Uwe Rau

List of Publications by Year
in descending order

399 papers	17,230 citations	11646 70 h-index	21539 114 g-index
435 all docs	435 docs citations	435 times ranked	10906 citing authors

#	Article	IF	Citations
1	Reciprocity relation between photovoltaic quantum efficiency and electroluminescent emission of solar cells. Physical Review B, 2007, 76, .	3.2	956
2	Electronic properties of Cu(In,Ga)Se 2 heterojunction solar cells-recent achievements, current understanding, and future challenges. Applied Physics A: Materials Science and Processing, 1999, 69, 131-147.	2.3	522
3	Recombination via tail states in polythiophene:fullerene solar cells. Physical Review B, 2011, 83, .	3.2	345
4	Electronic properties of CuGaSe2-based heterojunction solar cells. Part I. Transport analysis. Journal of Applied Physics, 2000, 87, 584-593.	2.5	313
5	Open-Circuit Voltages Exceeding 1.26 V in Planar Methylammonium Lead Iodide Perovskite Solar Cells. ACS Energy Letters, 2019, 4, 110-117.	17.4	296
6	Efficiency Potential of Photovoltaic Materials and Devices Unveiled by Detailed-Balance Analysis. Physical Review Applied, 2017, 7, .	3.8	252
7	Interdependence of absorber composition and recombination mechanism in Cu(In,Ga)(Se,S)2 heterojunction solar cells. Applied Physics Letters, 2002, 80, 2598-2600.	3.3	248
8	Stability Issues of Cu(In,Ga)Se2-Based Solar Cells. Journal of Physical Chemistry B, 2000, 104, 4849-4862.	2.6	235
9	Efficiency limitations of polycrystalline thin film solar cells: case of Cu(In,Ga)Se2. Thin Solid Films, 2005, 480-481, 399-409.	1.8	223
10	Electronic properties of ZnO/CdS/Cu(In,Ga)Se2 solar cells â€" aspects of heterojunction formation. Thin Solid Films, 2001, 387, 141-146.	1.8	221
11	Efficiency Limits of Organic Bulk Heterojunction Solar Cells. Journal of Physical Chemistry C, 2009, 113, 17958-17966.	3.1	215
12	Radiative efficiency limits of solar cells with lateral band-gap fluctuations. Applied Physics Letters, 2004, 84, 3735-3737.	3.3	209
13	A new approach to high-efficiency solar cells by band gap grading in Cu(In,Ga)Se2 chalcopyrite semiconductors. Solar Energy Materials and Solar Cells, 2001, 67, 145-150.	6.2	206
14	Beyond Bulk Lifetimes: Insights into Lead Halide Perovskite Films from Time-Resolved Photoluminescence. Physical Review Applied, 2016, 6, .	3.8	194
15	Influence of the Ga-content on the bulk defect densities of Cu(In,Ga)Se2. Thin Solid Films, 2001, 387, 71-73.	1.8	192
16	Model for electronic transport in Cu(In,Ga)Se2 solar cells. Progress in Photovoltaics: Research and Applications, 1998, 6, 407-421.	8.1	190
17	High quality baseline for high efficiency, Cu(In1â^'x,Gax)Se2 solar cells. Progress in Photovoltaics: Research and Applications, 2007, 15, 507-519.	8.1	175
18	Oxygenation and air-annealing effects on the electronic properties of Cu(In,Ga)Se2 films and devices. Journal of Applied Physics, 1999, 86, 497-505.	2.5	174

#	Article	IF	Citations
19	Influence of sodium on the growth of polycrystalline Cu(In,Ga)Se 2 thin films. Thin Solid Films, 2000, 361-362, 161-166.	1.8	173
20	What Makes a Good Solar Cell?. Advanced Energy Materials, 2018, 8, 1703385.	19.5	167
21	Thermodynamics of light management in photovoltaic devices. Physical Review B, 2014, 90, .	3.2	163
22	Grain boundaries in Cu(In,â€‰Ga)(Se,â€‰S)2 thin-film solar cells. Applied Physics A: Materials Science and Processing, 2009, 96, 221-234.	2.3	158
23	Multijunction Si photocathodes with tunable photovoltages from 2.0 V to 2.8 V for light induced water splitting. Energy and Environmental Science, 2016, 9, 145-154.	30.8	156
24	Guide for the perplexed to the Shockleyâ€"Queisser model for solar cells. Nature Photonics, 2019, 13, 501-505.	31.4	153
25	How to Report Record Openâ€Circuit Voltages in Leadâ€Halide Perovskite Solar Cells. Advanced Energy Materials, 2020, 10, 1902573.	19.5	153
26	Back surface band gap gradings in Cu(In,Ga)Se2 solar cells. Thin Solid Films, 2001, 387, 11-13.	1.8	140
27	Tunneling-enhanced recombination in Cu(In,â€ŠGa)Se2 heterojunction solar cells. Applied Physics Letters, 1999, 74, 111-113.	3.3	137
28	Internal voltages in GaInPâˆ•GaInAsâˆ•Ge multijunction solar cells determined by electroluminescence measurements. Applied Physics Letters, 2008, 92, .	3.3	136
29	Optimization and characterization of amorphous/crystalline silicon heterojunction solar cells. Progress in Photovoltaics: Research and Applications, 2002, 10, 1-13.	8.1	131
30	Impact of Photon Recycling on the Open-Circuit Voltage of Metal Halide Perovskite Solar Cells. ACS Energy Letters, 2016, 1, 731-739.	17.4	130
31	Electronic Transport in Dye-Sensitized Nanoporous TiO2Solar CellsComparison of Electrolyte and Solid-State Devices. Journal of Physical Chemistry B, 2003, 107, 3556-3564.	2.6	126
32	Plasmonic reflection grating back contacts for microcrystalline silicon solar cells. Applied Physics Letters, 2011, 99, .	3.3	122
33	Phase segregation, Cu migration and junction formation in Cu(In,ÂGa)Se2. EPJ Applied Physics, 1999, 6, 131-139.	0.7	121
34	Electronic loss mechanisms in chalcopyrite based heterojunction solar cells. Thin Solid Films, 2000, 361-362, 298-302.	1.8	118
35	Understanding Transient Photoluminescence in Halide Perovskite Layer Stacks and Solar Cells. Advanced Energy Materials, 2021, 11, 2003489.	19.5	117
36	Recombination mechanisms in amorphous silicon/crystalline silicon heterojunction solar cells. Journal of Applied Physics, 2000, 87, 2639-2645.	2.5	113

#	Article	IF	Citations
37	Detailed balance and reciprocity in solar cells. Physica Status Solidi (A) Applications and Materials Science, 2008, 205, 2737-2751.	1.8	112
38	Composition dependence of defect energies and band alignments in the Cu(In1âˆ’xGax)(Se1âˆ’ySy)2 alloy system. Journal of Applied Physics, 2002, 91, 1391-1399.	2.5	111
39	Understanding junction breakdown in multicrystalline solar cells. Journal of Applied Physics, 2011, 109, .	2.5	111
40	Efficiency limits of photovoltaic fluorescent collectors. Applied Physics Letters, 2005, 87, 171101.	3.3	109
41	Influence of Cu content on electronic transport and shunting behavior of Cu(In,Ga)Se2 solar cells. Journal of Applied Physics, 2006, 99, 014906.	2.5	109
42	Electrical characterization of Cu(In,Ga)Se2 thin-film solar cells and the role of defects for the device performance. Solar Energy Materials and Solar Cells, 2001, 67, 137-143.	6.2	108
43	Light absorption and emission in semiconductors with band gap fluctuationsâ€”A study on Cu(In,Ga)Se2 thin films. Journal of Applied Physics, 2007, 101, 113519.	2.5	106
44	Cu(In,Ga)Se2 Solar Cells: Device Stability Based on Chemical Flexibility. Advanced Materials, 1999, 11, 957-961.	21.0	103
45	Microcrystalline siliconâ€“oxygen alloys for application in silicon solar cells and modules. Solar Energy Materials and Solar Cells, 2013, 119, 134-143.	6.2	103
46	Quantitative analysis of the transient photoluminescence of CH₃NH₃PbI₃/PC₆₁BM heterojunctions by numerical simulations. Sustainable Energy and Fuels, 2018, 2, 1027-1034.	4.9	103
47	Upscaling of integrated photoelectrochemical water-splitting devices to large areas. Nature Communications, 2016, 7, 12681.	12.8	101
48	Detailed balance theory of excitonic and bulk heterojunction solar cells. Physical Review B, 2008, 78, .	3.2	99
49	Defect generation in Cu(In,Ga)Se2 heterojunction solar cells by high-energy electron and proton irradiation. Journal of Applied Physics, 2001, 90, 650-658.	2.5	98
50	Interface redox engineering of Cu(In,Ga)Se 2 â€“ based solar cells: oxygen, sodium, and chemical bath effects. Thin Solid Films, 2000, 361-362, 353-359.	1.8	96
51	Electronic properties of CuGaSe2-based heterojunction solar cells. Part II. Defect spectroscopy. Journal of Applied Physics, 2000, 87, 594-602.	2.5	96
52	Comparative study of electroluminescence from Cu(In,Ga)Se2 and Si solar cells. Thin Solid Films, 2007, 515, 6238-6242.	1.8	96
53	Persistent photoconductivity in Cu(In,Ga)Se2 heterojunctions and thin films prepared by sequential deposition. Applied Physics Letters, 1998, 73, 223-225.	3.3	95
54	Mobility dependent efficiencies of organic bulk heterojunction solar cells: Surface recombination and charge transfer state distribution. Physical Review B, 2009, 80, .	3.2	94

