

Publications

**35th European Photovoltaic Solar Energy Conference and Exhibition,
September 24-28, 2018 • Brussels, Belgium**

Fraunhofer Institute for Solar Energy Systems ISE

Division Photovoltaics

Heidenhofstrasse 2
79110 Freiburg
Germany

Al-Akash_2AV.2.13

M. Al-Akash, P. Baliozian, E. Lohmüller, T. Fellmeth, N. Wöhrle, R. Preu
Metallization Fraction of Bifacial pSPEER Shingle Solar Cells

Al-Hajjawi_2DV.3.27

S. Al-Hajjawi, T. Hammer, J. Haunschild
Inline Wafer Identification Using Optical Character Recognition (OCR)

Arya_2DV.3.58

V. Arya, S. Gutscher, F. Meyer, J. Nekarda, A. A. Brand, S. Kluska, G. Cimiotti
Improvement of Solar Cell Efficiencies for Ultrashort-Pulse Laser Contact Opening with Ni-Cu Plated Contacts by Optimized LCO-FFO Processing Order

Baliozian_2CO.9.6

P. Baliozian, N. Wöhrle, E. Lohmüller, T. Fellmeth, R. Preu
Bifacial p-SPEER Solar Cells for Shingle Modules

Bodlak_7DO.3.5

L. Bodlak, H. Hernandez, J. Bierbaum, J. Kang, S. Nold, R. Preu
Price-Bifaciality Relationship of Bifacial Modules in Vertical East-West Oriented PV Systems

Demant_2DV.3.62

M. Demant, P. Virtue, A. S. Kowali, S. X. Yu, S. Rein
Deep Learning Approach to Inline Quality Rating and Mapping of Multi-Crystalline Si-Wafers

Drießen_2BO.2.6

M. Drießen, P. Beu, F. Heinz, T. Fehrenbach, E. Gust, F. Schindler, S. Janz
Defects in Epitaxially Grown Silicon Wafers Causing Lifetime Patterns

Eberle_2AO.5.4

R. Eberle, A. Fell, F. Schindler, M. C. Schubert
Prediction of Local Temperature Dependent Efficiency of Silicon Solar Cells

Gebhardt_5DO.7.5

P. Gebhardt, L. Pitta Bauermann, D. Philipp
Backsheet Chalking – Theoretical Background and Relation to Backsheet Cracking and Insulation Failures

Glunz_2BO.4.1

S.W. Glunz, F. Feldmann
SiO₂ Passivation Layers - From the Past to the Future

Haunschild_2BP.1.2

J. Haunschild, N. Bergmann, T. Hammer, K. Krieg, T. Kaden, O. Anspach, H. Schremmer, S. Rein
Inline Characterization of Diamond Wire Sawn Multicrystalline Silicon Wafers

Herrmann_2AO.5.5

D. Herrmann, S. Lohmüller, H. Höffler, A. Fell, A. A. Brand, A. Wolf
Challenges for the Quantification of Metal Induced Recombination Losses

Hess_2BO.1.3

A. Hess, P. Krenckel, T. Trötschler, T. Fehrenbach, S. Riepe
Development of High Performance Multicrystalline Silicon with Controlled Seeding

Hofmann_2BO.4.2

M. Hofmann, D. Wagenmann, C. Teßmann, M. Jäcklein, P. Saint-Cast, D. Eberlein, A. Kraft, T. Dippell, F. May, M. Dörr, B. Cord, T. Schütte, P. Neiß, L. Eichhorn, M. Klick, U. Richter, M. Siemers, P. Wiedemuth
Development of 4 nm-thin PECVD Aluminium Oxide Using Plasma Analysis and Its Application to PERC Solar Cells and Modules

Ivanov_2AO.6.6

A. Ivanov, R. Sorgenfrei, E. Gust, P. Barth, K. Van Nieuwenhuysen, S. Kühnhold-Pospischil, S. Riepe, S. Janz
Optimization of Inline Processes for the Production of Freestanding Epitaxially Grown Thin Films for Solar Cells

Kaden_2AV.1.22

T. Kaden, C. Look, V. Ischenko, M. Gröschel, O. Anspach
Slurry Sawing of Multicrystalline Silicon with Low-Viscosity Carrier Liquid

