Tonio Buonassisi

List of Publications by Year
in descending order

198	16,402	19657 61	16183 124
papers	citations	h-index	g-index

203	203	203	17297
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Tailoring capping-layer composition for improved stability of mixed-halide perovskites. Journal of Materials Chemistry A, 2022, 10, 2957-2965.	10.3	5
2	A Machine Learning and Computer Vision Approach to Rapidly Optimize Multiscale Droplet Generation. ACS Applied Materials & Interfaces, 2022, 14, 4668-4679.	8.0	20
3	An invertible crystallographic representation for general inverse design of inorganic crystals with targeted properties. Matter, 2022, 5, 314-335.	10.0	59
4	Environmental Stability of Crystals: A Greedy Screening. Chemistry of Materials, 2022, 34, 2545-2552.	6.7	9
5	Discovering equations that govern experimental materials stability under environmental stress using scientific machine learning. Npj Computational Materials, 2022, 8, .	8.7	6
6	Machine learning with knowledge constraints for process optimization of open-air perovskite solar cell manufacturing. Joule, 2022, 6, 834-849.	24.0	69
7	Opportunities for machine learning to accelerate halide-perovskite commercialization and scale-up. Matter, 2022, 5, 1353-1366.	10.0	8
8	Interpretable and Explainable Machine Learning for Materials Science and Chemistry. Accounts of Materials Research, 2022, 3, 597-607.	11.7	60
9	Voltage- and flow-controlled electrodialysis batch operation: Flexible and optimized brackish water desalination. Desalination, 2021, 500, 114837.	8.2	9
10	Representative identification of spectra and environments (RISE) using kâ€means. Progress in Photovoltaics: Research and Applications, 2021, 29, 200-211.	8.1	9
11	Enhanced charge carrier lifetime and mobility as a result of Rb and Cs incorporation in hybrid perovskite. Applied Physics Letters, 2021, 118, .	3.3	12
12	A data fusion approach to optimize compositional stability of halide perovskites. Matter, 2021, 4, 1305-1322.	10.0	75
13	Discovery of temperature-induced stability reversal in perovskites using high-throughput robotic learning. Nature Communications, 2021, 12, 2191.	12.8	77
14	Two-step machine learning enables optimized nanoparticle synthesis. Npj Computational Materials, 2021, 7, .	8.7	86
15	How changes in worldwide operating conditions affect solar cell performance. Solar Energy, 2021, 220, 671-679.	6.1	3
16	An Open Combinatorial Diffraction Dataset Including Consensus Human and Machine Learning Labels with Quantified Uncertainty for Training New Machine Learning Models. Integrating Materials and Manufacturing Innovation, 2021, 10, 311-318.	2.6	5
17	Transfer Learning-Based Artificial Intelligence-Integrated Physical Modeling to Enable Failure Analysis for 3 Nanometer and Smaller Silicon-Based CMOS Transistors. ACS Applied Nano Materials, 2021, 4, 6903-6915.	5.0	25
18	Multiâ€Fidelity Highâ€Throughput Optimization of Electrical Conductivity in P3HTâ€CNT Composites. Advanced Functional Materials, 2021, 31, 2102606.	14.9	20

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19	Using automated serendipity to discover how trace water promotes and inhibits lead halide perovskite crystal formation. Applied Physics Letters, 2021, 119, .	3.3	12
20	A robust low data solution: Dimension prediction of semiconductor nanorods. Computers and Chemical Engineering, 2021, 150, 107315.	3.8	7
21	Autonomous experimentation systems for materials development: A community perspective. Matter, 2021, 4, 2702-2726.	10.0	143
