

# Sarah R Kurtz

## List of Publications by Year in descending order

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142  
papers

6,774  
citations

109321

35  
h-index

69250

77  
g-index

144  
all docs

144  
docs citations

144  
times ranked

6149  
citing authors

#	ARTICLE	IF	CITATIONS
1	Strong Internal and External Luminescence as Solar Cells Approach the Shockley-Queisser Limit. IEEE Journal of Photovoltaics, 2012, 2, 303-311.	2.5	826
2	Superior radiation resistance of In <sub>1-x</sub> Ga <sub>x</sub> N alloys: Full-solar-spectrum photovoltaic material system. Journal of Applied Physics, 2003, 94, 6477-6482.	2.5	572
3	Design and characterization of GaN/InGaN solar cells. Applied Physics Letters, 2007, 91, .	3.3	522
4	Compendium of photovoltaic degradation rates. Progress in Photovoltaics: Research and Applications, 2016, 24, 978-989.	8.1	374
5	High-efficiency GaInP/GaAs/InGaAs triple-junction solar cells grown inverted with a metamorphic bottom junction. Applied Physics Letters, 2007, 91, .	3.3	350
6	Terawatt-scale photovoltaics: Trajectories and challenges. Science, 2017, 356, 141-143.	12.6	303
7	29.5% efficient GaInP/GaAs tandem solar cells. Applied Physics Letters, 1994, 65, 989-991.	3.3	291
8	Dilute nitride GaInNAs and GaInNAsSb solar cells by molecular beam epitaxy. Journal of Applied Physics, 2007, 101, 114916.	2.5	192
9	Effect of nitrogen on the band structure of GaInNAs alloys. Journal of Applied Physics, 1999, 86, 2349-2351.	2.5	153
10	Robust PV Degradation Methodology and Application. IEEE Journal of Photovoltaics, 2018, 8, 525-531.	2.5	121
11	Evaluation of high-temperature exposure of photovoltaic modules. Progress in Photovoltaics: Research and Applications, 2011, 19, 954-965.	8.1	119
12	PV degradation curves: nonlinearities and failure modes. Progress in Photovoltaics: Research and Applications, 2017, 25, 583-591.	8.1	109
13	Multijunction solar cells for conversion of concentrated sunlight to electricity. Optics Express, 2010, 18, A73.	3.4	95
14	BGaInAs alloys lattice matched to GaAs. Applied Physics Letters, 2000, 76, 1443-1445.	3.3	94
15	Measuring IV Curves and Subcell Photocurrents in the Presence of Luminescent Coupling. IEEE Journal of Photovoltaics, 2013, 3, 879-887.	2.5	85
16	Accelerated publication 30.2% efficient GaInP/GaAs monolithic two-terminal tandem concentrator cell. Progress in Photovoltaics: Research and Applications, 1995, 3, 47-50.	8.1	84
17	A comparison of theoretical efficiencies of multi-junction concentrator solar cells. Progress in Photovoltaics: Research and Applications, 2008, 16, 537-546.	8.1	82
18	Photoluminescence, photoluminescence excitation, and resonant Raman spectroscopy of disordered and ordered Ga <sub>0.52</sub> In <sub>0.48</sub> P. Journal of Applied Physics, 1993, 73, 5163-5172.	2.5	81