#	Article	IF	Citations
55	Electroluminescence analysis of high efficiency Cu(In,Ga)Se2 solar cells. Journal of Applied Physics, 2007, 102, 104510.	2.5	93
56	Design of nanostructured plasmonic back contacts for thin-film silicon solar cells. Optics Express, 2011, 19, A1219.	3.4	93
57	Device Performance of Emerging Photovoltaic Materials (Version 1). Advanced Energy Materials, 2021, 11, 2002774.	19.5	93
58	Impact of Small Phonon Energies on the Charge-Carrier Lifetimes in Metal-Halide Perovskites. Journal of Physical Chemistry Letters, 2018, 9, 939-946.	4.6	88
59	Texture and electronic activity of grain boundaries in Cu(In,Ga)Se2 thin films. Applied Physics A: Materials Science and Processing, 2006, 82, 1-7.	2.3	87
60	A silicon carbide-based highly transparent passivating contact for crystalline silicon solar cells approaching efficiencies of 24%. Nature Energy, 2021, 6, 529-537.	39.5	87
61	Reciprocity between electroluminescence and quantum efficiency used for the characterization of silicon solar cells. Progress in Photovoltaics: Research and Applications, 2009, 17, 394-402.	8.1	86
62	Quantitative electroluminescence analysis of resistive losses in Cu(In, Ga)Se2 thin-film modules. Solar Energy Materials and Solar Cells, 2010, 94, 979-984.	6.2	85
63	Resistive limitations to spatially inhomogeneous electronic losses in solar cells. Applied Physics Letters, 2004, 85, 6010-6012.	3.3	81
64	Formation of transparent and ohmic ZnO:Al/MoSe2 contacts for bifacial Cu(In,Ga)Se2 solar cells and tandem structures. Thin Solid Films, 2005, 480-481, 67-70.	1.8	80
65	Fermi level pinning at CdS/Cu(In,Ga)(Se,S)2 interfaces: effect of chalcopyrite alloy composition. Journal of Physics and Chemistry of Solids, 2003, 64, 1591-1595.	4.0	79
66	Modeling extremely thin absorber solar cells for optimized design. Progress in Photovoltaics: Research and Applications, 2004, 12, 573-591.	8.1	79
67	Classification of metastabilities in the electrical characteristics of ZnO/CdS/Cu(In,Ga)Se2 solar cells. Thin Solid Films, 2001, 387, 147-150.	1.8	78
68	Characterization and simulation of a-Si:H/Î¼c-Si:H tandem solar cells. Solar Energy Materials and Solar Cells, 2011, 95, 3318-3327.	6.2	78
69	Influence of the selenium flux on the growth of Cu(In,Ga)Se2 thin films. Thin Solid Films, 2003, 431-432, 31-36.	1.8	77
70	Role of the CdS buffer layer as an active optical element in Cu(In,Ga)Se2 thin-film solar cells. Progress in Photovoltaics: Research and Applications, 2002, 10, 457-463.	8.1	71
71	Numerical simulation of carrier collection and recombination at grain boundaries in Cu(In,Ga)Se2 solar cells. Journal of Applied Physics, 2008, 103, .	2.5	71
72	Analysis of short circuit current gains by an antiâ€reflective textured cover on silicon thin film solar cells. Progress in Photovoltaics: Research and Applications, 2013, 21, 1672-1681.	8.1	70

#	Article	IF	Citations
73	Defects in Cu(In, Ga) Se2 semiconductors and their role in the device performance of thin-film solar cells. Progress in Photovoltaics: Research and Applications, 1997, 5, 121-130.	8.1	69
74	Open Circuit Voltage Limitations in CuIn1-xGaxSe2 Thin-Film Solar Cells - Dependence on Alloy Composition. Physica Status Solidi A, 2000, 179, R7-R8.	1.7	69
75	Influence of the Built-in Voltage on the Fill Factor of Dye-Sensitized Solar Cells. Journal of Physical Chemistry B, 2003, 107, 13258-13261.	2.6	69
76	Electro-optical modeling of bulk heterojunction solar cells. Journal of Applied Physics, 2008, 104, .	2.5	67
77	Effects of Thermochemical Treatment on CuSbS₂ Photovoltaic Absorber Quality and Solar Cell Reproducibility. Journal of Physical Chemistry C, 2016, 120, 18377-18385.	3.1	67
78	Material development for dye solar modules: results from an integrated approach. Progress in Photovoltaics: Research and Applications, 2008, 16, 489-501.	8.1	66
79	Device Performance of Emerging Photovoltaic Materials (Version 2). Advanced Energy Materials, 2021, 11, .	19.5	66
80	Impact of Na and S incorporation on the electronic transport mechanisms of Cu(In, Ga)Se2 solar cells. Solid State Communications, 1998, 107, 59-63.	1.9	65
81	Finite mobility effects on the radiative efficiency limit of<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:mi>p</mml:mi><mml:mi>n</mml:mi></mml:mrow></mml:math>-junction solar cells. Physical Review B, 2008, 77, .	3.2	64
82	Rugate filter for light-trapping in solar cells. Optics Express, 2008, 16, 9332.	3.4	62
83	Modeling of spatially inhomogeneous solar cells by a multi-diode approach. Physica Status Solidi (A) Applications and Materials Science, 2005, 202, 2920-2927.	1.8	61
84	Quantifying the Absorption Onset in the Quantum Efficiency of Emerging Photovoltaic Devices. Advanced Energy Materials, 2021, 11, 2100022.	19.5	61
85	Low-temperature a-Si:H/ZnO/Al back contacts for high-efficiency silicon solar cells. Solar Energy Materials and Solar Cells, 2006, 90, 1345-1352.	6.2	60
86	Superposition and Reciprocity in the Electroluminescence and Photoluminescence of Solar Cells. IEEE Journal of Photovoltaics, 2012, 2, 169-172.	2.5	60
87	Compositional trends of defect energies, band alignments, and recombination mechanisms in the Cu(In,Ga)(Se,S)2 alloy system. Thin Solid Films, 2003, 431-432, 158-162.	1.8	59
88	Numerical simulation of grain boundary effects in Cu(In,Ga)Se2 thin-film solar cells. Thin Solid Films, 2005, 480-481, 8-12.	1.8	59
89	Cu(In,Ga)Se2 solar cells with a ZnSe buffer layer: interface characterization by quantum efficiency measurements. Progress in Photovoltaics: Research and Applications, 1999, 7, 423-436.	8.1	58
90	Threeâ€Dimensional Photonic Crystal Intermediate Reflectors for Enhanced Lightâ€Trapping in Tandem Solar Cells. Advanced Materials, 2011, 23, 3896-3900.	21.0	58