22	Predicting Antimicrobial Activity of Conjugated Oligoelectrolyte Molecules via Machine Learning. Journal of the American Chemical Society, 2021, 143, 18917-18931.	13.7	17
23	Benchmarking the performance of Bayesian optimization across multiple experimental materials science domains. Npj Computational Materials, 2021, 7, .	8.7	62
24	Design of domestic photovoltaics manufacturing systems under global constraints and uncertainty. Renewable Energy, 2020, 148, 1174-1189.	8.9	10
25	Perovskite PV-Powered RFID: Enabling Low-Cost Self-Powered IoT Sensors. IEEE Sensors Journal, 2020, 20, 471-478.	4.7	46
26	Revisiting thin silicon for photovoltaics: a technoeconomic perspective. Energy and Environmental Science, 2020, 13, 12-23.	30.8	85
27	Roadmap for cost-effective, commercially-viable perovskite silicon tandems for the current and future PV market. Sustainable Energy and Fuels, 2020, 4, 852-862.	4.9	58
28	Field demonstration of a cost-optimized solar powered electrodialysis reversal desalination system in rural India. Desalination, 2020, 476, 114217.	8.2	24
29	How Much Physics is in a Currentâ€“Voltage Curve? Inferring Defect Properties From Photovoltaic Device Measurements. IEEE Journal of Photovoltaics, 2020, 10, 1532-1537.	2.5	5
30	Quantitative Specifications to Avoid Degradation during E-Beam and Induced Current Microscopy of Halide Perovskite Devices. Journal of Physical Chemistry C, 2020, 124, 18961-18967.	3.1	4
31	AI Applications through the Whole Life Cycle of Material Discovery. Matter, 2020, 3, 393-432.	10.0	86
32	How machine learning can help select capping layers to suppress perovskite degradation. Nature Communications, 2020, 11, 4172.	12.8	75
33	The Impact of COVID-19-Related Measures on the Solar Resource in Areas with High Levels of Air Pollution. Joule, 2020, 4, 1681-1687.	24.0	17
34	Economically Sustainable Growth of Perovskite Photovoltaics Manufacturing. Joule, 2020, 4, 822-839.	24.0	59
35	Embedding physics domain knowledge into a Bayesian network enables layer-by-layer process innovation for photovoltaics. Npj Computational Materials, 2020, 6, .	8.7	18
36	A Worldwide Theoretical Comparison of Outdoor Potential for Various Silicon-Based Tandem Module Architecture. Cell Reports Physical Science, 2020, 1, 100037.	5.6	22

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37	Technoeconomic model of second-life batteries for utility-scale solar considering calendar and cycle aging. Applied Energy, 2020, 269, 115127.	10.1	84
38	Analysis of CdTe photovoltaic cells for ambient light energy harvesting. Journal Physics D: Applied Physics, 2020, 53, 405501.	2.8	5
39	Detecting Microcracks in Photovoltaics Silicon Wafers using Varitional Autoencoder. , 2020, , .		2
40	Tabula Rasa for nâ€Cz siliconâ€based photovoltaics. Progress in Photovoltaics: Research and Applications, 2019, 27, 136-143.	8.1	12
41	Selfâ€Powered Sensors Enabled by Wideâ€Bandgap Perovskite Indoor Photovoltaic Cells. Advanced Functional Materials, 2019, 29, 1904072.	14.9	83
42	Machine learning enables polymer cloud-point engineering via inverse design. Npj Computational Materials, 2019, 5, .	8.7	56
43	The effect of structural dimensionality on carrier mobility in lead-halide perovskites. Journal of Materials Chemistry A, 2019, 7, 23949-23957.	10.3	38
44	The Value of Efficiency in Photovoltaics. Joule, 2019, 3, 2732-2747.	24.0	49
45	Tuning Electrical, Optical, and Thermal Properties through Cation Disorder in Cu₂ZnSnS₄. Chemistry of Materials, 2019, 31, 8402-8412.	6.7	11
