Karsten Bittkau

List of Publications by Year
in descending order

64 papers	681 citations	516215 16 h-index	580395 25 g-index
68 all docs	68 docs citations	68 times ranked	1072 citing authors

#	Article	IF	Citations
1	Light localization at randomly textured surfaces for solar-cell applications. Applied Physics Letters, 2007, 91, 171104.	1.5	69
2	Manipulating the Net Radiative Recombination Rate in Lead Halide Perovskite Films by Modification of Light Outcoupling. Journal of Physical Chemistry Letters, 2017, 8, 5084-5090.	2.1	51
3	Cloaked contact grids on solar cells by coordinate transformations: designs and prototypes. Optica, 2015, 2, 850.	4.8	50
4	Optical design of spectrally selective interlayers for perovskite/silicon heterojunction tandem solar cells. Optics Express, 2018, 26, A750.	1.7	39
5	Nanoscale Observation of Waveguide Modes Enhancing the Efficiency of Solar Cells. Nano Letters, 2014, 14, 6599-6605.	4.5	34
6	Transparent-conductive-oxide-free front contacts for high-efficiency silicon heterojunction solar cells. Joule, 2021, 5, 1535-1547.	11.7	34
7	Random versus periodic: Determining light trapping of randomly textured thin film solar cells by the superposition of periodic surface textures. Solar Energy Materials and Solar Cells, 2015, 143, 183-189.	3.0	31
8	Front contact optimization for rear-junction SHJ solar cells with ultra-thin n-type nanocrystalline silicon oxide. Solar Energy Materials and Solar Cells, 2020, 209, 110471.	3.0	31
9	Nanoscale investigation of lightâ€trapping in aâ€Si:H solar cell structures with randomly textured interfaces. Physica Status Solidi (A) Applications and Materials Science, 2008, 205, 2766-2776.	0.8	27
10	Advancing tandem solar cells by spectrally selective multilayer intermediate reflectors. Optics Express, 2014, 22, A1270.	1.7	26
11	Light trapping in thin film silicon solar cells via phase separated disordered nanopillars. Nanoscale, 2018, 10, 6651-6659.	2.8	23
12	Developing design criteria for organic solar cells using well-absorbing non-fullerene acceptors. Communications Physics, 2018, 1, .	2.0	23
13	A route towards highâ€efficiency silicon heterojunction solar cells. Progress in Photovoltaics: Research and Applications, 2022, 30, 384-392.	4.4	22
14	Investigation of the impact of the rearâ€dielectric/silver back reflector design on the optical performance of thinâ€film silicon solar cells by means of detached reflectors. Progress in Photovoltaics: Research and Applications, 2013, 21, 1236-1247.	4.4	19
15	Flexible thin film solar cells on cellulose substrates with improved light management. Physica Status Solidi (A) Applications and Materials Science, 2017, 214, 1700070.	0.8	19
16	Improved Infrared Light Management with Transparent Conductive Oxide/Amorphous Silicon Back Reflector in Highâ€Efficiency Silicon Heterojunction Solar Cells. Solar Rrl, 2021, 5, 2000576.	3.1	17
17	Influence of Interface Textures on Light Management in Thin-Film Silicon Solar Cells With Intermediate Reflector. IEEE Journal of Photovoltaics, 2015, 5, 33-39.	1.5	15
18	Influence of Oxygen on Sputtered Titaniumâ€Doped Indium Oxide Thin Films and Their Application in Silicon Heterojunction Solar Cells. Solar Rrl, 2021, 5, 2000501.	3.1	15

#	Article	IF	Citations
19	Ray tracing for the optics at nanoâ€textured ZnOâ€“air and ZnOâ€“silicon interfaces. Progress in Photovoltaics: Research and Applications, 2011, 19, 724-732.	4.4	13
20	On the geometry of plasmonic reflection grating back contacts for light trapping in prototype amorphous silicon thin-film solar cells. Journal of Photonics for Energy, 2014, 5, 057004.	0.8	12
21	Comparison of LPCVD and sputter-etched ZnO layers applied as front electrodes in tandem thin-film silicon solar cells. Solar Energy Materials and Solar Cells, 2016, 145, 185-192.	3.0	11
22	Angular dependence of light trapping in nanophotonic thin-film solar cells. Optics Express, 2015, 23, A1575.	1.7	10
23	Mapping the conducting channels formed along extended defects in SrTiO3 by means of scanning near-field optical microscopy. Scientific Reports, 2020, 10, 17763.	1.6	9
24	Review and Harmonization of the Life-Cycle Global Warming Impact of PV-Powered Hydrogen Production by Electrolysis. Frontiers in Electronics, 2021, 2, .	2.0	9
25	Function Analysis of the Phosphine Gas Flow for n-Type Nanocrystalline Silicon Oxide Layer in Silicon Heterojunction Solar Cells. ACS Applied Energy Materials, 2021, 4, 7544-7551.	2.5	8
26	Influence of film formation on light-trapping properties of randomly textured silicon thin-film solar cells. Applied Physics Express, 2014, 7, 082301.	1.1	7
27	Effect of oxygen and hydrogen flow ratio on indium tin oxide films in rear-junction silicon heterojunction solar cells. Solar Energy, 2022, 231, 578-585.	2.9	7
28	Fourier analysis for the study of light scattering properties of randomly textured ZnO films. Proceedings of SPIE, 2010, , .	0.8	6
29	Inkjet-printed internal light extraction layers for organic light emitting diodes. Flexible and Printed Electronics, 2018, 3, 015007.	1.5	6
30	Analysis of light propagation in thin-film solar cells by dual-probe scanning near-field optical microscopy. , 2014, , .		4
31	Optical Optimization Potential of Transparentâ€Passivated Contacts in Silicon Solar Cells. Solar Rrl, 0, , 2101050.	3.1	4
32	Nanoscale Investigation of Polarization-Dependent Light Coupling to Individual Waveguide Modes in Nanophotonic Thin-Film Solar Cells. IEEE Journal of Photovoltaics, 2015, 5, 1523-1527.	1.5	3
33	Coupling Incident Light to Guided Modes in Thin-Film Tandem Solar Cells With Intermediate Reflector. IEEE Journal of Photovoltaics, 2015, 5, 3-8.	1.5	3
34	Towards a Multi-scale Approach to the Simulation of Silicon Hetero-junction Solar Cells. Journal of Green Engineering (discontinued), 2016, 5, 11-32.	0.7	3
35	Prototyping of nanophotonic grating back contacts for light trapping in planar silicon solar cells. Physica Status Solidi (A) Applications and Materials Science, 2016, 213, 1949-1954.	0.8	3
36	Analysis of parasitic losses due to intermediate reflectors in silicon tandem solar cells. Solar Energy Materials and Solar Cells, 2017, 163, 185-190.	3.0	3

