Andreas Fell

List of Publications by Year
in descending order

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		394390	214788
86	2,342	19	47
papers	citations	h-index	g-index

88	88	88	1923
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Optimized front TCO and metal grid electrode for moduleâ€integrated perovskiteâ€“silicon tandem solar cells. Progress in Photovoltaics: Research and Applications, 2022, 30, 374-383.	8.1	10
2	Modeling parasitic absorption in silicon solar cells with a near-surface absorption parameter. Solar Energy Materials and Solar Cells, 2022, 236, 111534.	6.2	8
3	Breakdown of temperature sensitivity of silicon solar cells by simulation input parameters. Solar Energy Materials and Solar Cells, 2021, 219, 110836.	6.2	1
4	Design rules for high-efficiency both-sides-contacted silicon solar cells with balanced charge carrier transport and recombination losses. Nature Energy, 2021, 6, 429-438.	39.5	238
5	On the Influence of the Sample Properties on the Measurement of the Implied Open-Circuit Voltage. IEEE Journal of Photovoltaics, 2021, 11, 715-724.	2.5	5
6	The radiative recombination coefficient of silicon: reassesment of its charge carrier density dependence. , 2021, , .		0
7	Parameterization of the Back-Surface Reflection for PERC Solar Cells Including Variation of Back-Contact Coverage. IEEE Journal of Photovoltaics, 2021, 11, 1136-1140.	2.5	2
8	Microstructure beneath screen-printed silver contacts and its correlation to metallization-induced recombination parameters. Solar Energy Materials and Solar Cells, 2021, 230, 111182.	6.2	5
9	Radiative recombination in silicon photovoltaics: Modeling the influence of charge carrier densities and photon recycling. Solar Energy Materials and Solar Cells, 2021, 230, 111198.	6.2	18
10	Spatially Resolved Determination of Metallization-Induced Recombination Losses Using Photoluminescence Imaging. IEEE Journal of Photovoltaics, 2021, 11, 174-184.	2.5	7
11	The Impact of Mobile Ions on the Steady-State Performance of Perovskite Solar Cells. Journal of Physical Chemistry C, 2020, 124, 219-229.	3.1	13
12	Efficiency Roadmap for Evolutionary Upgrades of PERC Solar Cells by TOPCon: Impact of Parasitic Absorption. IEEE Journal of Photovoltaics, 2020, 10, 335-342.	2.5	59
13	Inhomogeneity of Plated Contacts for c-Si Solar Cells and Their Impact on Solar Cell Efficiency. IEEE Journal of Photovoltaics, 2020, 10, 1455-1462.	2.5	3
14	Spatially Resolved Performance Analysis for Perovskite Solar Cells. Advanced Energy Materials, 2020, 10, 1904001.	19.5	30
15	Why and How to Measure the Non-Metallized Contact Resistivity of a Passivating Contact. , 2020, , .		0
16	An Analytical Model for Resistance-Limited Recombination at Line Defects in Solar Cells. IEEE Journal of Photovoltaics, 2019, 9, 1366-1373.	2.5	3
17	The electrical properties of high performance multicrystalline silicon and mono-like silicon: Material limitations and cell potential. Solar Energy Materials and Solar Cells, 2019, 201, 110059.	6.2	20
18	Limiting Defects in nâ€Type Multicrystalline Silicon Solar Cells. Physica Status Solidi (A) Applications and Materials Science, 2019, 216, 1900331.	1.8	1