46	Accelerated Development of Perovskite-Inspired Materials via High-Throughput Synthesis and Machine-Learning Diagnosis. Joule, 2019, 3, 1437-1451.	24.0	187
47	An interface stabilized perovskite solar cell with high stabilized efficiency and low voltage loss. Energy and Environmental Science, 2019, 12, 2192-2199.	30.8	542
48	Fast and interpretable classification of small X-ray diffraction datasets using data augmentation and deep neural networks. Npj Computational Materials, 2019, 5, .	8.7	177
49	Technology and Market Perspective for Indoor Photovoltaic Cells. Joule, 2019, 3, 1415-1426.	24.0	316
50	Long Range Battery-Less PV-Powered RFID Tag Sensors. IEEE Internet of Things Journal, 2019, 6, 6989-6996.	8.7	41
51	Halide Heterogeneity Affects Local Charge Carrier Dynamics in Mixed-Ion Lead Perovskite Thin Films. Chemistry of Materials, 2019, 31, 3712-3721.	6.7	27
52	Meeting global cooling demand with photovoltaics during the 21st century. Energy and Environmental Science, 2019, 12, 2706-2716.	30.8	33
53	Triplet-Sensitization by Lead Halide Perovskite Thin Films for Near-Infrared-to-Visible Upconversion. ACS Energy Letters, 2019, 4, 888-895.	17.4	117
54	How far does the defect tolerance of lead-halide perovskites range? The example of Bi impurities introducing efficient recombination centers. Journal of Materials Chemistry A, 2019, 7, 23838-23853.	10.3	57

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55	Phosphonic Acid Modification of the Electron Selective Contact: Interfacial Effects in Perovskite Solar Cells. ACS Applied Energy Materials, 2019, 2, 2402-2408.	5.1	23
56	Detection of sub-500-Î¼m cracks in multicrystalline silicon wafer using edge-illuminated dark-field imaging to enable thin solar cell manufacturing. Solar Energy Materials and Solar Cells, 2019, 196, 70-77.	6.2	15
57	Bayesim: A tool for adaptive grid model fitting with Bayesian inference. Computer Physics Communications, 2019, 239, 161-165.	7.5	8
58	Homogenized halides and alkali cation segregation in alloyed organic-inorganic perovskites. Science, 2019, 363, 627-631.	12.6	258
59	Technoeconomic Analysis of Photovoltaics Module Manufacturing with Thin Silicon Wafers. , 2019, , .		1
60	Optimization and design of a low-cost, village-scale, photovoltaic-powered, electrodialysis reversal desalination system for rural India. Desalination, 2019, 452, 265-278.	8.2	33
61	Developing a Robust Recombination Contact to Realize Monolithic Perovskite Tandems With Industrially Common p-Type Silicon Solar Cells. IEEE Journal of Photovoltaics, 2018, 8, 1023-1028.	2.5	27
62	Energy Yield Limits for Single-Junction Solar Cells. Joule, 2018, 2, 1160-1170.	24.0	38
63	High-performance p-type multicrystalline silicon (mc-Si): Its characterization and projected performance in PERC solar cells. Solar Energy, 2018, 175, 68-74.	6.1	17
64	Solubility and Diffusivity: Important Metrics in the Search for the Root Cause of Light- and Elevated Temperature-Induced Degradation. IEEE Journal of Photovoltaics, 2018, 8, 448-455.	2.5	23
65	Advantages of operation flexibility and load sizing for PV-powered system design. Solar Energy, 2018, 162, 132-139.	6.1	27
66	Global Prediction of Photovoltaic Field Performance Differences Using Open-Source Satellite Data. Joule, 2018, 2, 307-322.	24.0	40
67	Solvent-Engineering Method to Deposit Compact Bismuth-Based Thin Films: Mechanism and Application to Photovoltaics. Chemistry of Materials, 2018, 30, 336-343.	6.7	87
68	Sustainable silicon photovoltaics manufacturing in a global market: A techno-economic, tariff and transportation framework. Applied Energy, 2018, 212, 704-719.	10.1	17
