Andreas W Bett

List of Publications by Year
in descending order

85 papers	3,597 citations	201674 27 h-index	133252 59 g-index
91 all docs	91 docs citations	91 times ranked	3102 citing authors

#	Article	IF	Citations
1	Current-matched triple-junction solar cell reaching 41.1% conversion efficiency under concentrated sunlight. Applied Physics Letters, 2009, 94, .	3.3	630
2	Wafer bonded fourâ€junction GaInP/GaAs//GaInAsP/GaInAs concentrator solar cells with 44.7% efficiency. Progress in Photovoltaics: Research and Applications, 2014, 22, 277-282.	8.1	511
3	Four-Junction Wafer-Bonded Concentrator Solar Cells. IEEE Journal of Photovoltaics, 2016, 6, 343-349.	2.5	280
4	IIIâ€“V-on-silicon solar cells reaching 33% photoconversion efficiency in two-terminal configuration. Nature Energy, 2018, 3, 326-333.	39.5	244
5	High-Efficiency n-Type HP mc Silicon Solar Cells. IEEE Journal of Photovoltaics, 2017, 7, 1171-1175.	2.5	135
6	Analysis of temperature coefficients for IIIâ€“V multiâ€junction concentrator cells. Progress in Photovoltaics: Research and Applications, 2014, 22, 515-524.	8.1	113
7	Subcell I-V characteristic analysis of GaInP/GaInAs/Ge solar cells using electroluminescence measurements. Applied Physics Letters, 2011, 98, .	3.3	107
8	Fourâ€junction spectral beamâ€splitting photovoltaic receiver with high optical efficiency. Progress in Photovoltaics: Research and Applications, 2011, 19, 61-72.	8.1	98
9	Comparison of Direct Growth and Wafer Bonding for the Fabrication of GaInP/GaAs Dual-Junction Solar Cells on Silicon. IEEE Journal of Photovoltaics, 2014, 4, 620-625.	2.5	98
10	Monolithic Two-Terminal IIIâ€“V//Si Triple-Junction Solar Cells With 30.2% Efficiency Under 1-Sun AM1.5g. IEEE Journal of Photovoltaics, 2017, 7, 367-373.	2.5	98
11	Influence of temperature and irradiance on triple-junction solar subcells. Solar Energy Materials and Solar Cells, 2013, 116, 144-152.	6.2	84
12	43% Sunlight to Electricity Conversion Efficiency Using CPV. IEEE Journal of Photovoltaics, 2016, 6, 1020-1024.	2.5	71
13	Impact of Photon Recycling on GaAs Solar Cell Designs. IEEE Journal of Photovoltaics, 2015, 5, 1636-1645.	2.5	70
14	Effects of optical coupling in III-V multilayer systems. Applied Physics Letters, 2007, 90, 192109.	3.3	66
15	68.9% Efficient GaAsâ€Based Photonic Power Conversion Enabled by Photon Recycling and Optical Resonance. Physica Status Solidi - Rapid Research Letters, 2021, 15, 2100113.	2.4	56
16	Validated front contact grid simulation for GaAs solar cells under concentrated sunlight. Progress in Photovoltaics: Research and Applications, 2011, 19, 73-83.	8.1	55
17	FLATCONÂ® CPV module with 36.7% efficiency equipped with fourâ€junction solar cells. Progress in Photovoltaics: Research and Applications, 2015, 23, 1323-1329.	8.1	49
18	Direct Growth of IIIâ€“V/Silicon Triple-Junction Solar Cells With 19.7% Efficiency. IEEE Journal of Photovoltaics, 2018, 8, 1590-1595.	2.5	48

