systems & Inverters**
E. Franklin & J. Singh
ANU, Canberra, Australia
- 5BO.9.2 Realistic Snowload Testing for Extreme Alpine Conditions**
A. Bohren
HSR, Rapperswil, Switzerland
T. Friesen
SUPSI, Canobbio, Switzerland
- 5BO.9.3 Tool to Determine Economic Capacity Dimensioning in PV Battery Systems Considering Various Design Parameters**
J. Moshövel, G. Angenendt, D. Magnor & D.U. Sauer
RWTH Aachen University, Germany
- 5BO.9.4 New P/Q Control Functions of Grid-Connected PV Inverters: Do They Have an Impact on the Anti-Islanding Detection Behaviour in European Grids?**
G. Lauss, R. Bründlinger, B. Bletterie & A. Zegers
AIT, Vienna, Austria
- 5BO.9.5 Characterization and Efficiency Test of a Li-ion Energy Storage System for PV Systems**
A. Makibar & L. Narvarte
UPM, Madrid, Spain
- 5BO.9.6 Application of MV/LV Transformers with OLTC for Increasing the PV Hosting Capacity of LV Grids**
S. Hashemi & J. Østergaard
Technical University of Denmark, Lyngby, Denmark
W. Heckmann, D. Geibel & T. Degner
Fraunhofer IWES, Kassel, Germany

VISUAL PRESENTATIONS 5BV.1

08:30 - 10:00 Meteorology, Online Monitoring, IR imaging

Detailed information on this session is presented in the section entitled 'Visual Presentations'.

VISUAL PRESENTATIONS 3BV.5

08:30 - 10:00 Perovskites, Organic PV and Hybrid Devices

Detailed information on this session is presented in the section entitled 'Visual Presentations'.

PLENARY SESSION 2BP.1

10:30 - 12:10 High Efficiency Silicon Technology

Chairpersons:

Giso Hahn
University of Konstanz, Germany
Francesca Ferrazza
Eni, Italy

- 2BP.1.1 Keynote Presentation: The Irresistible Charm of a Simple Current Flow Pattern – Approaching 25% with a Solar Cell Featuring a Full-Area Back Contact**
S.W. Glunz, F. Feldmann, A. Richter, M. Bivour, C. Reichel, J. Benick & M. Hermle
Fraunhofer ISE, Freiburg, Germany
- 2BP.1.2 Breakdown of the Efficiency Gap to 29% Based on Experimental Input Data and Modelling**
R. Brendel, T. Dullweber, R. Peibst, C. Kranz & A. Merkle
ISFH, Emmerthal, Germany
D. Walter
ANU, Canberra, Australia
- 2BP.1.3 3 Years of High Quality mc-Si PERC Production Experience – Approaches for Efficient Cell and Module Development**
S. Engelhart
Hanwha Q CELLS, Bitterfeld Wolfen, Germany
B. Klöter, P. Kowalzik, T. Rudolph, M. Hofmann, M. Heimann, C. Baer, A. Schwabedissen, H.-C. Ploigt, K. Beiner, I. Jarosch, S. Geissler, S. Krtschil, E. Stegemann, P. Engelhart, L. Brockob & K. Wachsmuth
Hanwha Q CELLS, Bitterfeld-Wolfen, Germany
- 2BP.1.4 Recent Progress of CEA-INES Heterojunction Solar Cell Pilot Line**
A. Danel, C. Roux, K. Aumaille, A.-S. Ozanne, M. Vandenbossche, F. Medlege, B. Novel, B. Commault, P. Lefillastre, D. Heslinga & P.J. Ribeyron
CEA, Le Bourget du Lac, France
S. Harrison
CEA, Le Bourget du lac Cedex, France

ORAL PRESENTATIONS 2BO.2

13:30 - 15:00 Silicon Crystallisation

Chairpersons:

Anis Jouini
CEA, France
Christian Martin
Vesuvius, France

- 2BO.2.1 Development of Multicrystalline Silicon for 20 % Efficient n-Type Solar Cells**
S. Riepe, P. Krenckel, J. Benick & F. Schindler
Fraunhofer ISE, Freiburg, Germany
- 2BO.2.2 The Influence of Melting Interface on the Performance of Seed-Assisted Multi-Crystalline Silicon in Directional Solidification**
S. Qiao, L. Zhang, X. Niu, Q. Wang, M. Pan, Y. Zhang, W. Gao, Z. Hu & J. Xiong
Yingli Green Energy, Baoding, China



- 2BO.2.3 Two Methods for High Performance Mc-Si Ingot Growth**
Z. Zhang, Z. Xiong, H. Ye, S. Fu, Z. Feng & P.J. Verlinden
Trina Solar, Changzhou, China
- 2BO.2.4 Silicon Crystallization by Kyropoulos Process for Photovoltaic applications**
L. Lhomond, A. Nouri, G. Chichignoud, Y. Delannoy & K. Zaidat
SIMAP, Saint-Martin d'Hères, France
F. Lissalde
Cyberstar, Echirolles, France
M. Albaric
CEA, Le Bourget-du-Lac, France
- 2BO.2.5 Development of an Industrial Applicable Crucible Coating Based on High Pure Silzot Solar Si₃N₄-Powder**
V. Schneider, C. Reimann & J. Friedrich
Fraunhofer IISB, Erlangen, Germany
M. Kuczynski, J. Sans & W. Gross
AlzChem, Trostberg, Germany
- 2BO.2.6 The Impact of Czochralski Silicon Crystals Grown from the Melt in "Liquinert" Quartz Cucible on Their Lifetime**
T. Fukuda, N. Suzuki, M. Moriya, K. Tanahashi, S. Simayi, K. Shirasawa & H. Takato
AIST, Koriyama, Japan
Y. Horioka
FTB Research Institute, Chiba, Japan

ORAL PRESENTATIONS 3BO.6

13:30 - 15:00 Thin Film for Silicon Heterojunction and other devices

Chairpersons:

Julio Cárabe
CIEMAT, Spain
Miro Zeman
Delft University of Technology, Netherlands

- 3BO.6.1 Kelvin Probe Force Microscopy Study of Electric Field Homogeneity in Epitaxial Silicon Solar Cells Cross-Section under Illumination and Voltage Bias**
P. Narchi & P. Prod'homme
TOTAL, Paris la Defense, France
G. Picardi, R. Cariou, M. Foldyna & P. Roca i Cabarrocas
CNRS, Palaiseau, France
- 3BO.6.2 Structural Engineering for Optical and Electronic Properties of a-Si:H/c-Si**
J. Mitchell
AIST, Koriyama, Japan
- 3BO.6.3 Density Determination and Gas Absorption Measurements in Ambient Nitrogen of Silicon Thin Films Deposited by Crucible-Free Electron Beam Evaporation**
S. Saager, T. Mauersberger, C. Metzner & D. Temmler
Fraunhofer FEP, Dresden, Germany
- 3BO.6.4 Crystalline Silicon on Glass: Interface Passivation and Its Impact on the Absorber Material Quality**
O. Gabriel, T. Frijnts, D. Amkreutz, S. Ring, S. Calnan, B. Stannowski, B. Rech & R. Schlatmann
HZB, Berlin, Germany

- 3BO.6.5 Silicon Specification for High Efficiency HJT**
D.L. Bätzner, R. Kramer, L. Andreetta, D. Lachenal, W. Frammelsberger, B. Legradic, J. Meixenberger, P. Papet, B. Strahm & G. Wahli
Meyer Burger, Hauterive, Switzerland
- 3BO.6.6 Feasibility Study on the Use of Gen5 Kai PECVD Reactors for Manufacturing of High-Efficiency Silicon Heterojunction Solar Cells**
S. Abolmasov, A. Abramov, D. Andronikov, K. Emtsev, G. Ivanov, I. Nyapshaev, A. Semenov, G. Shelopin & E. Terukov
RAS/ Ioffe, St. Petersburg, Russia
D. Orekhov
RAS / Ioffe, St. Petersburg, Russia
B. Strahm
Roth&Rau, Hauterive, Switzerland
G. Wahli & P. Papet
Meyer Burger, Hauterive, Switzerland
T. Söderström & Y. Yao
Meyer Burger, Gwatt, Switzerland
T. Hengst
Meyer Burger, Hohenstein-Ernstthal, Germany
G. Kekelidze
Moscow Technological Institute, Russia