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19	Effects of Internal Luminescence and Internal Optics on $V_{oc}$ and $J_{sc}$ of III-V Solar Cells. IEEE Journal of Photovoltaics, 2013, 3, 1437-1442.	2.5	77
20	Breakeven criteria for the GaInNAs junction in GaInP/GaAs/GaInNAs/Ge four-junction solar cells. Progress in Photovoltaics: Research and Applications, 2002, 10, 331-344.	8.1	76
21	Fill factor as a probe of current matching for GaInP <sub>2</sub> /GaAs tandem cells in a concentrator system during outdoor operation. Progress in Photovoltaics: Research and Applications, 2008, 16, 213-224.	8.1	74
22	Perovskite Photovoltaics: The Path to a Printable Terawatt-Scale Technology. ACS Energy Letters, 2017, 2, 2540-2544.	17.4	64
23	Evaluating emerging long-duration energy storage technologies. Renewable and Sustainable Energy Reviews, 2022, 159, 112240.	16.4	61
24	Low-acceptor-concentration GaInNAs grown by molecular-beam epitaxy for high-current p-i-n solar cell applications. Journal of Applied Physics, 2005, 98, 094501.	2.5	59
25	Performance and Aging of a 20-Year-Old Silicon PV System. IEEE Journal of Photovoltaics, 2015, 5, 744-751.	2.5	59
26	Persistent photoconductivity in Ga <sub>1-x</sub> In <sub>x</sub> NyAs <sub>1-y</sub> . Applied Physics Letters, 1999, 75, 1899-1901.	3.3	58
27	The Dark Horse of Evaluating Long-Term Field Performance—Data Filtering. IEEE Journal of Photovoltaics, 2014, 4, 317-323.	2.5	58
28	Testing and Analysis for Lifetime Prediction of Crystalline Silicon PV Modules Undergoing Degradation by System Voltage Stress. IEEE Journal of Photovoltaics, 2013, 3, 246-253.	2.5	57
29	Silicon Heterojunction System Field Performance. IEEE Journal of Photovoltaics, 2018, 8, 177-182.	2.5	53
30	Bandgap narrowing in ordered Ga <sub>0.47</sub> In <sub>0.53</sub> As. Applied Physics Letters, 1993, 62, 1806-1808.	3.3	49
31	Effects of epitaxial lift-off on interface recombination and laser cooling in GaInP-GaAs heterostructures. Applied Physics Letters, 2005, 86, 081104.	3.3	48
32	Damage in Monolithic Thin-Film Photovoltaic Modules Due to Partial Shade. IEEE Journal of Photovoltaics, 2016, 6, 1333-1338.	2.5	47
33	50% Efficient Solar Cell Architectures and Designs. , 2006, , .		46
34	Evaluation of high-temperature exposure of rack-mounted photovoltaic modules. , 2009, , .		45
35	Thermal and Electrical Effects of Partial Shade in Monolithic Thin-Film Photovoltaic Modules. IEEE Journal of Photovoltaics, 2015, 5, 1742-1747.	2.5	45
36	Reliability testing beyond Qualification as a key component in photovoltaic's progress toward grid parity. , 2011, , .		42

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37	Global Progress Toward Renewable Electricity: Tracking the Role of Solar. IEEE Journal of Photovoltaics, 2021, 11, 1335-1342.	2.5	39
38	Band-gap bowing effects in BxGa1-xAs alloys. Journal of Applied Physics, 2003, 93, 2696-2699.	2.5	38
39	Using accelerated testing to predict module reliability. , 2011, , .		37
40	Historical Analysis of Champion Photovoltaic Module Efficiencies. IEEE Journal of Photovoltaics, 2018, 8, 363-372.	2.5	37
41	Key parameters in determining energy generated by CPV modules. Progress in Photovoltaics: Research and Applications, 2015, 23, 1250-1259.	8.1	35
42	Anomalous electrorreflectance spectrum of spontaneously ordered Ga0.5In0.5P. Journal of Applied Physics, 1993, 74, 4130-4135.	2.5	34
43	The Influence of PV Module Materials and Design on Solder Joint Thermal Fatigue Durability. IEEE Journal of Photovoltaics, 2016, 6, 1407-1412.	2.5	34
44	A two junction, four terminal photovoltaic device for enhanced light to electric power conversion using a low-cost dichroic mirror. Journal of Renewable and Sustainable Energy, 2009, 1, 013106.	2.0	33
45	Translating outdoor CPV $i_{sc}$ measurements to a CSTC power rating and the associated uncertainty. Progress in Photovoltaics: Research and Applications, 2015, 23, 1557-1571.	8.1	33
46	Optically Enhanced Photon Recycling in Mechanically Stacked Multijunction Solar Cells. IEEE Journal of Photovoltaics, 2016, 6, 358-365.	2.5	33
47	Field testing of thermoplastic encapsulants in high-temperature installations. Energy Science and Engineering, 2015, 3, 565-580.	4.0	29
48	Survey of potential-induced degradation in thin-film modules. Journal of Photonics for Energy, 2015, 5, 053083.	1.3	28
49	Elucidating PID Degradation Mechanisms and In Situ Dark $i_{sc}$ Monitoring for Modeling Degradation Rate in CdTe Thin-Film Modules. IEEE Journal of Photovoltaics, 2016, 6, 1635-1640.	2.5	28
50	Outdoor performance of a thin-film gallium-arsenide photovoltaic module. , 2013, , .		27
51	Creep in photovoltaic modules: Examining the stability of polymeric materials and components. , 2010, , .		26
52	How can we make PV modules safer?. , 2012, , .		26
53	Using Phase Effects to Understand Measurements of the Quantum Efficiency and Related Luminescent Coupling in a Multijunction Solar Cell. IEEE Journal of Photovoltaics, 2012, 2, 424-433.	2.5	26
54	Photovoltaic Module Qualification Plus Testing. , 2014, , .		25