#	Article	IF	Citations
91	Directional selectivity and ultraâ€lightâ€trapping in solar cells. Physica Status Solidi (A) Applications and Materials Science, 2008, 205, 2831-2843.	1.8	57
92	Decreasing Radiative Recombination Coefficients via an Indirect Band Gap in Lead Halide Perovskites. Journal of Physical Chemistry Letters, 2017, 8, 1265-1271.	4.6	57
93	Interface Optimization via Fullerene Blends Enables Openâ€Circuit Voltages of 1.35Â V in CH₃NH₃Pb(I_{0.8}Br_{0.2})₃ Solar Cells. Advanced Energy Materials, 2021, 11, 2003386.	19.5	57
94	Photogeneration and carrier recombination in graded gap Cu(In, Ga)Se/sub 2/ solar cells. IEEE Transactions on Electron Devices, 2000, 47, 2249-2254.	3.0	55
95	Statistics of the Auger Recombination of Electrons and Holes via Defect Levels in the Band Gapâ€"Application to Lead-Halide Perovskites. ACS Omega, 2018, 3, 8009-8016.	3.5	55
96	Radiation resistance of Cu(In,Ga)Se2 solar cells under 1-MeV electron irradiation. Thin Solid Films, 2001, 387, 228-230.	1.8	54
97	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
98	Optimized amorphous silicon oxide buffer layers for silicon heterojunction solar cells with microcrystalline silicon oxide contact layers. Journal of Applied Physics, 2013, 113, 134501.	2.5	52
99	Disorder improves nanophotonic light trapping in thin-film solar cells. Applied Physics Letters, 2014, 104, .	3.3	52
100	Advanced large area characterization of thin-film solar modules by electroluminescence and thermography imaging techniques. Solar Energy Materials and Solar Cells, 2015, 135, 35-42.	6.2	52
101	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.	4.6	51
102	Selection Metric for Photovoltaic Materials Screening Based on Detailed-Balance Analysis. Physical Review Applied, 2017, 8, .	3.8	51
103	Extracting Information about the Electronic Quality of Organic Solar-Cell Absorbers from Fill Factor and Thickness. Physical Review Applied, 2016, 6, .	3.8	50
104	Characterization of a-Si:Hâˆ•c-Si interfaces by effective-lifetime measurements. Journal of Applied Physics, 2005, 98, 093711.	2.5	49
105	Silicon heterojunction solar cell with amorphous silicon oxide buffer and microcrystalline silicon oxide contact layers. Physica Status Solidi - Rapid Research Letters, 2012, 6, 193-195.	2.4	49
106	Application and modeling of an integrated amorphous silicon tandem based device for solar water splitting. Solar Energy Materials and Solar Cells, 2015, 140, 275-280.	6.2	49
107	Influence of damp heat on the electrical properties of Cu(In,Ga)Se 2 solar cells. Thin Solid Films, 2000, 361-362, 283-287.	1.8	48
108	Spectral dependence and Hall effect of persistent photoconductivity in polycrystalline Cu(In,Ga)Se2 thin films. Journal of Applied Physics, 2002, 91, 5093-5099.	2.5	48

#	Article	IF	Citations
109	Defect annealing in Cu(In,Ga)Se2 heterojunction solar cells after high-energy electron irradiation. Applied Physics Letters, 2001, 79, 2922-2924.	3.3	47
110	Silicon solar cell of 16.8 Î¼m thickness and 14.7% efficiency. Applied Physics Letters, 1993, 62, 2998-3000.	3.3	44
111	Carrier collection in Cu(In,Ga)Se2 solar cells with graded band gaps and transparent ZnO:Al back contacts. Solar Energy Materials and Solar Cells, 2007, 91, 689-695.	6.2	43
112	Preparation and measurement of highly efficient aâ€Si:H single junction solar cells and the advantages of <i>Î¼</i>câ€SiO_x:H <i>n</i>â€layers. Progress in Photovoltaics: Research and Applications, 2015, 23, 939-948.	8.1	43
113	Recovery of scaler time-delay systems from time series. Physics Letters, Section A: General, Atomic and Solid State Physics, 1996, 211, 345-349.	2.1	42
114	Classification of spontaneous oscillations at the onset of avalanche breakdown inp-type germanium. Physical Review B, 1991, 43, 2255-2262.	3.2	40
115	Diffusion Limitations to I[sub 3][sup âˆ’]/I[sup âˆ’] Electrolyte Transport Through Nanoporous TiO[sub 2] Networks. Electrochemical and Solid-State Letters, 2003, 6, E11.	2.2	40
116	Note on the interpretation of electroluminescence images using their spectral information. Solar Energy Materials and Solar Cells, 2008, 92, 1621-1627.	6.2	40
117	Efficiency limits of Si/SiO2 quantum well solar cells from first-principles calculations. Journal of Applied Physics, 2009, 105, 104511.	2.5	40
118	Metastable electrical transport in Cu(In,Ga)Se2 thin films and ZnO/CdS/Cu(In,Ga)Se2 heterostructures. Physics Letters, Section A: General, Atomic and Solid State Physics, 1998, 245, 489-493.	2.1	39
119	20Â·5% efficient silicon solar cell with a low temperature rear side process using laser-fired contacts. Progress in Photovoltaics: Research and Applications, 2006, 14, 653-662.	8.1	39
120	Optical design of spectrally selective interlayers for perovskite/silicon heterojunction tandem solar cells. Optics Express, 2018, 26, A750.	3.4	39
121	Charge Carrier Collection and Contact Selectivity in Solar Cells. Advanced Materials Interfaces, 2019, 6, 1900252.	3.7	39
122	Solar hydrogen production: a bottom-up analysis of different photovoltaicâ€“electrolysis pathways. Sustainable Energy and Fuels, 2019, 3, 801-813.	4.9	39
123	Improvement of photon collection in Cu(In,Ga)Se2 solar cells and modules by fluorescent frequency conversion. Thin Solid Films, 2007, 515, 5964-5967.	1.8	38
124	Wide Gap Microcrystalline Silicon Oxide Emitter for a-SiO_x:H/c-Si Heterojunction Solar Cells. Japanese Journal of Applied Physics, 2013, 52, 122304.	1.5	38
125	What is a deep defect? Combining Shockley-Read-Hall statistics with multiphonon recombination theory. Physical Review Materials, 2020, 4, .	2.4	38
126	Method to extract diffusion length from solar cell parametersâ€”Application to polycrystalline silicon. Journal of Applied Physics, 2003, 93, 5447-5455.	2.5	37

#	Article	IF	Citations
127	Analysis of sub-stoichiometric hydrogenated silicon oxide films for surface passivation of crystalline silicon solar cells. Journal of Applied Physics, 2012, 112, 054905.	2.5	37
128	Development of Thin Film Amorphous Silicon Tandem Junction Based Photocathodes Providing High Open-Circuit Voltages for Hydrogen Production. International Journal of Photoenergy, 2014, 2014, 1-10.	2.5	37
129	Reciprocity between Charge Injection and Extraction and Its Influence on the Interpretation of Electroluminescence Spectra in Organic Solar Cells. Physical Review Applied, 2016, 5, .	3.8	36
130	Influence of heterointerfaces on the performance of Cu(In,Ga)Se2 solar cells with CdS and In(OHx,Sy) buffer layers. Thin Solid Films, 2003, 431-432, 330-334.	1.8	35
131	A model for the open circuit voltage relaxation in Cu(In,Ga)Se2heterojunction solar cells. EPJ Applied Physics, 1999, 8, 43-52.	0.7	34
132	Electrical characterisation of dye sensitised nanocrystalline TiO2 solar cells with liquid electrolyte and solid-state organic hole conductor. Thin Solid Films, 2002, 403-404, 242-246.	1.8	34
133	a-Si:H/Âµc-Si:H tandem junction based photocathodes with high open-circuit voltage for efficient hydrogen production. Journal of Materials Research, 2014, 29, 2605-2614.	2.6	34
134	Nanoscale Observation of Waveguide Modes Enhancing the Efficiency of Solar Cells. Nano Letters, 2014, 14, 6599-6605.	9.1	34
135	Microscopic Perspective on Photovoltaic Reciprocity in Ultrathin Solar Cells. Physical Review Letters, 2017, 118, 247702.	7.8	34
136	Transparent-conductive-oxide-free front contacts for high-efficiency silicon heterojunction solar cells. Joule, 2021, 5, 1535-1547.	24.0	34
137	Understanding the energy yield of photovoltaic modules in different climates by linear performance loss analysis of the module performance ratio. IET Renewable Power Generation, 2017, 11, 558-565.	3.1	34
138	The detailed balance principle and the reciprocity theorem between photocarrier collection and dark carrier distribution in solar cells. Journal of Applied Physics, 1998, 84, 6412-6418.	2.5	33
139	Field-dependent exciton dissociation in organic heterojunction solar cells. Physical Review B, 2012, 85, .	3.2	33
140	Matching of Silicon Thin-Film Tandem Solar Cells for Maximum Power Output. International Journal of Photoenergy, 2013, 2013, 1-7.	2.5	33
141	Development towards cell-to-cell monolithic integration of a thin-film solar cell and lithium-ion accumulator. Journal of Power Sources, 2016, 327, 340-344.	7.8	33
142	The role of structural properties and defects for the performance of Cu-chalcopyrite-based thin-film solar cells. Physica B: Condensed Matter, 2001, 308-310, 1081-1085.	2.7	32
143	Characterization of the CdS/Cu(In,Ga)Se2 interface by electron beam induced currents. Thin Solid Films, 2007, 515, 6163-6167.	1.8	32
144	Device Analysis of Cu(In,Ga)Se₂Heterojunction Solar Cells - Some Open Questions. Materials Research Society Symposia Proceedings, 2001, 668, 1.	0.1	31