ORAL PRESENTATIONS 4BO.10

13:30 - 15:00 Multi-junction solar cells for concentrator and space applications.

Chairpersons:

Trinidad J. Gomez Rodríguez
INTA, Spain
Gianluca Timò
RSE, Italy

- 4BO.10.1 The Effect of Fast-Atom-Beam Ion Species in the Surface Activated Bonding Process for Multi-Junction Solar Cells**
D. Yamashita
University of Tokyo, Japan
G. Kono, T. Hoshii, K. Watanabe, M. Sugiyama, T. Suga, Y. Okada & Y. Nakano
University of Tokyo, Japan
- 4BO.10.2 Towards III-V/Si Photovoltaics—In Situ Controlled Growth and Preparation of Single-Domain Heterointerfaces in MOCVD Ambient**
O. Supplie, M.M. May, S. Brückner, A. Nägelein, P. Kleinschmidt & T. Hannappel
Ilmenau University of Technology, Germany
- 4BO.10.3 Use of Double Band Anti-Crossing to Control Optical Absorption of GaAsSbN for Multi-Junction Solar Cells**
T. Thomas, M. Führer, N. Hylton & N.J. Ekins-Daukes
Imperial College London, United Kingdom
K.H. Tan, D. Li, S. Wicaksono, W.K. Loke & S.F. Yoon
Nanyang Technological University, Singapore
A. Johnson
IQE, Cardiff, United Kingdom



- 4BO.10.4 High Efficiency InGaP/GaAs/Ge Triple Junction Solar Cells Monolithically Integrated on Deeply Patterned Silicon Substrates**
A. Scaccabarozzi, S. Binetti, M. Acciarri & L. Miglio
University of Milan, Italy
G. Isella
Polytechnic University of Milan, Italy
R. Campesato, G. Gori & M.C. Casale
CESI, Milan, Italy
F. Mancarella
CNR, Bologna, Italy
H. von Känel
ETH Zurich, Switzerland
- 4BO.10.5 Photoluminescent and Electroluminescent Coupling in III-V Multijunction Solar Cells**
D. Lan & M.A. Green
UNSW, Sydney, Australia
- 4BO.10.6 Simulated and Experimental Performance of High Efficiency GaInNAsSb Solar Cells**
A. Aho, A. Tukiainen, V. Polojärvi, T. Aho, M. Raappana, R. Isoaho & M. Guina
Tampere University of Technology, Finland

VISUAL PRESENTATIONS 5BV.2

13:30 - 15:00 Experience, Grid Integration, and Shading

*Detailed information on this session is presented in the section entitled 'Visual Presentations'.***VISUAL PRESENTATIONS 1BV.6**

13:30 - 15:00 Fundamental material, Studies and Modelling / New Materials and Concepts for Modules

*Detailed information on this session is presented in the section entitled 'Visual Presentations'.***ORAL PRESENTATIONS 2BO.3**

15:15 - 16:45 Silicon Wafering and Characterisation

Chairpersons:Daniel Macdonald
ANU, Australia
Oliver Anspach
PV Crystalox Solar, United Kingdom

- 2BO.3.1 Progress in Abrasive Electrochemical Multi-Wire Sawing of Silicon Ingot into Solar Wafers**
W. Wang, G. Bao, Z. Zhou & Z. Liu
NUAA, Nanjing, China
- 2BO.3.2 Mechanical Strength of Diamond Wire and Slurry Sawn Wafers from Wafer to Cell and Module**
F. Kaule, S. Dietrich & S. Schönfelder
Fraunhofer CSP, Saale, Germany
S. Thormann, R. Lantzsch & K. Petter
Hanwha Q CELLS, Bitterfeld-Wolfen, Germany

