Benedikt BlÃ¤si

List of Publications by Year
in descending order

Version: 2024-02-01

112 papers	2,086 citations	201674 27 h-index	265206 42 g-index
119 all docs	119 docs citations	119 times ranked	2059 citing authors

#	Article	IF	Citations
1	Twoâ€terminal IIIâ€“V//Si tripleâ€junction solar cell with power conversion efficiency of 35.9Â% at AM1.5g. Progress in Photovoltaics: Research and Applications, 2022, 30, 869-879.	8.1	53
2	Modeling the optical properties of Morpho-inspired thin-film interference filters on structured surfaces. Optics Express, 2022, 30, 14586.	3.4	3
3	Light trapping gratings for solar cells: an analytical period optimization approach. Optics Express, 2022, 30, 24762.	3.4	5
4	Experimental validation of a modeling framework for upconversion enhancement in 1D-photonic crystals. Nature Communications, 2021, 12, 104.	12.8	22
5	Impact of the refractive index on coupling structures for silicon solar cells. Journal of Photonics for Energy, 2021, 11, .	1.3	2
6	Impact of Irradiance Data on the Energy Yield Modeling of Dual-Junction Solar Module Stacks for One-Sun Applications. IEEE Journal of Photovoltaics, 2021, 11, 692-698.	2.5	3
7	Optimizing metal grating back reflectors for III-V-on-silicon multijunction solar cells. Optics Express, 2021, 29, 22517.	3.4	5
8	The MorphoColor Concept for Colored Photovoltaic Modules. IEEE Journal of Photovoltaics, 2021, 11, 1305-1311.	2.5	21
9	Tailored disorder: a self-organized photonic contact for light trapping in silicon-based tandem solar cells. Optics Express, 2020, 28, 10909.	3.4	11
10	Coupling Structures on the Front of the Cell: Which Refrac-tive Index is Needed for Good Light Trapping?. , 2020, , .		0
11	Modeling and realization of photonic structures for silicon-based tandem solar cells. , 2020, , .		0
12	Broadband antireflection Mie scatterers revisitedâ€”a solar cell and module analysis. Optics Express, 2019, 27, A524.	3.4	5
13	Upconversion performance enhancement in real 1D photonic crystals: simulation, experiment and perspectives for photovoltaics. , 2019, , .		0
14	IIIâ€“V-on-silicon solar cells reaching 33% photoconversion efficiency in two-terminal configuration. Nature Energy, 2018, 3, 326-333.	39.5	244
15	Soft thermal nanoimprint of PMMA doped with upconverter nanoparticles. Microelectronic Engineering, 2018, 187-188, 154-159.	2.4	5
16	Light scattering at random pyramid textures: Effects beyond geometric optics. AIP Conference Proceedings, 2018, , .	0.4	3
17	Optical modeling of structured silicon-based tandem solar cells and module stacks. Optics Express, 2018, 26, A761.	3.4	13
18	Theoretical study of pyramid sizes and scattering effects in silicon photovoltaic module stacks. Optics Express, 2018, 26, A320.	3.4	26