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55	A scalable method for extracting soiling rates from PV production data. , 2016, , .		24
56	Annealing-induced-type conversion of GaInNAs. Journal of Applied Physics, 2004, 95, 2505-2508.	2.5	23
57	Assessing the causes of encapsulant delamination in PV modules. , 2016, , .		23
58	Defining Threshold Values of Encapsulant and Backsheet Adhesion for PV Module Reliability. IEEE Journal of Photovoltaics, 2017, 7, 1536-1540.	2.5	23
59	Durability of polymeric encapsulation materials for concentrating photovoltaic systems. Progress in Photovoltaics: Research and Applications, 2013, 21, 631-651.	8.1	22
60	PV degradation methodology comparison " A basis for a standard. , 2016, , .		22
61	Thermal Study of Inverter Components. IEEE Journal of Photovoltaics, 2013, 3, 807-813.	2.5	21
62	Determining the effects of environment and atmospheric parameters on PV field performance. , 2016, , .		21
63	Low-band-gap Ga <sub>0.5</sub> In <sub>0.5</sub> P grown on (511)BCaAs substrates. Journal of Applied Physics, 1994, 75, 5110-5113.	2.5	20
64	Effects of temperature, nitrogen ions, and antimony on wide depletion width GaInNAs. Journal of Vacuum Science & Technology B, 2007, 25, 955.	1.3	20
65	Requirements for a 20%-efficient polycrystalline GaAs solar cell. , 1997, , .		19
66	Development and first results of the width-tapered beam method for adhesion testing of photovoltaic material systems. , 2016, , .		19
67	Implications of Redesigned, High-Radiative-Efficiency GaInP Junctions on III-V Multijunction Concentrator Solar Cells. IEEE Journal of Photovoltaics, 2015, 5, 418-424.	2.5	17
68	Acceleration factor determination for potential-induced degradation in crystalline silicon PV modules. , 2013, , .		15
69	Alternative boron precursors for BCaAs epitaxy. Journal of Electronic Materials, 2001, 30, 1387-1391.	2.2	14
70	Real-Time Series Resistance Monitoring in PV Systems Without the Need for I-V Curves. IEEE Journal of Photovoltaics, 2015, 5, 1706-1709.	2.5	14
71	Cross-sector storage and modeling needed for deep decarbonization. Joule, 2021, 5, 2529-2534.	24.0	14
72	Measuring degradation rates without irradiance data. , 2010, , .		13