- 2BO.3.3 High Quality Thermal Donor Doped Czochralski Silicon Ingot for Industrial Heterojunction Solar Cells**
F. Jay, M. Martel, M. Tomassini, R. Peyronnet-Dremière, J. Stadler, J. Veirman, D. Muñoz & C. Roux
CEA, Le Bourget du Lac, France
X. Brun
AET-Technologies, Meylan, France
A. Jouini
CEA, Le Bourget-du-Lac, France
- 2BO.3.4 The Effect of n-Pasha Processing on Bulk Wafer Quality External and Internal Gettering of Impurities for Solar Cell**
P.C.P. Bronsveld, P. Manshanden, A. Gutjahr, M. Koppes & I.G. Romijn
ECN, Petten, Netherlands
- 2BO.3.5 Impact of Grain Boundary Character in Multicrystalline Silicon on Phosphorus External and Internal Gettering of Impurities for Solar Cell**
S. Joonwichien
AIST, Fukushima, Japan
I. Takahashi & N. Usami
Nagoya University, Japan
- 2BO.3.6 Impact of Phosphorous Gettering and Hydrogenation on the Surface Recombination Velocity of Grain Boundaries in Multicrystalline Silicon**
H. Sio, S.P. Phang, H.T. Nguyen & D. Macdonald
ANU, Canberra, Australia
T. Trupke
UNSW, Kensington, Australia

ORAL PRESENTATIONS 3BO.7

15:15 - 16:45 Contacts, buffers and interfaces

Chairpersons:Yaroslav E. Romanyuk
EMPA, Switzerland
Thomas Walter
Ulm University of Applied Sciences, Germany

- 3BO.7.1 Nanostructured Back Mirror for Ultra-Thin CIGS Solar Cell**
J. Goffard, A. Cattoni, C. Colin & S. Collin
CNRS, Marcoussis, France
F. Mollica, M. Jubault, J.F. Guillemoles, D. Lincot & N. Naghavi
CNRS, Chatou, France
- 3BO.7.2 Improvement of Cu-Rich Cu(In,Ga)Se₂ Solar Cells by In and Ga Surface Treatments**
L. Choubrac, T. Bertram, D. Regesch, C. Spindler & S. Siebentritt
University of Luxembourg, Belvaux, Luxembourg
- 3BO.7.3 Reducing the Necessity of Light Soaking by Controlled Incorporation of Indium into Chemically Deposited Zn(O,S) Buffer Layers for Cu(In,Ga)(S,Se)₂ Solar Cells**
C. Hönes
Robert Bosch, Schwieberdingen, Germany
A. Fuchs
Robert Bosch, Stuttgart, Germany
S. Zweigart
Robert Bosch, Gerlingen, Germany
S. Siebentritt
University of Luxembourg, Belvaux, Luxembourg



- 3BO.7.4 Highly Transparent and Conductive Sputtered Indium Zinc Oxide Films for Application in Cu(In,Ga)Se₂ Solar Cells**
R. Menner, C. Tschamber, M. Cemernjak, W. Witte, T.M. Magorian-Friedlmeier & W. Wischmann
ZSW, Stuttgart, Germany
- 3BO.7.5 Electrodeposition of ZnO Films: a Low Cost and Powerful Method to Produce CIGS Solar Cell Front Contact**
F. Tsin, T. Hildebrandt, M. Paire & J. Rousset
EDF R&D - IRDEP, Chatou, France
A. Vénérosy, L. Lombez, S. Borensztajn, N. Naghavi & D. Lincot
CNRS, Chatou, France
S. Collin
CNRS, Marcoussis, France
C. Broussillou, S. Jaime & P.P. Grand
NEXCIS, Rousset, France
D. Hariskos
ZSW, Stuttgart, Germany
- 3BO.7.6 Influence of Transparent Conductive Oxide on the Degradation of CdTe Solar Cell Performance**
E. Artegiani, D. Menossi, A. Bosio & N. Romeo
University of Parma, Italy
A. Salavei & A. Romeo
University of Verona, Italy
I. Rimmaudo
CINVESTAV, Merida, Italy