#	Article	IF	Citations
19	Analysis of temperature dependent surface recombination properties. AIP Conference Proceedings, 2019, , .	0.4	4
20	Edge recombination analysis of silicon solar cells using photoluminescence measurements. AIP Conference Proceedings, 2019, , .	0.4	7
21	Impact of non-uniform carrier density on the determination of metal induced recombination losses. AIP Conference Proceedings, 2019, , .	0.4	3
22	Numerical Simulations of Photoluminescence for the Precise Determination of Emitter Contact Recombination Parameters. IEEE Journal of Photovoltaics, 2019, 9, 1759-1767.	2.5	12
23	3-D Modeling of Multicrystalline Silicon Materials and Solar Cells. IEEE Journal of Photovoltaics, 2019, 9, 965-973.	2.5	4
24	Prediction of local temperatureâ€dependent performance of silicon solar cells. Progress in Photovoltaics: Research and Applications, 2019, 27, 999-1006.	8.1	11
25	Analysis of Temperature Dependent Characteristics of Diffused Regions in Silicon Solar Cells. , 2019, , .		1
26	Determining the Generation Rate of Silicon Solar Cells from Reflection and Transmission Measurements by Fitting an Analytical Optical Model. , 2019, , .		1
27	Interfacial Dynamics and Contact Passivation in Perovskite Solar Cells. Advanced Electronic Materials, 2019, 5, 1800500.	5.1	25
28	Suns-ILIT: Contact-less determination of local solar cell current-voltage characteristics. Solar Energy Materials and Solar Cells, 2019, 191, 71-77.	6.2	2
29	Backâ€Contacted Backâ€Junction Si Solar Cells with Locally Overcompensated Diffusion Regions â€“ Comparison of Buried Emitter and Floating Base Design. Physica Status Solidi (A) Applications and Materials Science, 2019, 216, 1800791.	1.8	2
30	Influence of Fundamental Model Uncertainties on Silicon Solar Cell Efficiency Simulations. IEEE Transactions on Electron Devices, 2019, 66, 524-532.	3.0	3
31	Modeling Edge Recombination in Silicon Solar Cells. IEEE Journal of Photovoltaics, 2018, 8, 428-434.	2.5	39
32	Impact of bulk impurity contamination on the performance of highâ€efficiency nâ€type silicon solar cells. Progress in Photovoltaics: Research and Applications, 2018, 26, 342-350.	8.1	11
33	The Interaction of Ion Migration with Shockley-Read-Hall Recombination in the Bulk of Perovskite Solar Cells Explains Anomalous Voltage and Luminescence Transients. , 2018, , .		0
34	Efficiency Potential of p-type PERT vs. PERC Solar Cells. , 2018, , .		3
35	A Study on the Charge Carrier Transport of Passivating Contacts. IEEE Journal of Photovoltaics, 2018, 8, 1503-1509.	2.5	41
36	Adaption of Basic Metalâ€“Insulatorâ€“Semiconductor (MIS) Theory for Passivating Contacts Within Numerical Solar Cell Modeling. IEEE Journal of Photovoltaics, 2018, 8, 1546-1552.	2.5	18