#	Article	IF	Citations
145	Solutionâ€Based Silicon in Thinâ€Film Solar Cells. Advanced Energy Materials, 2014, 4, 1301871.	19.5	31
146	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.	6.2	31
147	Determination of electric transport properties in the pre- and post-breakdown regime ofp-germanium. European Physical Journal B, 1988, 72, 225-233.	1.5	30
148	Cu(In,Ga)Se₂ SOLAR CELLS. Series on Photoconversion of Solar Energy, 2001, , 277-345.	0.2	30
149	Texture of Cu(In,Ga)Se2thin films and nanoscale cathodoluminescence. Journal of Physics Condensed Matter, 2004, 16, S85-S89.	1.8	30
150	Enhanced light trapping in thin-film solar cells by a directionally selective filter. Optics Express, 2010, 18, A133.	3.4	30
151	Classification of current instabilities during low-temperature breakdown in germanium. Applied Physics A: Solids and Surfaces, 1989, 48, 155-160.	1.4	29
152	Closed-form expression for the current/ voltage characteristics of pin solar cells. Applied Physics A: Materials Science and Processing, 2003, 77, 865-871.	2.3	29
153	Efficient Area Matched Converter Aided Solar Charging of Lithium Ion Batteries Using High Voltage Perovskite Solar Cells. ACS Applied Energy Materials, 2020, 3, 431-439.	5.1	29
154	Direct observation of a scaling effect on effective minority carrier lifetimes. Journal of Applied Physics, 1994, 76, 4168-4172.	2.5	28
155	Performance stability of photovoltaic modules in different climates. Progress in Photovoltaics: Research and Applications, 2017, 25, 968-981.	8.1	28
156	Illumination intensity and spectrum-dependent performance of thin-film silicon single and multijunction solar cells. Solar Energy Materials and Solar Cells, 2017, 159, 427-434.	6.2	28
157	Exemplary locking sequence during self-generated quasiperiodicity of extrinsic germanium. Physics Letters, Section A: General, Atomic and Solid State Physics, 1987, 124, 335-339.	2.1	27
158	Diffusion-limited transport of I[sub 3][sup â^’] through nanoporous TiO[sub 2]-polymer gel networks. Journal of Chemical Physics, 2004, 121, 11374.	3.0	27
159	Light-induced degradation of adapted quadruple junction thin film silicon solar cells for photoelectrochemical water splitting. Solar Energy Materials and Solar Cells, 2016, 145, 142-147.	6.2	27
160	Wet-Chemical Preparation of Silicon Tunnel Oxides for Transparent Passivated Contacts in Crystalline Silicon Solar Cells. ACS Applied Materials & Interfaces, 2018, 10, 14259-14263.	8.0	27
161	Analysis of internal quantum efficiency and a new graphical evaluation scheme. Solid-State Electronics, 1995, 38, 1009-1015.	1.4	26
162	Advancing tandem solar cells by spectrally selective multilayer intermediate reflectors. Optics Express, 2014, 22, A1270.	3.4	26

#	Article	IF	Citations
163	Effect of localized states on the reciprocity between quantum efficiency and electroluminescence in Cu(In,Ga)Se2 and Si thin-film solar cells. Solar Energy Materials and Solar Cells, 2014, 129, 95-103.	6.2	26
164	Luminescence Analysis of Charge-Carrier Separation and Internal Series-Resistance Losses in <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline" overflow="scroll"><mml:mi>Cu</mml:mi><mml:mo stretchy="false">(</mml:mo><mml:mi>In</mml:mi><mml:mo>,</mml:mo><mml:mi>Ga</mml:mi><mml:mo) Tj ETQq0 0 0 rgBT /Overlo Solar Cells. Physical Review Applied, 2020, 14, .	3.8	26
165	Low-resistivity p-type a-Si:H/AZO hole contact in high-efficiency silicon heterojunction solar cells. Applied Surface Science, 2021, 542, 148749.	6.1	26
166	Effective diffusion lengths for minority carriers in solar cells as determined from internal quantum efficiency analysis. Journal of Applied Physics, 1999, 85, 3634-3637.	2.5	25
167	Influence of base pressure and atmospheric contaminants on a-Si:H solar cell properties. Journal of Applied Physics, 2008, 104, 094507.	2.5	25
168	Consistent Interpretation of Electrical and Optical Transients in Halide Perovskite Layers and Solar Cells. Advanced Energy Materials, 2021, 11, 2102290.	19.5	25
169	Nucleation and growth of current filaments in semiconductors. Journal of Applied Physics, 1990, 67, 1412-1416.	2.5	24
170	Dynamics of current filaments inpâ€type germanium under the influence of a transverse magnetic field. Journal of Applied Physics, 1991, 70, 232-235.	2.5	24
171	Evidence of Type-III Intermittency in the Electric Breakdown of <i>p</i> -Type Germanium. Europhysics Letters, 1991, 14, 1-6.	2.0	24
172	Band alignments in the Cu(In,Ga)(S,Se) 2 alloy system determined from deep-level defect energies. Applied Physics A: Materials Science and Processing, 2001, 73, 769-772.	2.3	24
173	Highly resistive Cu(In,Ga)Se2 absorbers for improved low-irradiance performance of thin-film solar cells. Thin Solid Films, 2004, 451-452, 160-165.	1.8	24
174	Photocurrent collection efficiency mapping of a silicon solar cell by a differential luminescence imaging technique. Applied Physics Letters, 2014, 105, .	3.3	24
175	Solar water splitting with earth-abundant materials using amorphous silicon photocathodes and Al/Ni contacts as hydrogen evolution catalyst. Chemical Physics Letters, 2015, 638, 25-30.	2.6	24
176	Modeling and practical realization of thin film siliconâ€based integrated solar water splitting devices. Physica Status Solidi (A) Applications and Materials Science, 2016, 213, 1738-1746.	1.8	24
177	Field Emission at Grain Boundaries: Modeling the Conductivity in Highly Doped Polycrystalline Semiconductors. Physical Review Applied, 2016, 5, .	3.8	24
178	Spatial inhomogeneities in Cu(In,Ga)Se2 solar cells analyzed by an electron beam induced voltage technique. Journal of Applied Physics, 2006, 100, 124501.	2.5	23
179	Recombination and resistive losses at ZnOâˆ•a-Si:Hâˆ•c-Si interfaces in heterojunction back contacts for Si solar cells. Journal of Applied Physics, 2007, 102, .	2.5	23
180	On the thermodynamics of light trapping in solar cells. Nature Materials, 2014, 13, 103-104.	27.5	23

#	Article	IF	Citations
181	Multilayer Capacitances: How Selective Contacts Affect Capacitance Measurements of Perovskite Solar Cells. , 2022, 1, .		23
182	Imaging of spatio-temporal structures in semiconductors. Solid-State Electronics, 1989, 32, 1365-1369.	1.4	22
183	Observation of a Large-Scale Sheetlike Current Filament in a Thinn-GaAs Layer. Journal of the Physical Society of Japan, 1990, 59, 420-423.	1.6	22
184	Reply to Comments on â€œElectronic Transport in Dye-Sensitized Nanoporous TiO2Solar CellsComparison of Electrolyte and Solid-State Devicesâ€• On the Photovoltaic Action in pn-Junction and Dye-Sensitized Solar Cells. Journal of Physical Chemistry B, 2003, 107, 13547-13550.	2.6	22
185	How Contact Layers Control Shunting Losses from Pinholes in Thin-Film Solar Cells. Journal of Physical Chemistry C, 2018, 122, 27263-27272.	3.1	22
186	A route towards highâ€efficiency silicon heterojunction solar cells. Progress in Photovoltaics: Research and Applications, 2022, 30, 384-392.	8.1	22
187	Spatio-temporal instabilities in the electric breakdown of p-germanium. Solid-State Electronics, 1988, 31, 817-820.	1.4	21
188	Critical Dynamics near the Onset of Spontaneous Oscillations in p -Germanium. Europhysics Letters, 1989, 9, 743-748.	2.0	21
189	A multi-diode model for spatially inhomogeneous solar cells. Thin Solid Films, 2005, 487, 14-18.	1.8	21
190	Evaluation of electron beam induced current profiles of Cu(In,Ga)Se2 solar cells with different Ga-contents. Thin Solid Films, 2009, 517, 2357-2359.	1.8	21
191	Reverse biased electroluminescence spectroscopy of crystalline silicon solar cells with high spatial resolution. Physica Status Solidi (A) Applications and Materials Science, 2010, 207, 2597-2600.	1.8	21
192	Analysis of the series resistance in <i>pin</i>-type thin-film silicon solar cells. Journal of Applied Physics, 2013, 113, .	2.5	21
193	From room to roof: How feasible is direct coupling of solar-battery power unit under variable irradiance?. Solar Energy, 2020, 206, 732-740.	6.1	21
194	Band offset variations at Ge/GaAs (100) interfaces. Applied Physics Letters, 1993, 62, 261-263.	3.3	20
195	Air-Annealing Effects on Polycrystalline Cu(In,Ga)Se₂ Heterojunctions. Solid State Phenomena, 1999, 67-68, 409-414.	0.3	20
196	Grain Boundary Recombination in Thin-Film Silicon Solar Cells. Solid State Phenomena, 2001, 80-81, 299-304.	0.3	20
197	Defect passivation by hydrogen reincorporation for silicon quantum dots in SiC/SiOx hetero-superlattice. Journal of Non-Crystalline Solids, 2012, 358, 2145-2149.	3.1	20
198	Effect of reabsorption and photon recycling on photoluminescence spectra and transients in lead-halide perovskite crystals. JPhys Materials, 2020, 3, 025003.	4.2	20