ORAL PRESENTATIONS 4BO.11

15:15 - 16:45 Terrestrial Concentrator Systems

Chairpersons:Francisca Rubio Berenguel
Soitec Solar, Germany
Carla Signorini
ESA-ESTEC, Netherlands

- 4BO.11.1 Fundamental Study for the Power Tower's HCPV/T Combined Thermal Receiver**
A.O.M. Hagfarah & M. Nazarinia
Heriot Watt University, Dubai, United Arab Emirates
- 4BO.11.2 Trackless Holographic Concentrator for MW-Scale PV Plants**
H.-J. Rodríguez San Segundo, A.M. Villamarín Villegas, F.J. Pérez López & A. Calo López
Instituto Holográfico, El Puerto de Santa Maria, Spain
- 4BO.11.3 Indoor Measurement of Cell-to-Ambient Thermal Resistance in Solar CPV Modules**
V.D. Romyantsev, A.V. Chekalin & N.A. Sadchikov
RAS/ Ioffe, St. Petersburg, Russia
N.Yu. Davidyuk
St. Petersburg Academic University, Russia
A. Luque
UPM, Madrid, Spain
- 4BO.11.4 Outdoor Testing of the Ecosole HCPV Module with Single Module Inverter**
M. Carpanelli, G. Borelli, D. Verdilio, D. De Nardis & F. Migali
Becar, Monteveglio, Italy

- 4BO.11.5 A Highly Efficient, Angle-Insensitive Solar Quantum Concentrator Based on Microstructured Plastic Optical Fiber.**
O. Besida, O. Gobert, M. Comte, G. Mennerat, F. Rondeaux, C. Jeanney, P. Starzynski, C. Fajolles, P. Guenoun, D. Doizi & J. De Lamare
CEA, Gif-Sur-Yvette, France
- 4BO.11.6 Competitive Stationary Low Concentrating Solar Module of Novel Design**
M.C. Ubaldi, A. Colombo, A. Righetti & G. Grasso
CIFE, Milan, Italy
A.J. Galdikas, J. Ulbikas & V. Cyras
Modernios E-Technologijos, Vilnius, Lithuania
M. Della Pirriera
Leitat Technological Center, Terrassa (Barcelona), Spain

VISUAL PRESENTATIONS 5BV.3

15:15 - 16:45 Power conversion, storage and testing

*Detailed information on this session is presented in the section entitled 'Visual Presentations'.***VISUAL PRESENTATIONS 1BV.7**

15:15 - 16:45 New Materials and Concepts for Cells

*Detailed information on this session is presented in the section entitled 'Visual Presentations'.***ORAL PRESENTATIONS 2BO.4**

17:00 - 18:30 PERC structures, bulk and surface passivation

Chairpersons:Radovan Kopecek
ISC Konstanz, Germany
Sébastien Dubois
CEA, France

- 2BO.4.1 The PERC Cell: From Conception to Mainstream Production**
M.A. Green
UNSW, Sydney, Australia
- 2BO.4.2 21.40% Efficient Large Area Screen Printed Industrial PERC Solar Cell**
D. Chen, W. Deng, J. Dong, F. Ye, H. Zhu, H. Li, Y. Jiang, B. Gao, M. Zhong, Y. Cui, Y. Chen, Y. Yang, Z. Feng & P.J. Verlinden
Trina Solar Energy, Changzhou, China
- 2BO.4.3 21%-Efficient Industrial Bifacial PERC Solar Cells**
T. Dullweber, R. Peibst, U. Baumann, C. Kranz & H. Hannebauer
ISFH, Emmerthal, Germany
- 2BO.4.4 Contact Formation on Boron Doped Silicon Substrates from Passivating PECV-Deposited Dielectric Doping Layers with Anti-Reflective Properties by Screen-Printing Ag Pastes for High-Efficiency N-Type Silicon Solar Cells**
J. Engelhardt, A. Frey, S. Fritz, G. Micard, S. Riegel, G. Hahn & B. Terheiden
University of Konstanz, Germany