Kaden_2BO.1.5

T. Kaden, L. Lottspeich
Metal Combination in the Diamond Wire Sawing Process of Silicon and Influence on the Solar Cell Efficiency

Kafle_2AO.6.3

B. Kafle, P. Saint-Cast, U. Belledin, S. Lohmüller, H. Zunft, H. Knauss, P. Palinginis, C. Kusterer, R. Köhler, T. Zehl, A. Wolf, M. Hofmann
Fabrication of APCVD PSG Emitter-Based Industrial PERC Solar Cells Reaching > 21% Conversion Efficiencies

Kafle_2DV.3.72

B. Kafle, A. I. Ridoy, P. Saint-Cast, L. Clochard, E. Duffy, K. Duncker, K. Petter, S. Peters, M. Hofmann
High-Efficiency Diamond Wire-Sawn mc-Si-Based PERC Solar Cells Textured by Atmospheric Pressure Dry Etching

Kiaee_2DV.3.50

Z. Kiaee, C. Reichel, F. Feldmann, M. Jahn, J. D. Huyeng, R. Keding, M. Hermle, F. Clement
Printed Dopant Sources for Locally-Doped SiOx/Poly-Si Passivating Contacts

Kluska_2CO.12.4

S. Kluska, A. Lorenz, B. Grübel, A. Büchler, G. Cimiotti, F. Clement, V. Arya, A. A. Brand, J.-F. Nekarda, J. Bartsch, M. Glatthaar, S. Hörnlein, A. Mette
Plated Fine Line Metallization for PERC Solar Cells

Kraft_5CV.1.33

M. König, T. Zhou, S. Hoffmann, L. Pitta Bauermann, E. Fokuhl, D. Eberlein, A. Kraft, U. Eitner
Novel Power+ Ribbon for Solar Cell Interconnection

Krieg_2AO.4.4

A. Krieg, N. Wöhrle, J. Greulich, M. Rauer, K. Ramspeck, D. Dzafic, S. Rein
IV-Measurements of Bifacial Solar Cells in an Inline Solar Simulator with Double-Side Illumination

Kutter_6BV.1.33

C. Kutter, H. R. Wilson, A. Pfreundt, M. Heinrich, H. Wirth
Light Attenuation Model to Predict Nominal Power of Modules with Light-Scattering Ceramic Printed Front Glasses

Kutter_6AO.8.6

C. Kutter, B. Bläsi, H. R. Wilson, T. Kroyer, M. Mittag, O. Höhn, M. Heinrich
Decorated Building-Integrated Photovoltaic Modules: Power Loss, Color Appearance and Cost Analysis

Lorenz_2DV.3.65

A. Lorenz, M. Linse, H. Frintrup, A. Mette, M. Lehner, R. Greutmann, H. Bocker, M. König, D. Erath, F. Clement
Screen Printed Thick-Film Metallization of Silicon Solar Cells - Recent Developments and Future Perspectives

Mack_2AV.2.33

S. Mack, F. Feldmann, A. Moldovan, M. Lenes, J. M. Luchies, A. Wolf

Impact of Surface Morphology and Interfacial Oxide Thickness on Passivation Quality of p+ Polysilicon Passivating Contacts

Mansour_5CV.3.28

D. E. Mansour, F. Swientek, I. Kaaya, D. Philipp, L. Pitta Bauermann

Nanoindentation Analysis of PV Module Polymeric Components After Accelerated Aging

Mesquita_5CV.3.23

L. Veríssimo Mesquita, D. E. Mansour, L. Pitta Bauermann, D. Philipp

Scanning Acoustic Microscopy as a Non-Destructive Method for the Investigation of PV Module Components

Mittag_6AO.7.5

M. Mittag, M. Ebert, H. R. Wilson, T. Fellmeth

Mosaic Module Concept for Cost-Efficient and Aesthetic BIPV Modules

Mondon_5BO.9.3

A. Mondon, N. Klasen, E. Fokuhl, M. Mittag, M. Heinrich, H. Wirth

Comparison of Layouts for Shingled Bifacial PV Modules in Terms of Power Output, Cell-to-Module Ratio and Bifaciality

Nagel_1AO.3.1

H. Nagel, D. Sonntag, M. Glatthaar, S. W. Glunz

Simple Yet Efficient Electroless Plated AG Rear Side Metallization on Ito for High-Efficiency C-Si Solar Cells