#	Article	IF	Citations
199	Internal quantum efficiency of thin epitaxial silicon solar cells. Applied Physics Letters, 1995, 66, 1261-1263.	3.3	19
200	Sodium induced secondary phase segregations in CuGaSe2 thin films. Journal of Crystal Growth, 2001, 233, 13-21.	1.5	19
201	Electron-beam induced instability during filamentary current transport inn-GaAs. European Physical Journal B, 1990, 81, 53-58.	1.5	18
202	Self-Organized Critical Behaviour in the Low-Temperature Impact Ionization Breakdown of p-Ge. Europhysics Letters, 1990, 12, 423-428.	2.0	18
203	Localized plasmonic losses at metal back contacts of thin-film silicon solar cells. , 2010, , .		18
204	Optical simulations of microcrystalline silicon solar cells applying plasmonic reflection grating back contacts. Journal of Photonics for Energy, 2012, 2, 027002.	1.3	18
205	Injection and Collection Diffusion Lengths of Polycrystalline Thin-Film Solar Cells. Solid State Phenomena, 1999, 67-68, 81-88.	0.3	17
206	High band gap Cu(In,Ga)Se2 solar cells and modules prepared with in-line co-evaporation. Thin Solid Films, 2003, 431-432, 543-547.	1.8	17
207	Silicon quantum dot formation in SiC/SiOx hetero-superlattice. Energy Procedia, 2011, 10, 249-254.	1.8	17
208	Influence of the operating temperature on the performance of silicon based photoelectrochemical devices for water splitting. Materials Science in Semiconductor Processing, 2016, 42, 142-146.	4.0	17
209	Compatibility study towards monolithic self-charging power unit based on all-solid thin-film solar module and battery. Journal of Power Sources, 2017, 365, 303-307.	7.8	17
210	Defect tolerant device geometries for lead-halide perovskites. Materials Advances, 2021, 2, 3655-3670.	5.4	17
211	Improved Infrared Light Management with Transparent Conductive Oxide/Amorphous Silicon Back Reflector in Highâ€Efficiency Silicon Heterojunction Solar Cells. Solar Rrl, 2021, 5, 2000576.	5.8	17
212	Storage batteries in photovoltaicâ€"electrochemical device for solar hydrogen production. Journal of Power Sources, 2021, 509, 230367.	7.8	17
213	How solar cell efficiency is governed by the Î±Î¼Ï„ product. Physical Review Research, 2020, 2, .	3.6	17
214	Impact ionization avalanche breakdown in short crystal regions ofpâ€Ge. Journal of Applied Physics, 1990, 67, 2980-2984.	2.5	16
215	Charge carrier transport via defect states inCu(In,Ga)Se2thin films andCu(In,Ga)Se2/CdS/ZnOheterojunctions. Physical Review B, 2000, 61, 16052-16059.	3.2	16
216	Transient phenomena in Cu(In,Ga)Se2 solar modules investigated by electroluminescence imaging. Thin Solid Films, 2013, 535, 307-310.	1.8	16

#	Article	IF	Citations
217	Photoelectrochemical application of thinâ€film silicon tripleâ€junction solar cell in batteries. Physica Status Solidi (A) Applications and Materials Science, 2016, 213, 1926-1931.	1.8	16
218	Influence of Room Temperature Sputtered Al-Doped Zinc Oxide on Passivation Quality in Silicon Heterojunction Solar Cells. IEEE Journal of Photovoltaics, 2019, 9, 1485-1491.	2.5	16
219	Optimization of Transparent Passivating Contact for Crystalline Silicon Solar Cells. IEEE Journal of Photovoltaics, 2020, 10, 46-53.	2.5	16
220	A Biasâ€Free, Standâ€Alone, and Scalable Photovoltaicâ€"Electrochemical Device for Solar Hydrogen Production. Advanced Sustainable Systems, 2020, 4, 2000070.	5.3	16
221	Transparent silicon carbide/tunnel SiO₂ passivation for câ€Si solar cell front side: Enabling <i>J</i>_{sc} > 42 mA/cm² and i<i>V</i>_{oc} of 742 mV. Progress in Photovoltaics: Research and Applications, 2020, 28, 321-327.	8.1	16
222	Analysis of recombination centers in epitaxial silicon thin-film solar cells by temperature-dependent quantum efficiency measurements. Applied Physics Letters, 2003, 82, 2637-2639.	3.3	15
223	Plasmonic back contacts with non-ordered Ag nanostructures for light trapping in thin-film silicon solar cells. Materials Science and Engineering B: Solid-State Materials for Advanced Technology, 2013, 178, 630-634.	3.5	15
224	Linking structural properties with functionality in solar cell materials â€" the effective mass and effective density of states. Sustainable Energy and Fuels, 2018, 2, 1550-1560.	4.9	15
225	Poly-Si/SiOx/c-Si passivating contact with 738â€‰mV implied open circuit voltage fabricated by hot-wire chemical vapor deposition. Applied Physics Letters, 2019, 114, .	3.3	15
226	Influence of Oxygen on Sputtered Titaniumâ€Doped Indium Oxide Thin Films and Their Application in Silicon Heterojunction Solar Cells. Solar Rrl, 2021, 5, 2000501.	5.8	15
227	Notizen: Comparison Between a Generic Reaction- Diffusion Model and a Synergetic Semiconductor System. Zeitschrift Fur Naturforschung - Section A Journal of Physical Sciences, 1987, 42, 655-656.	1.5	14
228	Consequence of 3-MeV electron irradiation on the photovoltaic output parameters of Cu(In,Ga)Se2 solar cells. Thin Solid Films, 2003, 431-432, 453-456.	1.8	14
229	Novel series connection concept for thin film solar modules. Progress in Photovoltaics: Research and Applications, 2013, 21, 972-979.	8.1	14
230	Effect of light soaking on the electro- and photoluminescence of Cu(In,Ga)Se2 solar cells. Applied Physics Letters, 2013, 103, .	3.3	14
231	Quantitative evaluation method for electroluminescence images of aâ€Si:H thinâ€film solar modules. Physica Status Solidi - Rapid Research Letters, 2013, 7, 627-630.	2.4	14
232	Quantum efficiency and admittance spectroscopy on Cu(In,Ga)Se2 solar cells. Solar Energy Materials and Solar Cells, 1998, 50, 79-85.	6.2	13
233	Structural and Electronic Properties of Polycrystalline Cu(In,Ga)(S,Se)₂ Alloys. Materials Research Society Symposia Proceedings, 2001, 668, 1.	0.1	13
234	Ray tracing for the optics at nanoâ€textured ZnOâ€"air and ZnOâ€"silicon interfaces. Progress in Photovoltaics: Research and Applications, 2011, 19, 724-732.	8.1	13