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37	Detailed 3D full-cell modeling in Quokka3: Quantifying edge and solder-pad losses in an industrial PERC cell. AIP Conference Proceedings, 2018, , .	0.4	4
38	A Stepâ€byâ€Step Optimization of the câ€Si Bottom Cell in Monolithic Perovskite/câ€Si Tandem Devices. Solar Rrl, 2018, 2, 1800193.	5.8	10
39	Towards the efficiency limits of multicrystalline silicon solar cells. Solar Energy Materials and Solar Cells, 2018, 185, 198-204.	6.2	46
40	Transient Photovoltage in Perovskite Solar Cells: Interaction of Trap-Mediated Recombination and Migration of Multiple Ionic Species. Journal of Physical Chemistry C, 2018, 122, 11270-11281.	3.1	66
41	A Detailed Full-Cell Model of a 2018 Commercial PERC Solar Cell in Quokka3. IEEE Journal of Photovoltaics, 2018, 8, 1443-1448.	2.5	24
42	Characterization of Recombination Properties and Contact Resistivity of Laser-Processed Localized Contacts From Doped Silicon Nanoparticle Ink and Spin-On Dopants. IEEE Journal of Photovoltaics, 2017, 7, 471-478.	2.5	15
43	The concept of skins for silicon solar cell modeling. Solar Energy Materials and Solar Cells, 2017, 173, 128-133.	6.2	91
44	n-Type Si solar cells with passivating electron contact: Identifying sources for efficiency limitations by wafer thickness and resistivity variation. Solar Energy Materials and Solar Cells, 2017, 173, 96-105.	6.2	475
45	Fabrication of a 22.8% Efficient Back Contact Solar Cell With Localized Laserâ€Doping. Physica Status Solidi (A) Applications and Materials Science, 2017, 214, 1700318.	1.8	7
46	Internal resistance of rear totally diffused solar cells with line shaped contacts. Journal of Applied Physics, 2017, 122, .	2.5	5
47	Notice of Removal: Untangling the mysteries of plated metal finger adhesion: Understanding the contributions from plating rate, chemistry, grid geometry and sintering. , 2017, , .		0
48	Contact fault characterisation of complex silicon solar cells: a guideline based on current voltage characteristics and luminescence imaging. Progress in Photovoltaics: Research and Applications, 2016, 24, 326-339.	8.1	2
49	High efficiency UMG silicon solar cells: impact of compensation on cell parameters. Progress in Photovoltaics: Research and Applications, 2016, 24, 725-734.	8.1	19
50	Simplified Device Simulation of Silicon Solar Cells Using a Lumped Parameter Optical Model. IEEE Journal of Photovoltaics, 2016, 6, 611-616.	2.5	20
51	Efficiency Potential of P-Type Al₂O₃/SiN$_{x}$ Passivated PERC Solar Cells With Locally Laser-Doped Rear Contacts. IEEE Journal of Photovoltaics, 2016, 6, 624-631.	2.5	9
52	Extraction of Recombination Properties from Lifetime Data. Energy Procedia, 2016, 92, 88-95.	1.8	8
53	Monitoring of Adhesion for Plated Metallisation: Why Busbar Pull Tests are not Sufficient. Energy Procedia, 2016, 92, 978-983.	1.8	9
54	Untangling the Mysteries of Plated Metal Finger Adhesion: Understanding the Contributions From Plating Rate, Chemistry, Grid Geometry, and Sintering. IEEE Journal of Photovoltaics, 2016, 6, 1167-1174.	2.5	13

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55	Low-temperature micro-photoluminescence spectroscopy on laser-doped silicon with different surface conditions. Applied Physics A: Materials Science and Processing, 2016, 122, 1.	2.3	8
56	Design, fabrication and characterisation of a 24.4% efficient interdigitated back contact solar cell. Progress in Photovoltaics: Research and Applications, 2016, 24, 411-427.	8.1	146
57	Perimeter Recombination Characterization by Luminescence Imaging. IEEE Journal of Photovoltaics, 2016, 6, 244-251.	2.5	14
58	Dislocations in laser-doped silicon detected by micro-photoluminescence spectroscopy. Applied Physics Letters, 2015, 107, .	3.3	27
59	The Impact of N2 Anneal on Laser Processed Silicon. Energy Procedia, 2015, 77, 759-765.	1.8	0
60	High efficiency n-type silicon solar cells with local back surface fields formed by Laser Chemical Processing. , 2015, , .		2
61	Determining the generation profile for silicon solar cells from lumped optical parameters. , 2015, , .		3
62	Electronic Properties of Al p+ Surfaces Formed by Laser Doping from Aluminium Oxide Precursors: Implications for PERC Cell Design and Performance. Energy Procedia, 2015, 77, 321-330.	1.8	4
63	Damage-free ultraviolet nanosecond laser ablation for high efficiency back contact solar cell fabrication. Solar Energy Materials and Solar Cells, 2015, 136, 1-10.	6.2	17
64	Input Parameters for the Simulation of Silicon Solar Cells in 2014. IEEE Journal of Photovoltaics, 2015, 5, 1250-1263.	2.5	141
65	Local Series Resistance Imaging of Silicon Solar Cells With Complex Current Paths. IEEE Journal of Photovoltaics, 2015, 5, 752-758.	2.5	8
66	Contact Resistivity of Evaporated Al Contacts for Silicon Solar Cells. IEEE Journal of Photovoltaics, 2015, 5, 1304-1309.	2.5	8
67	The Impact of Silicon CCD Photon Spread on Quantitative Analyses of Luminescence Images. IEEE Journal of Photovoltaics, 2014, 4, 368-373.	2.5	36
68	The Impact of SiO$_{2}$/SiN $_{m x}$ Stack Thickness on Laser Doping of Silicon Solar Cell. IEEE Journal of Photovoltaics, 2014, 4, 594-600.	2.5	7
69	The Influence of Thermal Effects and Dielectric Films on the Electronic Quality of p⁺-Doped Silicon Processed by Nanosecond Laser. IEEE Journal of Photovoltaics, 2014, 4, 1220-1227.	2.5	3
70	Characterization of Laser-Doped Localized p-n Junctions for High Efficiency Silicon Solar Cells. IEEE Transactions on Electron Devices, 2014, 61, 1943-1949.	3.0	12
71	Quantitative Surface Recombination Imaging of Single Side Processed Silicon Wafers Obtained by Photoluminescence Modeling. Energy Procedia, 2014, 55, 63-70.	1.8	5
72	3-D Simulation of Interdigitated-Back-Contact Silicon Solar Cells With Quokka Including Perimeter Losses. IEEE Journal of Photovoltaics, 2014, 4, 1040-1045.	2.5	62