- 2BO.4.5 Bifacial Multicrystalline Solar Cells with Efficiencies above 18% Prepared in an Industrial Production Environment**
A. Teppe, C. Gong, O. Voigt, I. Melnyk, S. Keller, M. Klenk & P. Fath
RCT-Solutions, Konstanz, Germany
- 2BO.4.6 Comparison of Light Induced (LiP) and Electrically Induced Passivation (EiP) of Boron-Oxygen-Complexes by Means of the Charge State Control of Hydrogen**
M. Gläser & D. Lausch
Fraunhofer CSP, Halle, Germany
J. Hirsch
Anhalt University of Applied Sciences, Köthen, Germany

ORAL PRESENTATIONS 3BO.8

17:00 - 18:30 Alternative Processing and Materials

Chairpersons:

Alexander Meeder
Flisom, Switzerland
Phillip Dale
University of Luxembourg, Luxembourg

- 3BO.8.1 Low Bandgap Cu(In,Ga)Se₂ Solar Cells Applied in Tandem Devices with a Perovskite Top Cell**
T. Feurer, P. Reinhard, F. Fu, L. Kranz, B. Bissig, S. Nishiwaki, S. Buecheler & A.N. Tiwari
EMPA, Dübendorf, Switzerland
- 3BO.8.2 Cu(In,Ga)Se₂ Solar Cells on Flexible Ultra-Thin Glass Substrates**
A. Gerthoffer, F. Roux, F. Emieux, P. Faucherand, H. Fournier, L. Grenet & S. Perraud
CEA, Grenoble, France
- 3BO.8.3 Fabrication of Cu(In,Ga)Se Solar Cells on Stainless Steel Foils with Sol-Gel Barrier Layer**
Y. Kamikawa-Shimizu & H. Shibata
AIST, Tsukuba, Japan
N. Yamada, Y. Yamamoto & S. Yamaguchi
Nippon Steel & Sumitomo Metal, Futtsu, Japan
- 3BO.8.4 Light Trapping in Thin Cu(In,Ga)Se₂ Solar Cells on Textured Polyimide Substrate**
N. Bednar, N. Severino & N. Adamovic
Vienna University of Technology, Austria
- 3BO.8.5 Advanced characterization and defect analysis of high efficient solution deposited Cu₂ZnSn(S,Se)₄ solar cells**
S. Haaß, Y.E. Romanyuk, M. Werner, M. Diethelm & A.N. Tiwari
EMPA, Dübendorf, Switzerland
- 3BO.8.6 Tin Sulfide for PV: a Reconfirmation of Potential**
T.J. Whittles, W.M. Linhart, D. Hesp, T.D. Veal & V.R. Dhanak
University of Liverpool, United Kingdom
L.A. Burton & A. Walsh
University of Bath, United Kingdom

ORAL PRESENTATIONS 5BO.12

17:00 - 18:30 Monitoring and Performance

Chairpersons:

Christos Protogeropoulos
Phoenix Solar, Greece
Steve Ransome
Steve Ransome Consulting, United Kingdom