69	Economic viability of thin-film tandem solar modules in the United States. Nature Energy, 2018, 3, 387-394.	39.5	68
70	Distribution and Charge State of Iron Impurities in Intentionally Contaminated Lead Halide Perovskites. IEEE Journal of Photovoltaics, 2018, 8, 156-161.	2.5	8
71	Electrically-inactive phosphorus re-distribution during low temperature annealing. Journal of Applied Physics, 2018, 123, 161535.	2.5	3
72	Characterization of high-quality kerfless epitaxial silicon for solar cells: Defect sources and impact on minority-carrier lifetime. Journal of Crystal Growth, 2018, 483, 57-64.	1.5	5

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73	Evaluating root cause: the distinct roles of hydrogen and firing in activating light- and elevated-temperature induced degradation. , 2018, , .		1
74	Ultra-Thin GaAs Double-Junction Solar Cell With Carbon-Doped Emitter. IEEE Journal of Photovoltaics, 2018, 8, 1627-1634.	2.5	2
75	Precursor Concentration Affects Grain Size, Crystal Orientation, and Local Performance in Mixed-Ion Lead Perovskite Solar Cells. ACS Applied Energy Materials, 2018, 1, 6801-6808.	5.1	65
76	Moving Beyond p-Type mc-Si: Quantified Measurements of Iron Content and Lifetime of Iron-Rich Precipitates in n-Type Silicon. IEEE Journal of Photovoltaics, 2018, 8, 1525-1530.	2.5	2
77	Design of a Submillimeter Crack-Detection Tool for Si Photovoltaic Wafers Using Vicinal Illumination and Dark-Field Scattering. IEEE Journal of Photovoltaics, 2018, 8, 1449-1456.	2.5	13
78	A-Site Cation in Inorganic A₃Sb₂I₉ Perovskite Influences Structural Dimensionality, Exciton Binding Energy, and Solar Cell Performance. Chemistry of Materials, 2018, 30, 3734-3742.	6.7	134
79	Structural and Chemical Features Giving Rise to Defect Tolerance of Binary Semiconductors. Chemistry of Materials, 2018, 30, 5583-5592.	6.7	36
80	Adaptive power consumption improves the reliability of solar-powered devices for internet of things. Applied Energy, 2018, 224, 322-329.	10.1	28
81	Stateâ€ofâ€theâ€Art Electronâ€Selective Contacts in Perovskite Solar Cells. Advanced Materials Interfaces, 2018, 5, 1800408.	3.7	38
82	Vertically integrated modeling of light-induced defects: Process modeling, degradation kinetics and device impact. AIP Conference Proceedings, 2018, , .	0.4	0
83	Accelerating Materials Development via Automation, Machine Learning, and High-Performance Computing. Joule, 2018, 2, 1410-1420.	24.0	210
84	Perovskite-Inspired Photovoltaic Materials: Toward Best Practices in Materials Characterization and Calculations. Chemistry of Materials, 2017, 29, 1964-1988.	6.7	116
85	Highly tensile-strained Ge/InAlAs nanocomposites. Nature Communications, 2017, 8, 14204.	12.8	15
86	23.6%-efficient monolithic perovskite/silicon tandem solar cells with improved stability. Nature Energy, 2017, 2, .	39.5	1,204
87	Metal Grid Contact Design for Four-Terminal Tandem Solar Cells. IEEE Journal of Photovoltaics, 2017, 7, 934-940.	2.5	14
88	Predicting the outdoor performance of flat-plate IIIâ€“V/Si tandem solar cells. Solar Energy, 2017, 149, 77-84.	6.1	18
89	Terawatt-scale photovoltaics: Trajectories and challenges. Science, 2017, 356, 141-143.	12.6	303
90	Microscopic Distributions of Defect Luminescence From Subgrain Boundaries in Multicrystalline Silicon Wafers. IEEE Journal of Photovoltaics, 2017, 7, 772-780.	2.5	16

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91	Determining interface properties limiting open-circuit voltage in heterojunction solar cells. Journal of Applied Physics, 2017, 121, .	2.5	24