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19	A validated SPICE network simulation study on improving tunnel diodes by introducing lateral conduction layers. Progress in Photovoltaics: Research and Applications, 2012, 20, 274-283.	8.1	39
20	Investigations on Al$_{m x}$Ga$_{m {1-x}}$As Solar Cells Grown by MOVPE. IEEE Journal of Photovoltaics, 2015, 5, 446-453.	2.5	39
21	YieldOpt, a model to predict the power output and energy yield for concentrating photovoltaic modules. Progress in Photovoltaics: Research and Applications, 2015, 23, 385-397.	8.1	37
22	III-V Multi-junction solar cells and concentrating photovoltaic (CPV) systems. Advanced Optical Technologies, 2014, 3, 469-478.	1.7	36
23	IIIâ€“V solar cells under monochromatic illumination. Conference Record of the IEEE Photovoltaic Specialists Conference, 2008, , .	0.0	35
24	Bandgap determination based on electrical quantum efficiency. Applied Physics Letters, 2013, 103, .	3.3	35
25	Modeling of concentrating photovoltaic and thermal systems. Progress in Photovoltaics: Research and Applications, 2014, 22, 427-439.	8.1	33
26	Electroluminescence and Photoluminescence Characterization of Multijunction Solar Cells. IEEE Journal of Photovoltaics, 2013, 3, 353-358.	2.5	32
27	On the temperature dependence of dualâ€junction laser power converters. Progress in Photovoltaics: Research and Applications, 2017, 25, 67-75.	8.1	30
28	Numerical simulations of absorption properties of InP nanowires for solar cell applications. Progress in Photovoltaics: Research and Applications, 2012, 20, 945-953.	8.1	26
29	Development of back side technology for light trapping and photon recycling in GaAs solar cells. Progress in Photovoltaics: Research and Applications, 2019, 27, 163-170.	8.1	25
30	Comprehensive electrical loss analysis of monolithic interconnected multiâ€segment laser power converters. Progress in Photovoltaics: Research and Applications, 2019, 27, 199-209.	8.1	24
31	Improved grating monochromator set-up for EQE measurements of multi-junction solar cells. , 2013, , .		23
32	Impact of photon recycling and luminescence coupling on IIIâ€“V single and dual junction photovoltaic devices. Journal of Photonics for Energy, 2015, 5, 053087.	1.3	21
33	Luminescence based series resistance mapping of III-V multijunction solar cells. Journal of Applied Physics, 2013, 114, 194510.	2.5	18
34	Temperature-dependent electroluminescence and voltages of multi-junction solar cells. Progress in Photovoltaics: Research and Applications, 2014, 22, 757-763.	8.1	17
35	An investigation of solar cell interconnection schemes within CPV modules using a validated temperatureâ€dependent SPICE network model. Progress in Photovoltaics: Research and Applications, 2014, 22, 505-514.	8.1	17
36	Development of high efficiency wafer bonded 4-junction solar cells for concentrator photovoltaic applications. , 2014, , .		17

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37	Processing Techniques for Monolithic Interconnection of Solar Cells at Wafer Level. IEEE Transactions on Electron Devices, 2010, 57, 3355-3360.	3.0	15
38	Integrated series/parallel connection for photovoltaic laser power converters with optimized current matching. Progress in Photovoltaics: Research and Applications, 2021, 29, 172-180.	8.1	15
39	GaSb-, InGaAsSb-, InGaSb-, InAsSbP- and Ge-TPV cells for low-temperature TPV applications. AIP Conference Proceedings, 2003, , .	0.4	14
40	Development and investigation of a CPV module with Cassegrain mirror optics. AIP Conference Proceedings, 2014, , .	0.4	12
41	Investigation of Radiation Hardness of Germanium Photovoltaic Cells. IEEE Transactions on Electron Devices, 2010, 57, 2190-2194.	3.0	11
42	Promises of advanced multi-junction solar cells for the use in CPV systems. , 2010, , .		11
43	Realistic power output modeling of CPV modules. AIP Conference Proceedings, 2012, , .	0.4	11
44	On the alignment tolerance of photovoltaic laser power converters. Optik, 2017, 131, 287-291.	2.9	11
45	Diffusion of Zn in TPV materials: GaSb, InGaSb, InGaAsSb and InAsSbP. AIP Conference Proceedings, 2003, , .	0.4	9
46	Investigation of different Fresnel lens designs and methods to determine the optical efficiency. AIP Conference Proceedings, 2014, , .	0.4	9
47	Four-junction wafer bonded concentrator solar cells. , 2015, , .		9
48	Component cellâ€“based restriction of spectral conditions and the impact on CPV module power rating. Progress in Photovoltaics: Research and Applications, 2018, 26, 351-358.	8.1	9
49	Investigations on 3-dimensional temperature distribution in a FLATCON-type CPV module. AIP Conference Proceedings, 2013, , .	0.4	8
50	SPICE Network Simulation to Calculate Thermal Runaway in IIIâ€“V Solar Cells in CPV Modules. IEEE Journal of Photovoltaics, 2014, 4, 749-754.	2.5	8
51	Analysis of a four lamp flash system for calibrating multi-junction solar cells under concentrated light. AIP Conference Proceedings, 2015, , .	0.4	8
52	Determination of subcell Iâ€“V characteristics of multijunction solar cells using optical coupling. Progress in Photovoltaics: Research and Applications, 2016, 24, 760-773.	8.1	8
53	On the Influence of the Photo-Induced Leakage Current in Monolithically Interconnected Modules. IEEE Journal of Photovoltaics, 2018, 8, 541-546.	2.5	8
54	Numerical simulation of tunnel diodes and multi-junction solar cells. , 2008, , .		7