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37	Broadening of Light Coupling to Waveguide Modes in Solar Cells by Disordered Grating Textures. Applied Sciences (Switzerland), 2017, 7, 725.	1.3	3
38	Effect of topography-dependent light coupling through a near-field aperture on the local photocurrent of a solar cell. Physical Chemistry Chemical Physics, 2018, 20, 1098-1104.	1.3	3
39	Design of deterministic light-trapping structures for thin silicon heterojunction solar cells. Optics Express, 2021, 29, 7410.	1.7	2
40	In-situ determination of the effective absorbance of thinÎ¼c-Si:H layers growing on rough ZnO:Al. EPJ Photovoltaics, 2013, 4, 40602.	0.8	1
41	Geometrical Light Trapping in Thin c-Si Solar Cells beyond Lambertian Limit. , 2019, , .		1
42	Utilization of ultra-thin n-type Hydrogenated Nanocrystalline Silicon for Silicon Heterojunction Solar Cells. , 2021, , .		1
43	Photon Management in Thin Film Solar Cells. , 2009, , .		1
44	Impact of Periodicity of Inverted Pyramids on Anti-reflection and Light-trapping Properties in Silicon Heterojunction Solar Cells. , 2017, , .		1
45	Nano-scale Investigation of Light Scattering at Randomly Textured Light Trapping Structures for Thin-film Silicon Solar Cells. Materials Research Society Symposia Proceedings, 2008, 1101, 1.	0.1	0
46	Optimizing the geometry of plasmonic reflection grating back contacts for improved light trapping in prototype amorphous silicon thin-film solar cells. Proceedings of SPIE, 2014, , .	0.8	0
47	Investigation of the influence of the scanning probe on SNOM near-field images using rigorous simulations including the probe. Proceedings of SPIE, 2014, , .	0.8	0
48	Nanophotonic Light Management in Thin-Film Solar Cells. , 2014, , .		0
49	Controlling disorder for improved light management in solar cells. , 2015, , .		0
50	Simulation of light in-coupling through an aperture probe to investigate light propagation in a thin layer for opto-electronic application. Proceedings of SPIE, 2015, , .	0.8	0
51	Nanoscale investigation of polarization-dependent light coupling to individual waveguide modes of nanophotonic thin-film solar cells. , 2015, , .		0
52	Efficient post passivation light-management concepts for silicon heterojunction solar cells. , 2016, , .		0
53	Electro-optical characterization of solar cells with scanning near-field optical microscopy. , 2016, , .		0
54	Optical simulation of tailored disorder for nanophotonic thin-film solar cells. , 2016, , .		0

#	Article	IF	Citations
55	Efficient light trapping in silicon heterojunction solar cells via nanoimprint periodic texturing. , 2018, , .		0
56	The Impact of Reflectance Variation in Silicon Heterojunction Solar Cells and Modules on the Perception of Color Differences. IEEE Journal of Photovoltaics, 2021, 11, 306-311.	1.5	0
57	Achieving a high Short Circuit Current Density of 40.9 mA/cmÂ² for Two-Side Contacted Silicon Heterojunction Solar Cells by using SiC-based Transparent Passivating Contacts. , 2021, , .		0
58	Numerical study of Silicon Heterojunction Solar Cells with nc-SiC/SiO2 Based Transparent Passivating Contact. , 2021, , .		0
59	Designing randomness - the impact of textured surfaces on the efficiency of thin-film solar cells. , 2008, , .		0
60	Plasmonic Reflection-Grating Back Contacts for Light Trapping in Thin-Film Silicon Solar Cells. , 2012, , .		0
61	Opaline backside structures for photon management in solar cells. , 2015, , .		0
62	Light Management in Thin Film Solar Cells using Internal Scattering layers made by Polymer Blend Lithography. , 2016, , .		0
63	Rigorous modeling of light absorption in nanostructured materials using a parallel high order finite element time-domain technique. , 2018, , .		0
64	Low- and high-index self-assembled nanopillars as light outcoupling elements in organic light emitting diodes. , 2019, , .		0