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73	Modeling Thermal Fatigue in CPV Cell Assemblies. IEEE Journal of Photovoltaics, 2011, 1, 242-247.	2.5	13
74	Multi angle laser light scattering evaluation of field exposed thermoplastic photovoltaic encapsulant materials. Energy Science and Engineering, 2016, 4, 40-51.	4.0	13
75	Seasonal challenges for a California renewable- energy-driven grid. IScience, 2022, 25, 103577.	4.1	13
76	Design, Growth, Fabrication and Characterization of High-Band Gap InGaN/GaN Solar Cells. , 2006, , .		12
77	Inverted GaInP / (In)GaAs / InGaAs triple-junction solar cells with low-stress metamorphic bottom junctions. Conference Record of the IEEE Photovoltaic Specialists Conference, 2008, , .	0.0	12
78	Design of semiconductor-based back reflectors for high V<sub>oc</sub>/I<sub>sc</sub> monolithic multijunction solar cells. , 2012, , .		12
79	A framework for a comparative accelerated testing standard for PV modules. , 2013, , .		12
80	Requirements for quality management system for PV module manufacturing. , 2014, , .		12
81	Measuring degradation rates of PV systems without irradiance data. Progress in Photovoltaics: Research and Applications, 2014, 22, 851-862.	8.1	12
82	Simulated potential for enhanced performance of mechanically stacked hybrid III-V/Si tandem photovoltaic modules using DC-DC converters. Journal of Photonics for Energy, 2017, 7, 1.	1.3	12
83	Determination of free carrier concentration in GaInP alloy by Raman scattering. Journal of Applied Physics, 1995, 78, 2515-2519.	2.5	11
84	Effect of Sb on the Properties of GaInP Top Cells. , 2006, , .		11
85	Monolithic, Ultra-Thin GaInP/GaAs/GaInAs Tandem Solar Cells. , 2006, , .		11
86	A great solar cell also needs to be a great LED: External fluorescence leads to new efficiency record. AIP Conference Proceedings, 2013, , .	0.4	11
87	Performance Stabilization of CdTe PV Modules Using Bias and Light. IEEE Journal of Photovoltaics, 2015, 5, 344-349.	2.5	11
88	Durability of polymeric encapsulation materials in a PMMA/glass concentrator photovoltaic system. Progress in Photovoltaics: Research and Applications, 2016, 24, 1385-1409.	8.1	11
89	Solar research not finished. Nature Photonics, 2016, 10, 141-142.	31.4	11
90	A direct comparison of inverted and non-inverted growths of GaInP solar cells. Conference Record of the IEEE Photovoltaic Specialists Conference, 2008, , .	0.0	10

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91	Ensuring quality of PV modules. , 2011, , .		9
92	Analysis of solar cell quality using voltage metrics. , 2012, , .		9
93	Competing Kinetic and Thermodynamic Processes in the Growth and Ordering of Ga <sub>0.5</sub> In <sub>0.5</sub> P. Materials Research Society Symposia Proceedings, 1993, 312, 83.	0.1	8
94	Simulation and experiment of thermal fatigue in the CPV die attach. AIP Conference Proceedings, 2012, , .	0.4	8
95	Application of the terrestrial photovoltaic module accelerated test-to-failure protocol. , 2014, , .		8
96	Metastable changes to the temperature coefficients of thin-film photovoltaic modules. , 2014, , .		8
97	Validated Method for Repeatable Power Measurement of CIGS Modules Exhibiting Light-Induced Metastabilities. IEEE Journal of Photovoltaics, 2015, 5, 607-612.	2.5	8
98	Comparative study of the performance of field-aged photovoltaic modules located in a hot and humid environment. , 2012, , .		7
99	Development of comparative tests of PV modules by the International PV Module QA Task Force. , 2014, , .		7
100	Quantifying the Thermal Fatigue of CPV Modules. AIP Conference Proceedings, 2010, , .	0.4	6
101	Moving toward quantifying reliability - the next step in a rapidly maturing PV industry. , 2015, , .		6
102	Experimental and modeling analysis of internal luminescence in III-V solar cells. AIP Conference Proceedings, 2013, , .	0.4	5
103	Three-prong path to comprehensive technical standards for photovoltaic reliability. , 2014, , .		5
104	Performance stabilization of CdTe PV modules using bias and light. , 2014, , .		5
105	High-efficiency GaInP/GaAs tandem solar cells. Journal of Propulsion and Power, 1996, 12, 842-846.	2.2	4
106	Cell-level thermal management issues in concentrator III&#x2013;V multijunction solar cells. , 2010, , .		4
107	On the effect of ramp rate in damage accumulation of the CPV die-attach. , 2012, , .		4
108	Measuring IV curves and subcell photocurrents in the presence of luminescent coupling. , 2012, , .		4