- 5BO.12.1 Tools for the High Penetration of PV Systems in the EU Electrical Networks: Results of PVCROPS Project**
L. Narvarte
UPM, Madrid, Spain
L. Marroyo
UPNa, Pamplona, Spain
M. Collares-Pereira
University of Évora, Portugal
N. Tyutyuyndzhiev
Bulgarian Academy of Sciences, Sofia, Bulgaria
M.F. Conlon
Dublin Institute of Technology, Ireland
N.E. Bouzzan
ONEE, Casablanca, Morocco
E. Guelbenzu
Acciona energía, Sarriguren, Spain
R. González
Ingeteam, Sarriguren, Spain
A. Desportes
RTone, Lyon, France
G. Simmonds
REDT, Dublin, Ireland
B. Wilkin
APERe, Brussels, Belgium
- 5BO.12.2 Monitoring and Fault Detection in Photovoltaic Systems Based On Inverter Measured String I-V Curves**
S. Spataru, D. Sera, T. Kerekes & R. Teodorescu
Aalborg University, Denmark
- 5BO.12.3 Experiences with a Performance Package for Multi-MW PV Plants Based on Computations on Top of Monitoring**
G. Mütter
Alternative Energy Solutions, Vienna, Austria
Y. Voronko
Vienna University of Technology, Austria
B. Kubicek, T. Krametz & P. Steirer
AIT, Vienna, Austria
- 5BO.12.4 A New Generation of PV Monitoring System with High-Grade Remote Diagnostics Based on Module Level Monitoring and Integrated Yield Simulation**
T. Kilper, C. Feser, U. Kirstein, D. Peters & K. von Maydell
NEXT ENERGY, Oldenburg, Germany
I. Kruse & S. Yilmaz
STORM Energy, Nuremberg, Germany
- 5BO.12.5 Uncertainties in PV Modelling and Monitoring**
M. Richter, K. de Brabandere & A. Woyte
3E, Brussels, Belgium



5BO.12.6 Defect Analysis of Installed PV-Modules - IR-Thermography and in-String Power Measurement
 C. Buerhop-Lutz & H. Scheuerrpflug
 ZAE Bayern, Erlangen, Germany

VISUAL PRESENTATIONS 5BV.4

17:00 - 18:30 Manufacturing quality, recycling and sustainability

Detailed information on this session is presented in the section entitled 'Visual Presentations'.

VISUAL PRESENTATIONS 2BV.8

17:00 - 18:30 Silicon solar cell characterization and modelling / Industrial Aspects of c-Si Solar Cells

Detailed information on this session is presented in the section entitled 'Visual Presentations'.

Wednesday, 16 September 2015

ORAL PRESENTATIONS 2CO.1

08:30 - 09:30 Silicon heterojunction solar cells

Chairpersons:

Armin Froitzheim
 SolarWorld Industries, Germany
 Barbara Terheiden
 University of Konstanz, Germany

2CO.1.1 Efficient Heterojunction Solar Cells on N-Type Epitaxial Kerfless Silicon Wafers

E. Kobayashi & Y. Watabe
 Choshu Industry, Sanyo Onoda, Japan
 R. Hao & T.S. Ravi
 Crystal Solar, Santa Clara, United States

2CO.1.2 Analysis of Different Front and Back TCO on Heterojunction Solar Cells

D. Muñoz, F. Ozanne, P. Carroy, A. Valla & P. García-Linares
 CEA, Le Bourget du Lac, France
 G. Rodriguez
 CEA, Grenoble, France

2CO.1.3 Efficient Electrodes for Back-Contacted Silicon Heterojunction Solar Cells

A. Tomasi, B. Paviet-Salomon, A. Tajalli, J.P. Seif, J. Geissbühler, S.M. de Nicolas, N. Holm, S. De Wolf & C. Ballif
 EPFL, Neuchâtel, Switzerland
 S. Nicolay & M. Despeisse
 CSEM, Neuchâtel, Switzerland
 D. Lachenal
 Meyer Burger, Hauterive, Switzerland
 B. Strahm
 Roth&Rau, Hauterive, Switzerland

2CO.1.4 Process Development for Heterojunction IBC Cells on Thin Silicon Foils Bonded to Glass

T. Bearda, H. Sivaramakrishnan Radhakrishnan, E. Dönerçark, V. Depauw, C. Trompoukis, K. Van Nieuwenhuysen, P. Choulat, L. Tous, I. Sharlandzhiev, M. Xu, J. Govaerts, I. Gordon, J. Poortmans & J. Szlufcik
 imec, Leuven, Belgium
 S.N. Granata
 Total, Leuven, Belgium