#	Article	IF	Citations
235	Shunt mitigation in ZnO:Al/i-ZnO/CdS/Cu(In,Ga)Se₂solar modules by the i-ZnO/CdS buffer combination. Physica Status Solidi (A) Applications and Materials Science, 2015, 212, 541-546.	1.8	13
236	Bifunctional CoFeVO<i>_x</i> Catalyst for Solar Water Splitting by using Multijunction and Heterojunction Silicon Solar Cells. Advanced Materials Technologies, 2020, 5, 2000592.	5.8	13
237	The Ideality of Spatially Inhomogeneous Schottky Contacts. Materials Research Society Symposia Proceedings, 1992, 260, 245.	0.1	12
238	CuGaSe2-based superstrate solar cells. Thin Solid Films, 2001, 387, 74-76.	1.8	12
239	Control of secondary phase segregations during CuGaSe2 thin-film growth. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2002, 20, 1247-1253.	2.1	12
240	Collection and conversion properties of photovoltaic fluorescent collectors with photonic band stop filters. , 2006, , .		12
241	Modelling of photo- and electroluminescence of hydrogenated microcrystalline silicon solar cells. Physica Status Solidi C: Current Topics in Solid State Physics, 2012, 9, 1963-1967.	0.8	12
242	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.	1.3	12
243	How Thin Practical Silicon Heterojunction Solar Cells Could Be? Experimental Study under 1â€‰Sun and under Indoor Illumination. Solar Rrl, 2022, 6, 2100594.	5.8	12
244	Circuit-limited oscillation at the onset of avalanche breakdown in semiconductors. Physics Letters, Section A: General, Atomic and Solid State Physics, 1990, 147, 229-233.	2.1	11
245	Nonequilibrium phase transition in the electronic transport ofp-type germanium at low temperatures. Physical Review B, 1990, 42, 9019-9024.	3.2	11
246	Charge separation in excitonic and bipolar solar cells â€" A detailed balance approach. Thin Solid Films, 2008, 516, 7144-7148.	1.8	11
247	Illumination-induced recovery of Cu(In,Ga)Se2 solar cells after high-energy electron irradiation. Applied Physics Letters, 2003, 82, 1410-1412.	3.3	10
248	Time constants of open circuit voltage relaxation in Cu(In,Ga)Se2 solar cells. Thin Solid Films, 2007, 515, 6243-6245.	1.8	10
249	Structure and electronic properties of Î¼c-SiC:H for photovoltaic applications. Journal of Physics: Conference Series, 2011, 326, 012019.	0.4	10
250	Impact of doped microcrystalline silicon oxide layers on crystalline silicon surface passivation. Canadian Journal of Physics, 2014, 92, 758-762.	1.1	10
251	Angular dependence of light trapping in nanophotonic thin-film solar cells. Optics Express, 2015, 23, A1575.	3.4	10
252	Analysis of Cu(In,Ga)Se2thin-film modules by electro-modulated luminescence. Journal of Applied Physics, 2016, 119, 095704.	2.5	10

#	Article	IF	Citations
253	Application of Raman spectroscopy for depth-dependent evaluation of the hydrogen concentration of amorphous silicon. Thin Solid Films, 2018, 653, 223-228.	1.8	10
254	Effect of Doping, Photodoping, and Bandgap Variation on the Performance of Perovskite Solar Cells. Advanced Optical Materials, 2022, 10, .	7.3	10
255	Switching behavior of current filaments inp-germanium connected in parallel. European Physical Journal B, 1988, 71, 305-310.	1.5	9
256	Reconstruction of traveling waves in semi-insulating GaAs. Physics Letters, Section A: General, Atomic and Solid State Physics, 1991, 152, 356-360.	2.1	9
257	Measurement and modeling of reverse biased electroluminescence in multi-crystalline silicon solar cells. Journal of Applied Physics, 2013, 114, .	2.5	9
258	Influence of Na and S incorporation on the electronic transport properties of Cu(In,Ga)Se/sub 2/ solar cells. , 1996, , .		8
259	Minority carrier collection in CuGaSe2 solar cells. Thin Solid Films, 2004, 451-452, 430-433.	1.8	8
260	Influence of built-in voltage in optimized extremely thin absorber solar cells. Thin Solid Films, 2005, 480-481, 447-451.	1.8	8
261	Investigation of laser scribing of a-Si:H from the film side for solar modules using a UV laser with ns pulses. Applied Physics A: Materials Science and Processing, 2011, 105, 355-362.	2.3	8
262	Mechanism for crystalline Si surface passivation by the combination of SiO₂ tunnel oxide and Âµc-SiC:H thin film. Physica Status Solidi - Rapid Research Letters, 2016, 10, 233-236.	2.4	8
263	Imaging photocurrent collection losses in solar cells. Applied Physics Letters, 2016, 109, .	3.3	8
264	Post passivation light trapping back contacts for silicon heterojunction solar cells. Nanoscale, 2016, 8, 18726-18733.	5.6	8
265	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.	5.1	8
266	Schottky Contacts on Silicon. Springer Series in Electrophysics, 1994, , 89-148.	0.2	8
267	Electronically active defects in CuGaSe 2 -based heterojunction solar cells. Thin Solid Films, 2000, 361-362, 415-419.	1.8	7
268	Two-Dimensional Simulations of Microcrystalline Silicon Solar Cells. Solid State Phenomena, 2001, 80-81, 311-316.	0.3	7
269	Response to â€œComment on â€˜Efficiency limits of photovoltaic fluorescent collectorsâ€™ [Appl. Phys. Lett. 87, 171101 (2005)]â€• Applied Physics Letters, 2006, 88, 176102.	3.3	7
270	Annealing studies of substoichiometric amorphous SiOxlayers for c-Si surface passivation. Physica Status Solidi C: Current Topics in Solid State Physics, 2010, 7, NA-NA.	0.8	7

#	Article	IF	Citations
271	Annealing induced defects in SiC, SiO_{<i>x</i>} single layers, and SiC/SiO_{<i>x</i>} heteroâ€superlattices. Physica Status Solidi (A) Applications and Materials Science, 2012, 209, 1960-1964.	1.8	7
272	Simulations of geometry effects and loss mechanisms affecting the photon collection in photovoltaic fluorescent collectors. EPJ Photovoltaics, 2012, 3, 30101.	1.6	7
273	Defect Diagnostics of Scribing Failures and Cu-Rich Debris in Cu(In,Ga)Se<inline-formula><tex-math>$_2$ </tex-math></inline-formula> Thin-Film Solar Modules With Electroluminescence and Thermography. IEEE Journal of Photovoltaics, 2015, 5, 1179-1187.	2.5	7
274	A new 2D model for the electrical potential in a cell stripe in thinâ€film solar modules including local defects. Progress in Photovoltaics: Research and Applications, 2015, 23, 331-339.	8.1	7
275	Direct analysis of the current density vs. voltage curves of a CdTe module during outdoor exposure. Solar Energy, 2015, 113, 88-100.	6.1	7
276	Pronounced Surface Band Bending of Thin-Film Silicon Revealed by Modeling Core Levels Probed with Hard X-rays. ACS Applied Materials & Interfaces, 2016, 8, 17685-17693.	8.0	7
277	Wide gap microcrystalline silicon carbide emitter for amorphous silicon oxide passivated heterojunction solar cells. Japanese Journal of Applied Physics, 2017, 56, 022302.	1.5	7
278	Reply to â€˜Ideal solar cell efficienciesâ€™. Nature Photonics, 2021, 15, 165-166.	31.4	7
279	Dielectric Junction: Electrostatic Design for Charge Carrier Collection in Solar Cells. Solar Rrl, 2022, 6, 2100720.	5.8	7
280	Barrier Inhomogeneities at Schottky Contacts: Curved Richardson Plots, Idealities, and Flat Band Barriers. Materials Research Society Symposia Proceedings, 1992, 260, 311.	0.1	6
281	Barrier Inhomogeneities Dominating Low-Frequency Excess Noise of Schottky Contacts. Materials Research Society Symposia Proceedings, 1992, 260, 305.	0.1	6
282	Numerical simulation of innovative device structures for silicon thin-film solar cells. , 1996, , .		6
283	Transport analysis for polycrystalline silicon solar cells on glass substrates. , 0, , .		6
284	Heterojunctions for Polycrystalline Silicon Solar Cells. Solid State Phenomena, 1999, 67-68, 571-576.	0.3	6
285	Role of Defects and Defect Metastabilities for the Performance and Stability of Cu(In,Ga)Se2Based Solar Cells. Japanese Journal of Applied Physics, 2000, 39, 389.	1.5	6
286	High-Energy Electron and Proton Irradiation of Cu(In,Ga)Se₂Heterojunction Solar Cells. Materials Research Society Symposia Proceedings, 2001, 668, 1.	0.1	6
287	Electroluminescence imaging of Cu(In,Ga)Se₂ thin film modules. Materials Research Society Symposia Proceedings, 2009, 1165, 1.	0.1	6
288	Modeling charge carrier collection in multiple exciton generating PbSe quantum dots. Thin Solid Films, 2009, 517, 2438-2442.	1.8	6