92	Analysis of loss mechanisms in Ag2ZnSnSe4 Schottky barrier photovoltaics. Journal of Applied Physics, 2017, 121, .	2.5	12
93	Searching for â€œDefect-Tolerantâ€•Photovoltaic Materials: Combined Theoretical and Experimental Screening. Chemistry of Materials, 2017, 29, 4667-4674.	6.7	275
94	Evolution of LeTID Defects in p-Type Multicrystalline Silicon During Degradation and Regeneration. IEEE Journal of Photovoltaics, 2017, 7, 980-987.	2.5	62
95	Increased Throughput and Sensitivity of Synchrotron-Based Characterization for Photovoltaic Materials. IEEE Journal of Photovoltaics, 2017, 7, 763-771.	2.5	10
96	Applications of novel effects derived from Si ingot growth inside Si melt without contact with crucible wall using noncontact crucible method to high-efficiency solar cells. Journal of Crystal Growth, 2017, 468, 705-709.	1.5	9
97	Crack detection in crystalline silicon solar cells using dark-field imaging. Energy Procedia, 2017, 124, 526-531.	1.8	10
98	Thin silicon solar cells: Pathway to cost-effective and defect-tolerant cell design. Energy Procedia, 2017, 124, 706-711.	1.8	24
99	Improving the Carrier Lifetime of Tin Sulfide via Prediction and Mitigation of Harmful Point Defects. Journal of Physical Chemistry Letters, 2017, 8, 3661-3667.	4.6	22
100	Strongly Enhanced Photovoltaic Performance and Defect Physics of Airâ€Stable Bismuth Oxyiodide (BiOI). Advanced Materials, 2017, 29, 1702176.	21.0	139
101	Ohmic shunts in two-terminal dual-junction solar cells with current mismatch. Japanese Journal of Applied Physics, 2017, 56, 08MA05.	1.5	10
102	Promises and challenges of perovskite solar cells. Science, 2017, 358, 739-744.	12.6	1,510
103	High Tolerance to Iron Contamination in Lead Halide Perovskite Solar Cells. ACS Nano, 2017, 11, 7101-7109.	14.6	90
104	The influence of nitrogen doping on the electrical and vibrational properties of Cu₂O. Physica Status Solidi (B): Basic Research, 2017, 254, 1600421.	1.5	18
105	Rapid Photovoltaic Device Characterization through Bayesian Parameter Estimation. Joule, 2017, 1, 843-856.	24.0	47
106	Persistent and adaptive power system for solar powered sensors of Internet of Things (IoT). Energy Procedia, 2017, 143, 739-741.	1.8	16
107	Do grain boundaries matter? Electrical and elemental identification at grain boundaries in LeTID-affected p-type multicrystalline silicon. , 2017, , .		4
108	Methylammonium Bismuth Iodide as a Leadâ€Free, Stable Hybrid Organicâ€“Inorganic Solar Absorber. Chemistry - A European Journal, 2016, 22, 2605-2610.	3.3	312

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109	Synchrotron-based investigation of transition-metal getterability in n-type multicrystalline silicon. Applied Physics Letters, 2016, 108, .	3.3	22
110	Identification of lifetime limiting defects by temperature- and injection-dependent photoluminescence imaging. Journal of Applied Physics, 2016, 120, .	2.5	20
111	Effect of layer thickness on device response of silicon heavily supersaturated with sulfur. AIP Advances, 2016, 6, .	1.3	5
112	Optimizing phosphorus diffusion for photovoltaic applications: Peak doping, inactive phosphorus, gettering, and contact formation. Journal of Applied Physics, 2016, 119, .	2.5	45
113	A Framework for Process-to-Module Modeling of a-Si/c-Si (HIT) Heterojunction Solar Cells to Investigate the Cell-to-Module Efficiency Gap. IEEE Journal of Photovoltaics, 2016, 6, 875-887.	2.5	12
114	Engineering Solutions and Root-Cause Analysis for Light-Induced Degradation in <italic>p</italic>-Type Multicrystalline Silicon PERC Modules. IEEE Journal of Photovoltaics, 2016, 6, 860-868.	2.5	129