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19	Advanced module optics of textured perovskite silicon tandem solar cells. , 2018, , .		2
20	Field stitching approach for the wave optical modeling of black silicon structures. Optics Express, 2018, 26, A937.	3.4	4
21	Nanoimprinted sol-gel materials for antireflective structures on silicon solar cells. , 2018, , .		0
22	Photonic structures for III-V//Si multijunction solar cells with efficiency >33%. , 2018, , .		4
23	Interference and nanoimprint lithography for the patterning of large areas. , 2017, , .		0
24	Characterizing the degradation of PDMS stamps in nanoimprint lithography. Microelectronic Engineering, 2017, 180, 40-44.	2.4	27
25	Optical performance of the honeycomb texture â€“ a cell and module level analysis using the OPTOS formalism. Solar Energy Materials and Solar Cells, 2017, 173, 66-71.	6.2	5
26	Impact of Front Side Pyramid Size on the Light Trapping Performance of Wafer Based Silicon Solar Cells and Modules. , 2017, , .		5
27	Efficient optical analysis of surface texture combinations for silicon solar cells. , 2016, , .		0
28	Rear side gratings for silicon solar cells: efficiency enhancement finally demonstrated. Proceedings of SPIE, 2016, , .	0.8	1
29	Nanoparticle scattering for multijunction solar cells. Proceedings of SPIE, 2016, , .	0.8	0
30	Large area patterning using interference and nanoimprint lithography. Proceedings of SPIE, 2016, , .	0.8	7
31	Optical Modeling of Honeycomb Textures for Multicrystalline Silicon Solar Cells. IEEE Journal of Photovoltaics, 2016, 6, 1480-1487.	2.5	7
32	Nanoparticle Scattering for Multijunction Solar Cells: The Tradeoff Between Absorption Enhancement and Transmission Loss. IEEE Journal of Photovoltaics, 2016, 6, 1678-1687.	2.5	12
33	Efficiency increase of crystalline silicon solar cells with nanoimprinted rear side gratings for enhanced light trapping. Solar Energy Materials and Solar Cells, 2016, 155, 288-293.	6.2	36
34	Optical simulation of photovoltaic modules with multiple textured interfaces using the matrix-based formalism OPTOS. Optics Express, 2016, 24, A1083.	3.4	39
35	Wave optical simulation of the light trapping properties of black silicon surface textures. Optics Express, 2016, 24, A434.	3.4	42
36	Coloured Module Glass for BIPV inspired by Morpho Butterfly. , 2016, , .		3

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37	Monolithic Perovskite Silicon Tandem Solar Cells with Advanced Optics. , 2016, , .		0
38	3D optical simulation formalism OPTOS for textured silicon solar cells. Optics Express, 2015, 23, A1720.	3.4	56
39	Honeycomb Structure on Multi-crystalline Silicon Al-BSF Solar Cell With 17.8% Efficiency. IEEE Journal of Photovoltaics, 2015, 5, 1027-1033.	2.5	27
40	Crystalline Silicon Solar Cells with Enhanced Light Trapping via Rear Side Diffraction Grating. Energy Procedia, 2015, 77, 253-262.	1.8	20
41	Development of nanoimprint processes for photovoltaic applications. Journal of Micro/ Nanolithography, MEMS, and MOEMS, 2015, 14, 031210.	0.9	27
42	Cloaked contact grids on solar cells by coordinate transformations: designs and prototypes. Optica, 2015, 2, 850.	9.3	50
43	Rear side sphere gratings for improved light trapping in crystalline silicon single junction and silicon-based tandem solar cells. Solar Energy Materials and Solar Cells, 2015, 142, 60-65.	6.2	35
44	Matrix formalism for light propagation and absorption in thick textured optical sheets. Optics Express, 2015, 23, A502.	3.4	40
45	Impact of Photon Recycling on GaAs Solar Cell Designs. IEEE Journal of Photovoltaics, 2015, 5, 1636-1645.	2.5	70
46	Effects of angular confinement and concentration to realistic solar cells. Journal of Applied Physics, 2015, 117, 034503.	2.5	7
47	Development of NIL processes for PV applications. Proceedings of SPIE, 2015, , .	0.8	0
48	Optical properties of textured sheets: an efficient matrix-based modelling approach. Proceedings of SPIE, 2015, , .	0.8	1
49	Diffractive Gratings for Light Trapping in Crystalline Silicon Solar Cells. , 2015, , .		0
50	The photonic solar cell: system design and efficiency estimations. , 2014, , .		4
51	Hexagonal sphere gratings for enhanced light trapping in crystalline silicon solar cells. Optics Express, 2014, 22, A111.	3.4	30
52	Maximal power output by solar cells with angular confinement. Optics Express, 2014, 22, A715.	3.4	19
53	Optoelectronic simulation of GaAs solar cells with angularly selective filters. Journal of Applied Physics, 2014, 115, .	2.5	15
54	Novel light trapping concepts for crystalline silicon solar cells using diffractive rear side structures. Proceedings of SPIE, 2014, , .	0.8	6