#	Article	IF	Citations
289	Electrical characterization of P3 isolation lines patterned with a UV laser incident from the film side on thin-film silicon solar cells. Solar Energy Materials and Solar Cells, 2013, 108, 87-92.	6.2	6
290	Thermography and electroluminescence imaging of scribing failures in Cu(In,Ga)Se₂ thin film solar modules. Physica Status Solidi (A) Applications and Materials Science, 2015, 212, 2877-2888.	1.8	6
291	Development of a Transparent Passivated Contact as a Front Side Contact for Silicon Heterojunction Solar Cells. , 2018, , .		6
292	In Situ-Doped Silicon Thin Films for Passivating Contacts by Hot-Wire Chemical Vapor Deposition with a High Deposition Rate of 42 nm/min. ACS Applied Materials & Interfaces, 2019, 11, 30493-30499.	8.0	6
293	Batteries to Keep Solarâ€Driven Water Splitting Running at Night: Performance of a Directly Coupled System. Solar Rrl, 2022, 6, .	5.8	6
294	On the Scaling of Type-1 Intermittency in a Semiconductor Experiment. Zeitschrift Fur Naturforschung - Section A Journal of Physical Sciences, 1991, 46, 1012-1014.	1.5	5
295	Resonant imaging of a critical dynamical state in the low-temperature electric transport of p-Ge. Physics Letters, Section A: General, Atomic and Solid State Physics, 1991, 153, 385-389.	2.1	5
296	Recombination and Resistive Losses in Amorphous Silicon / Crystalline Silicon Heterojunction Solar Cells. Materials Research Society Symposia Proceedings, 2000, 609, 1311.	0.1	5
297	Band gap fluctuations in Cu(In,Ga)Se₂ thin films. Materials Research Society Symposia Proceedings, 2005, 865, 1641.	0.1	5
298	Spectrally selective intermediate reflectors for tandem thin-film silicon solar cells. , 2013, , .		5
299	Deposition of intrinsic hydrogenated amorphous silicon for thin-film solar cells - a comparative study for layers grown statically by RF-PECVD and dynamically by VHF-PECVD. Progress in Photovoltaics: Research and Applications, 2014, 22, 198-207.	8.1	5
300	Approaching Solarâ€Grade aâ€Si:H for Photovoltaic Applications via Atmospheric Pressure CVD Using a Trisilaneâ€Derived Liquid Precursor. Solar Rrl, 2017, 1, 1700030.	5.8	5
301	Bandgap Fluctuations Observed by EL in Various Cu(In,Ga)(Se,S)₂ PV Modules. IEEE Journal of Photovoltaics, 2018, 8, 272-277.	2.5	5
302	Phosphorus Catalytic Doping on Intrinsic Silicon Thin Films for the Application in Silicon Heterojunction Solar Cells. ACS Applied Materials & Interfaces, 2020, 12, 56615-56621.	8.0	5
303	Cu(In,Ga)Se2 Solar Cells: Device Stability Based on Chemical Flexibility. Advanced Materials, 1999, 11, 957-961.	21.0	5
304	Spatio â€" Temporal Correlations in Semiconductors. , 1991, , 145-176.		5
305	Nascent states of current filamentation in semiconductors governed by negative differential resistance. Solid State Communications, 1990, 73, 369-372.	1.9	4
306	Glass Frit Sealed Dye Solar Modules with Adaptable Screen Printed Design. , 2006, , .		4

#	Article	IF	Citations
307	Directional selectivity and light-trapping in solar cells. Proceedings of SPIE, 2008, , .	0.8	4
308	Cu(In,Ga)Se2 Thin-Film Solar Cells. , 2013, , 261-304.		4
309	Analysis of the light-induced degradation of differently matched tandem solar cells with and without an intermediate reflector using the Power Matching Method. Solar Energy Materials and Solar Cells, 2015, 143, 1-8.	6.2	4
310	Role of Surface Band Gap Widening in Cu(In, Ga)(Se, S)2 Thin-Films for the Photovoltaic Performance of ZnO/CdS/Cu(In, Ga)(Se, S)2 Heterojunction Solar Cells. Materials Research Society Symposia Proceedings, 2003, 763, 881.	0.1	4
311	Optical Optimization Potential of Transparentâ€Passivated Contacts in Silicon Solar Cells. Solar Rrl, 0, , 2101050.	5.8	4
312	New aspects of phase segregation and junction formation in CuInSe/sub 2/. , 0, , .		3
313	Metastable changes of the electrical transport properties of Cu(In,Ga)Se/sub 2/. , 0, , .		3
314	Two-dimensional simulation of thin-film silicon solar cells with innovative device structures. Progress in Photovoltaics: Research and Applications, 1999, 7, 85-100.	8.1	3
315	Cu(In,Ga)Se2 Thin-Film Solar Cells. , 2003, , 367-413.		3
316	A Simple Method to Extract the Diffusion Length from the Output Parameters of Solar Cells - Application to Polycrystalline Silicon. Solid State Phenomena, 2003, 93, 399-404.	0.3	3
317	Anodizing Method Yielding Multiple Porous Seed Layers for the Epitaxial Growth of Monocrystalline Si Films. Journal of the Electrochemical Society, 2006, 153, C133.	2.9	3
318	Preface: phys. stat. sol. (a) 205/12. Physica Status Solidi (A) Applications and Materials Science, 2008, 205, 2735-2736.	1.8	3
319	Quantification of Light Trapping Using a Reciprocity Between Electroluminescent Emission and Photovoltaic Action in a Solar Cell. Materials Research Society Symposia Proceedings, 2008, 1101, 1.	0.1	3
320	Geometry effects on photon collection in photovoltaic fluorescent collectors. , 2008, , .		3
321	Cu(In,Ga)Se2 Thin-Film Solar Cells. , 2012, , 323-371.		3
322	Cu(In,Ga)Se₂ AND RELATED SOLAR CELLS. Series on Photoconversion of Solar Energy, 2014, , 245-305.	0.2	3
323	Optically active defects in SiC, SiOx single layers and SiC/SiOx hetero-superlattices. Solar Energy Materials and Solar Cells, 2014, 129, 3-6.	6.2	3
324	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.	2.5	3

#	Article	IF	Citations
325	Coupling Incident Light to Guided Modes in Thin-Film Tandem Solar Cells With Intermediate Reflector. IEEE Journal of Photovoltaics, 2015, 5, 3-8.	2.5	3
326	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.	1.8	3
327	Calculation of the TCO sheet resistance in thin film modules using electroluminescence imaging. , 2016, , .		3
328	Photon Tunneling in Tandem Solar Cells With Intermediate Reflector. IEEE Journal of Photovoltaics, 2016, 6, 597-603.	2.5	3
329	Bandgap imaging in Cu(In,Ga)Se₂photovoltaic modules by electroluminescence. Progress in Photovoltaics: Research and Applications, 2017, 25, 184-191.	8.1	3
330	Application of Room Temperature Sputtered Al-doped Zinc Oxide in Silicon Heterojunction Solar Cells. , 2018, , .		3
331	Cu(In,Ga)Se 2 Thin-Film Solar Cells. , 2018, , 371-418.		3
332	Highâ€quality amorphous silicon thin films for tunnel oxide passivating contacts deposited at over 150 nm/min. Progress in Photovoltaics: Research and Applications, 2021, 29, 16-23.	8.1	3
333	Quantum Transport across Amorphous-Crystalline Interfaces in Tunnel Oxide Passivated Contact Solar Cells: Direct versus Defect-Assisted Tunneling. Chinese Physics Letters, 2021, 38, 036301.	3.3	3
334	Prediction of Limits of Solarâ€toâ€Hydrogen Efficiency from Polarization Curves of the Electrochemical Cells. Solar Rrl, 2022, 6, 2100783.	5.8	3
335	Hall-effect measurements during low-temperature avalanche breakdown of p-germanium. Philosophical Magazine Letters, 1988, 57, 311-314.	1.2	2
336	Impact ionization breakdown in p-germanium samples with very short contact distances. Solid-State Electronics, 1989, 32, 1197-1200.	1.4	2
337	Characteristic Relaxation Times of Low-temperature Semiconductor Breakdown Kinetics. Zeitschrift Fur Naturforschung - Section A Journal of Physical Sciences, 1989, 44, 629-632.	1.5	2
338	Optimization of the back contact geometry for high efficiency solar cells. , 0, , .		2
339	Dielectric spectroscopy of relaxation processes in Cu(In,Ga)Se/sub 2/ solar cells. , 1996, , .		2
340	An Analytical Model for Rectifying Contacts on Polycrystalline Semiconductors. Solid State Phenomena, 1999, 67-68, 553-558.	0.3	2
341	Cathodoluminescence Studies of Cu(In,Ga)Se₂ Thin-Films. Solid State Phenomena, 2003, 93, 133-140.	0.3	2
342	Modification of Cu(In, Ga)Se2 Surface by Treatment in Cadmium Solutions. Materials Research Society Symposia Proceedings, 2003, 763, 8171.	0.1	2