115	High-Performance and Traditional Multicrystalline Silicon: Comparing Gettering Responses and Lifetime-Limiting Defects. IEEE Journal of Photovoltaics, 2016, 6, 632-640.	2.5	36
116	Three-Dimensional TCAD Modeling of Grain Boundaries in High-Efficiency Silicon Solar Cells. IEEE Journal of Photovoltaics, 2016, 6, 817-822.	2.5	7
117	Solar Cell Efficiency and High Temperature Processing of n-type Silicon Grown by the Noncontact Crucible Method. Energy Procedia, 2016, 92, 815-821.	1.8	11
118	Exceeding 3 ms Minority Carrier Lifetime in nâ€“type Non-contact Crucible Silicon. Energy Procedia, 2016, 92, 779-784.	1.8	6
119	Using Atom-Probe Tomography to Understand<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:mi>Zn</mml:mi><mml:mi mathvariant="normal">O</mml:mi><mml:mo>â^¶</mml:mo><mml:mi>Al</mml:mi><mml:mo>/</mml:mo><mml:msub><mml:mrow><mml:mi mathvariant="normal">O</mml:mi></mml:mrow><mml:mrow><mml:mn>2</mml:mn></mml:mrow></mml:msub><mml:mo>/</mml:mo> Diodes. Physical Review Applied, 2016, 6, .	3.8	7
120	Lifetime Spectroscopy Investigation of Light-Induced Degradation in p-type Multicrystalline Silicon PERC. IEEE Journal of Photovoltaics, 2016, 6, 1466-1472.	2.5	70
121	A Two-Step Absorber Deposition Approach To Overcome Shunt Losses in Thin-Film Solar Cells: Using Tin Sulfide as a Proof-of-Concept Material System. ACS Applied Materials & Interfaces, 2016, 8, 22664-22670.	8.0	22
122	Energy-yield prediction for IIâ€“VI-based thin-film tandem solar cells. Energy and Environmental Science, 2016, 9, 2644-2653.	30.8	43
123	Economically sustainable scaling of photovoltaics to meet climate targets. Energy and Environmental Science, 2016, 9, 2122-2129.	30.8	68
124	On the methodology of energy yield assessment for one-Sun tandem solar cells. Solar Energy, 2016, 135, 598-604.	6.1	24
125	Nanohole Structuring for Improved Performance of Hydrogenated Amorphous Silicon Photovoltaics. ACS Applied Materials & Interfaces, 2016, 8, 15169-15176.	8.0	15
126	Material requirements for the adoption of unconventional silicon crystal and wafer growth techniques for highâ€efficiency solar cells. Progress in Photovoltaics: Research and Applications, 2016, 24, 122-132.	8.1	24

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127	Solar research not finished. Nature Photonics, 2016, 10, 141-142.	31.4	11
128	Identifying defect-tolerant semiconductors with high minority-carrier lifetimes: beyond hybrid lead halide perovskites. MRS Communications, 2015, 5, 265-275.	1.8	662
129	Stress effects on the Raman spectrum of an amorphous material: Theory and experiment on<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mi>a</mml:mi></mml:math>-Si:H. Physical Review B, 2015, 92, .	3.2	30
130	Spontaneous lateral phase separation of AlInP during thin film growth and its effect on luminescence. Journal of Applied Physics, 2015, 118, .	2.5	15
131	Making Record-efficiency SnS Solar Cells by Thermal Evaporation and Atomic Layer Deposition. Journal of Visualized Experiments, 2015, , e52705.	0.3	19
132	Building intuition of iron evolution during solar cell processing through analysis of different process models. Applied Physics A: Materials Science and Processing, 2015, 120, 1357-1373.	2.3	25
133	Hybrid Organicâ€“Inorganic Perovskites (HOIPs): Opportunities and Challenges. Advanced Materials, 2015, 27, 5102-5112.	21.0	372
134	Singleâ€Phase Filamentary Cellular Breakdown Via Laserâ€Induced Solute Segregation. Advanced Functional Materials, 2015, 25, 4642-4649.	14.9	23