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73	Reduced feature size and improved quality of liquid jet guided laser processing by controlling the intensity profile. , 2014, , .		0
74	Influence of pulse duration on the doping quality in laser chemical processing (LCP)â€"a simulative approach. Applied Physics A: Materials Science and Processing, 2013, 110, 643-648.	2.3	3
75	Secondary Electron Microscopy Dopant Contrast Image (SEMDCI) for Laser Doping. IEEE Journal of Photovoltaics, 2013, 3, 762-768.	2.5	16
76	Determination of Injection Dependent Recombination Properties of Locally Processed Surface Regions. Energy Procedia, 2013, 38, 22-31.	1.8	20
77	A Free and Fast Three-Dimensional/Two-Dimensional Solar Cell Simulator Featuring Conductive Boundary and Quasi-Neutrality Approximations. IEEE Transactions on Electron Devices, 2013, 60, 733-738.	3.0	217
78	Laser Chemical Metal Deposition for Silicon Solar Cell Metallization. Energy Procedia, 2012, 21, 47-57.	1.8	11
79	Simulation supported description of the local doping formation using laser chemical processing (LCP). Applied Physics A: Materials Science and Processing, 2011, 104, 165-170.	2.3	7
80	Laser cutting of silicon with the liquid jet guided laser using aÂchlorine-containing jet media. Applied Physics A: Materials Science and Processing, 2011, 102, 621-627.	2.3	8
81	Microstructuring and wafering of silicon with laser chemical processing. Proceedings of SPIE, 2010, , .	0.8	3
82	Fast simulation code for heating, phase changes and dopant diffusion in silicon laser processing using the alternating direction explicit (ADE) method. Applied Physics A: Materials Science and Processing, 2010, 98, 435-440.	2.3	18
83	Potential and limits of chemical enhanced deep cutting of silicon with a coupled laser-liquid jet. Journal of Laser Applications, 2009, 21, 27-31.	1.7	5
84	Comparison of Laser Chemical Processing and LaserMicroJet forÂstructuring and cutting silicon substrates. Applied Physics A: Materials Science and Processing, 2009, 95, 857-866.	2.3	14
85	Transient 3D/2D simulation of laser-induced ablation of silicon. Applied Physics A: Materials Science and Processing, 2008, 92, 987-991.	2.3	19
86	Laser Chemical Processing (LCP)â€"A versatile tool forÂmicrostructuring applications. Applied Physics A: Materials Science and Processing, 2008, 93, 99-103.	2.3	64