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55	Study of plasmonic nanoparticle arrays for photon management in solar cells. , 2014, , .		2
56	Large area plasmonic nanoparticle arrays with well-defined size and shape. Optical Materials Express, 2014, 4, 944.	3.0	11
57	Nanoimprinted diffraction gratings for crystalline silicon solar cells: implementation, characterization and simulation. Optics Express, 2013, 21, A295.	3.4	53
58	Photonic structures for enhanced upconversion. , 2013, , .		0
59	Increased upconversion quantum yield in photonic structures due to local field enhancement and modification of the local density of states â€“ a simulation-based analysis. Optics Express, 2013, 21, A883.	3.4	32
60	GaAs solar cells close to the thermodynamic limit. , 2013, , .		0
61	Preparation of periodically arranged metallic nanostructures using nanoimprint lithography. Proceedings of SPIE, 2012, , .	0.8	0
62	Comparison of periodic and random structures for scattering in thin-film microcrystalline silicon solar cells. , 2012, , .		6
63	Optimization of angularly selective photonic filters for concentrator photovoltaic. Proceedings of SPIE, 2012, , .	0.8	12
64	Advanced Modelling of Silicon Wafer Solar Cells. Japanese Journal of Applied Physics, 2012, 51, 10NA06.	1.5	1
65	Comparison between periodic and stochastic parabolic light trapping structures for thin-film microcrystalline Silicon solar cells. Optics Express, 2012, 20, 29488.	3.4	8
66	Electromagnetic simulations of a photonic luminescent solar concentrator. Optics Express, 2012, 20, A157.	3.4	25
67	Increasing upconversion by metal and dielectric nanostructures. Proceedings of SPIE, 2012, , .	0.8	1
68	Nano-imprinted rear-side diffraction gratings for absorption enhancement in solar cells. Proceedings of SPIE, 2012, , .	0.8	0
69	Effects of photonic structures on upconversion. , 2012, , .		1
70	Honeycomb Texturing of Silicon Via Nanoimprint Lithography for Solar Cell Applications. IEEE Journal of Photovoltaics, 2012, 2, 114-122.	2.5	54
71	Photon management structures for solar cells. , 2012, , .		9
72	Optical Simulation of Silicon Thin-Film Solar Cells. Energy Procedia, 2012, 15, 212-219.	1.8	8

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73	Diffractive Backside Structures via Nanoimprint Lithography. Energy Procedia, 2012, 27, 337-342.	1.8	18
74	Origination of nano- and microstructures on large areas by interference lithography. Microelectronic Engineering, 2012, 98, 293-296.	2.4	51
75	Diffractive gratings for crystalline silicon solar cellsâ€"optimum parameters and loss mechanisms. Progress in Photovoltaics: Research and Applications, 2012, 20, 862-873.	8.1	65
76	Efficiency limit and example of a photonic solar cell. Journal of Applied Physics, 2011, 110, 043104.	2.5	9
77	Nanoimprint Lithography for Honeycomb Texturing of Multicrystalline Silicon. Energy Procedia, 2011, 8, 648-653.	1.8	28
78	Photon Management Structures Originated by Interference Lithography. Energy Procedia, 2011, 8, 712-718.	1.8	18
79	Directionally selective light trapping in a germanium solar cell. Optics Express, 2011, 19, A136.	3.4	15
80	Towards photonic luminescent solar concentrators. Proceedings of SPIE, 2011, , .	0.8	1
81	Realization and evaluation of diffractive systems on the back side of silicon solar cells. Proceedings of SPIE, 2010, , .	0.8	9
82	Increasing fluorescent concentrator light collection efficiency by restricting the angular emission characteristic of the incorporated luminescent material: the 'Nano-Fluko' concept. Proceedings of SPIE, 2010, , .	0.8	21
83	Angular confinement and concentration in photovoltaic converters. Solar Energy Materials and Solar Cells, 2010, 94, 1393-1398.	6.2	29
84	Spectrally-Selective Photonic Structures for PV Applications. Energies, 2010, 3, 171-193.	3.1	71
85	Nanoimprint lithography for solar cell texturisation. Proceedings of SPIE, 2010, , .	0.8	11
86	Photonic crystals in solar cells: a simulation approach. , 2010, , .		7
87	Enhanced light trapping in thin amorphous silicon solar cells by directionally selective optical filters. , 2010, , .		1
88	Enhanced light trapping in thin-film solar cells by a directionally selective filter. Optics Express, 2010, 18, A133.	3.4	30
89	Electro â€“ optical simulation of diffraction in solar cells. Optics Express, 2010, 18, A584.	3.4	27
90	Microstructured Polymer Surfaces with Complex Optical Functions for Solar Applications. Handbook of Environmental Chemistry, 2009, , 263-279.	0.4	1