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109	Testing and analysis for lifetime prediction of crystalline silicon PV modules undergoing degradation by system voltage stress. , 2012, , .		4
110	Thermal and electrical effects of partial shade in monolithic thin-film photovoltaic modules. , 2015, , .		4
111	Real-time series resistance monitoring in PV systems without the need for IV curves. , 2015, , .		4
112	Optimizing the Configuration of Photovoltaic Plants to Minimize the Need for Storage. IEEE Journal of Photovoltaics, 2022, 12, 860-870.	2.5	4
113	Thermal study of inverter components. , 2012, , .		3
114	Optical cell temperature measurements of multiple CPV technologies in outdoor conditions. , 2013, , .		3
115	CPV cell characterization following one-year exposure in Golden Colorado. AIP Conference Proceedings, 2014, , .	0.4	3
116	A side-by-side comparison of CPV module and system performance. Progress in Photovoltaics: Research and Applications, 2016, 24, 940-954.	8.1	3
117	Seasonal Challenges for a Zero-Carbon Grid in California. , 2021, , .		3
118	Multijunction solar cells for conversion of concentrated sunlight to electricity. Optics Express, 2010, 18, A73-8.	3.4	3
119	Geographical variability of summer- and winter-dominant onshore wind. Journal of Renewable and Sustainable Energy, 2022, 14, .	2.0	3
120	Dlts Analysis of Radiation-Induced Defects in InGaAsN Solar Cell Structures. , 2006, , .		2
121	Relative lifetime prediction for CPV die-attach layers. , 2012, , .		2
122	PV system energy test. , 2014, , .		2
123	Temperature-dependent light-stabilized states in thin-film PV modules. , 2015, , .		2
124	Field testing of flat-plate and concentrator photovoltaic systems at the Solar Technology Acceleration Center. , 2015, , .		2
125	Thermal Impact of Rear Insulation, Light Trapping, and Parasitic Absorption in Solar Modules. IEEE Journal of Photovoltaics, 2022, 12, 1043-1050.	2.5	2
126	Optical Detection of Band Gap Variations Due to Ordering in Ga <sub>0.47</sub> In <sub>0.53</sub> As on InP. Materials Research Society Symposia Proceedings, 1992, 281, 67.	0.1	1



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127	Polycrystalline MBE-grown GaAs for solar cells. AIP Conference Proceedings, 1997, , .	0.4	1
128	GaInNAsSb Solar Cells Grown by Molecular Beam Epitaxy. , 2006, , .		1
129	Measuring IV curves and subcell photocurrents in the presence of luminescent coupling. , 2013, , .		1
130	Testing and analysis for lifetime prediction of crystalline silicon PV modules undergoing degradation by system voltage stress. , 2013, , .		1
131	The ability of short term performance tests to reproduce the results of a one-year adjusted energy test for non-concentrating PV systems. , 2014, , .		1
132	Analysis of initial performance of Solergyâ€™s HCPV/T system at Rome-Fiumicino International Airport. AIP Conference Proceedings, 2017, , .	0.4	1
133	Notice of Removal Damage in monolithic thin-film photovoltaic modules due to partial shade. , 2017, , .		1
134	Capacity Factor Analysis of U.S. PV System Reliability and Performance. IEEE Journal of Photovoltaics, 2020, 10, 818-823.	2.5	1
135	Recent developments in terrestrial concentrator photovoltaics. AIP Conference Proceedings, 1997, , .	0.4	0
136	The Effects of Atmosphere, Temperature, and Bandgap on the Annealing of GaInNAs for Solar Cell Applications. Materials Research Society Symposia Proceedings, 2003, 799, 41.	0.1	0
137	Characterization of a Dominant Electron Trap in GaNAs Using Deep-Level Transient Spectroscopy. Materials Research Society Symposia Proceedings, 2005, 891, 1.	0.1	0
138	Thermal study of inverter components. , 2013, , .		0
139	Direct analysis of the current-voltage curves of outdoor-degrading modules. , 2014, , .		0
140	Notice of Removal Elucidating PID degradation mechanisms and in-situ dark I-V monitoring for modeling degradation rate in CdTe thin-film modules. , 2017, , .		0
141	Marrying Quality Assurance with Design Engineering â€™“ A Winning Partnership! But, a Cultural Divide?. , 2017, , .		0
142	Defining Threshold Values of Encapsulant and Backsheet Adhesion for PV Module Reliability. , 2017, , .		0