#	Article	IF	Citations
343	Cu(In,Ga)Se2 thin-film solar cells. , 2005, , 303-349.		2
344	Efficient light trapping scheme by periodic and quasi-random light trapping structures. Conference Record of the IEEE Photovoltaic Specialists Conference, 2008, , .	0.0	2
345	Small-signal lock-in thermography at the maximum power point of an a-Si solar mini-module. Physica Status Solidi - Rapid Research Letters, 2014, 8, 894-897.	2.4	2
346	Electrical Repair of Incomplete Back Contact Insulation (P1) in Cu(In,Ga)Se<inline-formula><tex-math>$_2$</tex-math></inline-formula> Photovoltaic Thin-Film Modules. IEEE Journal of Photovoltaics, 2015, 5, 1197-1205.	2.5	2
347	Development of Conductive SiCx:H as a New Hydrogenation Technique for Tunnel Oxide Passivating Contacts. ACS Applied Materials & Interfaces, 2020, 12, 29986-29992.	8.0	2
348	Impact of Laser Treatment on Hydrogenated Amorphous Silicon Properties. Advanced Engineering Materials, 2020, 22, 1901437.	3.5	2
349	Design of deterministic light-trapping structures for thin silicon heterojunction solar cells. Optics Express, 2021, 29, 7410.	3.4	2
350	Symmetry-breaking pattern formation in semiconductor physics: Spatio-temporal current structures during avalanche breakdown. Computers and Mathematics With Applications, 1989, 17, 467-473.	2.7	1
351	An oscillation mechanism of semiconductor breakdown due to magnetic field induced transverse motion of current filaments. Semiconductor Science and Technology, 1992, 7, B486-B487.	2.0	1
352	Modelling of the electronic transport in multijunction solar cells. , 0, , .		1
353	Collection Properties of Photovoltaic Fluorescent Systems - Simulations and Experiments. , 2006, , .		1
354	Electroluminescence from Cu(In,Ga)Se2 Thin-film Solar Cells. Materials Research Society Symposia Proceedings, 2007, 1012, 1.	0.1	1
355	3D photonic crystals for photon management in solar cells. , 2010, , .		1
356	Inverted-opal photonic crystals for ultra light-trapping in solar cells. Proceedings of SPIE, 2010, , .	0.8	1
357	Ray tracing analysis of light scattering properties of randomly nano-textured ZnO films. , 2010, , .		1
358	Enhanced light trapping in thin amorphous silicon solar cells by directionally selective optical filters. , 2010, , .		1
359	Photonic Crystal Intermediate Reflector in Micromorph Tandem Solar Cells. , 2011, , .		1
360	Local junction voltages and radiative ideality factors of a-Si:H solar modules determined by electroluminescence imaging. Materials Research Society Symposia Proceedings, 2013, 1536, 105-111.	0.1	1

#	Article	IF	Citations
361	Degradation of tandem solar cells: Separating matching effects from Staebler-Wronski Effect using the Power-Matching-Method. , 2014, , .		1
362	Electric properties and carrier multiplication in breakdown sites in multi-crystalline silicon solar cells. Journal of Applied Physics, 2015, 117, 205703.	2.5	1
363	Detailed balance analysis of photovoltaic materials and devices. , 2016, , .		1
364	A detailed analysis of visible defects formed in commercial silicon thin-film modules during outdoor exposure. , 2016, , .		1
365	Determination and Modeling of Injection Dependent Series Resistance in CIGS Solar Cells. , 2017, , .		1
366	Geometrical Light Trapping in Thin c-Si Solar Cells beyond Lambertian Limit. , 2019, , .		1
367	A MINIATURIZED APPROACH TO THE CRYOELECTRONIC MAGNETIC FIELD EFFECT TRANSISTOR. Journal De Physique Colloque, 1988, 49, C4-637-C4-639.	0.2	1
368	Optical simulations and prototyping of microcrystalline silicon solar cells with integrated plasmonic reflection grating back contacts. Proceedings of SPIE, 2011, , .	0.8	1
369	Impact of Periodicity of Inverted Pyramids on Anti-reflection and Light-trapping Properties in Silicon Heterojunction Solar Cells. , 2017, , .		1
370	First Evidence of Self-Organized Criticality in the Impact Ionization Breakdown of Semiconductors. Zeitschrift Fur Naturforschung - Section A Journal of Physical Sciences, 1990, 45, 835-836.	1.5	0
371	Radiation induced defects in Cu(In,Ga)Se/sub 2/ solar cells-comparison of electron and proton irradiation. , 0, , .		0
372	Illumination-enhanced annealing of electron-irradiated Cu(In,Ga)Se/sub 2/ solar cells. , 0, , .		0
373	Can Grain Boundaries Improve the Performance of Cu(In,Ga)Se2 Solar Cells?. Materials Research Society Symposia Proceedings, 2007, 1012, 1.	0.1	0
374	Resistive Losses at c-Si/a-Si:H/ZnO Contacts for Heterojunction Solar Cells. Materials Research Society Symposia Proceedings, 2007, 989, 4.	0.1	0
375	Optimization of Rugate filters for ultra light-trapping in solar cells. , 2008, , .		0
376	Enhanced Light-trapping in Solar Cells by Directional Selective Optical Filters. Materials Research Society Symposia Proceedings, 2008, 1101, 1.	0.1	0
377	Loss Mechanisms in Photovoltaic Fluorescent Collectors. Materials Research Society Symposia Proceedings, 2008, 1101, 1.	0.1	0
378	Energy yield of thin-film PV modules and the relevance of low irradiance, spectral and temperature effects. , 2013, , .		0

#	Article	IF	Citations
379	Electroluminescence of Cu(In,Ga)Se2 solar cells and modules. Materials Research Society Symposia Proceedings, 2013, 1538, 133-144.	0.1	0
380	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
381	Disordered nanophotonic light management in thin-film photovoltaics. , 2014, , .		0
382	Direct analysis of the current-voltage curves of outdoor-degrading modules. , 2014, , .		0
383	On the impact of defects in solar modules and the interaction between monolithically interconnected cells. , 2014, , .		0
384	Photon tunneling in tandem solar cells. , 2015, , .		0
385	Nanoscale investigation of polarization-dependent light coupling to individual waveguide modes of nanophotonic thin-film solar cells. , 2015, , .		0
386	Thermal Repair of Incomplete Back Contact Insulation (P1) in Cu(In,Ga)Se2 Photovoltaic Thin-Film Modules. Journal of Solar Energy Engineering, Transactions of the ASME, 2015, 137, .	1.8	0
387	Determination of PV outdoor parameters for thin film modules. , 2016, , .		0
388	Collected photocurrent imaging of CIGS solar cells via electro-modulated luminescence under different illumination conditions. , 2016, , .		0
389	Detailed balance analysis of photovoltaic materials and devices. , 2017, , .		0
390	Investigating PV-battery 3-terminal Integration Concept as a Self-sustaining Power Solution. , 2017, , .		0
391	Efficient light trapping in silicon heterojunction solar cells via nanoimprint periodic texturing. , 2018, , .		0
392	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
393	3D photonic crystal intermediate reflectors for enhanced light-trapping in tandem solar cells. , 2012, , .		0
394	Plasmonic Reflection-Grating Back Contacts for Light Trapping in Thin-Film Silicon Solar Cells. , 2012, , .		0
395	SPATIO-TEMPORAL INSTABILITIES IN THE ELECTRIC BREAKDOWN OF P-GERMANIUM. , 1988, , 817-820.		0
396	Cryoelectronic Application of a Hybrid Device Concept Based on Semiconducting and Superconducting Components. , 1989, , 575-578.		0

#	Article	IF	Citations
397	SYMMETRY-BREAKING PATTERN FORMATION IN SEMICONDUCTOR PHYSICS: SPATIO-TEMPORAL CURRENT STRUCTURES DURING AVALANCHE BREAKDOWN. , 1989, , 467-473.		0
398	On Negative Differential Resistance and Spontaneous Dissipative Structure Formation in the Electric Break-Down of p-Ge at Low Temperatures. NATO ASI Series Series B: Physics, 1993, , 261-268.	0.2	0
399	Damage-free Ablation Process for Back-contacted Silicon Heterojunction Solar Cells. Journal of Laser Micro Nanoengineering, 0, , .	0.1	0