Nekarda_2DV.3.66

J.-F. Nekarda, A. Brand, M. Linse, F. Meyer, F. Clement, R. Preu, J. Schneider, C. Hagendorf, T. Urban, M. Müller, J. Heitmann, M. Ehrl, C. Yüce, N. Willenbacher, T. Große, R. Böhme, M. König, H. Frintrup, P. Fuss-Kailuweit, A. Mette, J. W. Müller

Results of the Project "AdmMo" – Cell and Module Development towards a 318 W Module

Pfreundt_1CV.4.7

A. Pfreundt, M. Mittag

Rapid Calculation of the Backsheet Coupling Gain Using Ray Groups

Philipp_5BO.10.3

D. Philipp, H. Manuel, E. Fokuhl, G. Mülhörer

Hot-Spot Endurance Test - Modifications for Bifacial Photovoltaic Modules

Reise_5CV.1.42

C. Reise, G. Baarah, E. Schnabel, U. Kräling, B. Müller, S. Chang, Y. Choe, H. Cho

From Bifaciality to Yield: How Different Bifacial Cell Technologies May Differ Even More in Annual Outdoor Performance

Ridoy_2AV.2.37

A. I. Ridoy, B. Kafle, P. Saint-Cast, S. Lohmüller (née Werner), M. H. Norouzi, L. Clochard, E. Duffy, M. Hofmann, J. Rentsch, R. Preu

Emitter Formation and Passivation Dependence on Crystal Grains Orientations after Atmospheric Pressure Dry Nanotexturing

Saint-Cast_2BO.3.4

P. Saint-Cast, U. Belledin, E. Lohmüller, B. Kafle, J. Weber, M. Hofmann, A. Wolf, S. Seren

Selective Emitter Using APCVD PSG Layer as Doping Source

Shahid_5DO.8.3

J. Shahid, M. Mittag, M. Heinrich

A Multidimensional Optimization Approach to Improve Module Efficiency, Power and Costs

Siefer_4BV.4.6

M. Steiner, A. Wekkeli, S. Ojha, S. Sardar, J. Singh, V. Singh, J. Singh Chandok, G. Siefer
CPVIndia - Evaluation of a 53 kW CPV System in India

Siefer_4CP.2.1

G. Siefer, B. Schineller, R. Parmesani, T. Kubera, P. Voarino, J. Payet, I. Anton, G. Abagnale, N. Armani, M. Cornelli, A. Minuto, G. Timò, F. Trespidi, R. Alonso, E. Román, D. Lackner, O. Höhn, S.P. Philipps, M. Wiesenfarth, A. W. Bett

Final Results of CPVMatch - Concentrating Photovoltaic Modules Using Advanced Technologies and Cells for Highest Efficiencies

Tayagaki_1AO.1.4

T. Tayagaki, S. K. Reichmuth, H. Helmers, G. Siefer

Luminescent Coupling in Multi-Junction Photovoltaic Devices Studied by Transient Voltage Measurements

Walter_1CO.1.1

J. Walter, J. Stegmaier, A. Kraft, U. Eitner

Analysis of Grain-Size Distribution and Yield Strength of Interconnector Ribbons and Wires at Different Stretching Conditions Using Color Etching

Weber_2BO.3.6

J. Weber, S. Gutscher, S. Lohmüller, E. Lohmüller, A. A. Brand

Laser-Doped Selective Emitter - Process Development and Speed-Up

Wöhrlle_2AV.2.35

N. Wöhrlle, T. Fellmeth, A. Krieg, P. Palinginis, T. Weber, S. Steckemetz, K. Ramspeck, J. Greulich, S. Rein

Industrial biPERC Solar Cells with Varied Rear Side Characteristics under Bifacial Illumination

Würfel_3DO.6.3

U. Würfel, M.A. Yakoob, J. Herterich, L. E. Mundt, M. Kohlstädt

From Cell to Mini-Module – Blade Coating and Controlled Drying for Planar Inverted Perovskite Solar Cells

Zimmer_2AO.6.2

M. Zimmer, L. Mohr, B. Broese, T. Krick, J. Rentsch, B. Mandlmeier, L. Papp, M. Menschick, R. Kogler, A. Strauch, T. Will, V. Meckelin, P. Mutz, D. Korner, M. Kremer

Introduction of smart technologies in PV production equipment