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91	The photonic light trapâ€"Improved light trapping in solar cells by angularly selective filters. Solar Energy Materials and Solar Cells, 2009, 93, 1721-1727.	6.2	41
92	The effect of photonic structures on the light guiding efficiency of fluorescent concentrators. Journal of Applied Physics, 2009, 105, .	2.5	30
93	The Moth-Eye Effect â€" From Fundamentals to Commercial Exploitation. , 2009, , 79-102.		8
94	Theoretical and experimental analysis of photonic structures for fluorescent concentrators with increased efficiencies. Physica Status Solidi (A) Applications and Materials Science, 2008, 205, 2811-2821.	1.8	52
95	Widely Tunable Micro-Mechanical External-Cavity Diode Laser Emitting Around 2.1 mum. IEEE Journal of Quantum Electronics, 2008, 44, 1071-1075.	1.9	3
96	Design of photonic structures for the enhancement of the light guiding efficiency of fluorescent concentrators. , 2008, , .		3
97	Nanostructures on microstructured surfaces. Microsystem Technologies, 2007, 13, 483-486.	2.0	5
98	Measurement of the Spatial Uniformity of a Large Field Microstructured Retarder. , 2006, , .		0
99	Rigorous validation of the lateral Goos-HÃƒÂnchen shift in microstructured sun shading systems. , 2006, , .		1
100	Investigation of structured TiAlN- and TiO2-coatings with moth-eye-like surface morphologies. Surface and Coatings Technology, 2005, 200, 1088-1092.	4.8	11
101	Applications for TiAlN- and TiO2-coatings with nanoscale surface topographies. Surface and Coatings Technology, 2005, 200, 1555-1559.	4.8	24
102	Functional substrates for flexible organic photovoltaic cells. , 2005, 5938, 593802.		1
103	Maskless origination of microstructures with optical functions on large areas. , 2005, 5751, 1003.		3
104	Some application cases and related manufacturing techniques for optically functional microstructures on large areas. Optical Engineering, 2004, 43, 2525.	1.0	66
105	A rigorous study of diffraction effects on the transmission of linear dielectric micro-reflector arrays. Journal of Optics, 2004, 6, 952-960.	1.5	8
106	Large-area origination and replication of microstructures with optical functions. , 2004, , .		2
107	Replicated microstructures with optical functions in solar and display applications. , 2003, 5184, 60.		8
108	Periodic microstructures for large area applications generated by holography. , 2001, , .		12

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109	Glazing with very high solar transmittance. Solar Energy, 1998, 62, 177-188.	6.1	58
110	Antireflective submicrometer surface-relief gratings for solar applications. Solar Energy Materials and Solar Cells, 1998, 54, 333-342.	6.2	67
111	Realism and time symmetry in quantum mechanics. Physics Letters, Section A: General, Atomic and Solid State Physics, 1995, 207, 119-125.	2.1	6
112	Large-area patterning using interference and nanoimprint lithography. SPIE Newsroom, 0, , .	0.1	5