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55	Outdoor evaluation of flatconÂ® modules and systems. , 2008, , .		7
56	CPV module with Fresnel lens primary optics and homogenizing secondary optics. AIP Conference Proceedings, 2015, , .	0.4	7
57	IV-Characterization of Devices Consisting of Solar Cells and Tunnel Diodes. , 2006, , .		6
58	Modeling the thermal runaway effect in CPV modules. AIP Conference Proceedings, 2013, , .	0.4	6
59	Pushing the Boundaries of Photovoltaic Light to Electricity Conversion: A GaAs Based Photonic Power Converter with 68.9% Efficiency. , 2021, , .		5
60	Development of metamorphic triple-junction solar cells for low temperature, low intensity operation in space. , 2008, , .		4
61	AlxGa1â^'xAs minority carrier lifetime enhancement at low temperatures. Applied Physics Letters, 2013, 103, 132102.	3.3	4
62	Stepwise measurement procedure for the characterization of largeâ€area photovoltaic modules. Progress in Photovoltaics: Research and Applications, 2015, 23, 1867-1876.	8.1	4
63	Photovoltaic laser power converters for wireless optical power supply of sensor systems. , 2016, , .		4
64	Performance and failure analysis of concentrator solar cells after intensive stressing with thermal, electrical, and combined load. AIP Conference Proceedings, 2017, , .	0.4	4
65	Systematic design evaluation on the example of a concentrator photovoltaic module with mirror optics and passive heat dissipation. Progress in Photovoltaics: Research and Applications, 2018, 26, 460-472.	8.1	4
66	FLATCONÂ® CPV module technology: A new design based on the evaluation of 10 years of outdoor measurement data. AIP Conference Proceedings, 2019, , .	0.4	4
67	Increasing the Energy Yield of CPV Modules through Optimized Solar Cell Interconnection. AIP Conference Proceedings, 2011, , .	0.4	3
68	Subcell Characterization in Multijunction Solar Cells Using Pulsed Light. IEEE Journal of Photovoltaics, 2017, 7, 709-714.	2.5	3
69	Wafer Bonded IIIâ€“V on Silicon Multi -Junction Cell with Efficiency beyond 31%. , 2017, , .		3
70	Operation & maintenance â€“ The key for reliable performance in a CPV power plant. AIP Conference Proceedings, 2018, , .	0.4	3
71	Wafer-bonded GaInP/GaAs/GaInAs//GaSb four-junction solar cells with 43.8% efficiency under concentration. , 2020, , .		3
72	An optically powered fibre network for heterogeneous subscribers. , 2009, , .		2

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73	Spectrally resolved DNI measurements: Results of a field comparison of spectroradiometers, component cells and the SOLIS satellite model. AIP Conference Proceedings, 2012, , .	0.4	2
74	Series resistance mapping of III-V multijunction solar cells based on luminescence imaging. , 2013, , .		1
75	Minority carrier lifetime limitations in Si wafer solar cells with gallium phosphide window layers. , 2016, , .		1
76	Electroluminescence and photoluminescence characterization of multijunction solar cells. , 2012, , .		0
77	Electroluminescence and photoluminescence characterization of multijunction solar cells. , 2013, , .		0
78	Challenges for thermal management and production technologies in concentrating photovoltaic (CPV) modules. , 2014, , .		0
79	Quantum efficiency measurement of concentrator photovoltaic modules. , 2015, , .		0
80	A sensitivity analysis of the stepwise measurement procedure for the characterization of large area PV modules. Solar Energy, 2016, 127, 96-108.	6.1	0
81	Notice of Removal: Subcell characterization in multijunction solar cells using pulsed light. , 2017, , .		0
82	High-Speed Quantum Efficiency Determination of Multijunction Solar Cells. IEEE Journal of Photovoltaics, 2018, 8, 333-341.	2.5	0
83	Analysis of the performance of an on-axis mirror module design compared to a FLATCONÂ® module. AIP Conference Proceedings, 2018, , .	0.4	0
84	Monolithic 2-terminal perovskite silicon tandem solar cells. , 0, , .		0
85	Preface to Special Collection: â€œRenewable Energy Technologies and Systemsâ€• Applied Physics Reviews, 2021, 8, 020401.	11.3	0