135	High-temperature diffusion processes in ultrafine-grained aluminum and its composites containing multi-walled carbon nanotubes. Journal of Composite Materials, 2015, 49, 2705-2711.	2.4	1
136	Non-cubic solar cell materials. Nature Photonics, 2015, 9, 355-357.	31.4	73
137	Process-to-panel modeling of a-Si/c-Si heterojunction solar cells. , 2015, , .		0
138	Combined Impact of Heterogeneous Lifetime and Gettering on Solar Cell Performance. Energy Procedia, 2015, 77, 119-128.	1.8	2
139	Sensitivity Analysis of Optical Metrics for Spectral Splitting Photovoltaic Systems: A Case Study. IEEE Journal of Photovoltaics, 2015, 5, 1380-1388.	2.5	2
140	Device Architecture and Lifetime Requirements for High Efficiency Multicrystalline Silicon Solar Cells. Energy Procedia, 2015, 77, 225-230.	1.8	8
141	Pathways for solar photovoltaics. Energy and Environmental Science, 2015, 8, 1200-1219.	30.8	385
142	Targeted Search for Effective Intermediate Band Solar Cell Materials. IEEE Journal of Photovoltaics, 2015, 5, 212-218.	2.5	44
143	Numerical Analysis of Radiative Recombination and Reabsorption in GaAs/Si Tandem. IEEE Journal of Photovoltaics, 2015, 5, 1079-1086.	2.5	32
144	Open-Circuit Voltage Deficit, Radiative Sub-Bandgap States, and Prospects in Quantum Dot Solar Cells. Nano Letters, 2015, 15, 3286-3294.	9.1	223

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145	A 2-terminal perovskite/silicon multijunction solar cell enabled by a silicon tunnel junction. Applied Physics Letters, 2015, 106, .	3.3	488
146	The realistic energy yield potential of GaAs-on-Si tandem solar cells: a theoretical case study. Optics Express, 2015, 23, A382.	3.4	72
147	Two-Step Annealing Study of Cuprous Oxide for Photovoltaic Applications. IEEE Journal of Photovoltaics, 2015, 5, 1476-1481.	2.5	5
148	Phase transition-induced band edge engineering of BiVO ₄ to split pure water under visible light. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 13774-13778.	7.1	116
149	Synchrotron-based analysis of chromium distributions in multicrystalline silicon for solar cells. Applied Physics Letters, 2015, 106, .	3.3	24
150	Assessing the Device-performance Impacts of Structural Defects with TCAD Modeling. Energy Procedia, 2015, 77, 8-14.	1.8	7
151	Investigation of Bismuth Triiodide (BiI₃) for Photovoltaic Applications. Journal of Physical Chemistry Letters, 2015, 6, 4297-4302.	4.6	176
152	The capital intensity of photovoltaics manufacturing: barrier to scale and opportunity for innovation. Energy and Environmental Science, 2015, 8, 3395-3408.	30.8	133
153	Framework to predict optimal buffer layer pairing for thin film solar cell absorbers: A case study for tin sulfide/zinc oxysulfide. Journal of Applied Physics, 2015, 118, .	2.5	29
154	Semi-transparent perovskite solar cells for tandems with silicon and CIGS. Energy and Environmental Science, 2015, 8, 956-963.	30.8	630
155	Coâ€optimization of SnS absorber and Zn(O,S) buffer materials for improved solar cells. Progress in Photovoltaics: Research and Applications, 2015, 23, 901-908.	8.1	132
156	Band offsets of n-type electron-selective contacts on cuprous oxide (Cu2O) for photovoltaics. Applied Physics Letters, 2014, 105, .	3.3	96
157	Sorting Metrics for Customized Phosphorus Diffusion Gettering. IEEE Journal of Photovoltaics, 2014, 4, 1421-1428.	2.5	19
158	Variations of ionization potential and electron affinity as a function of surface orientation: The case of orthorhombic SnS. Applied Physics Letters, 2014, 104, .	3.3	52
159	X-ray absorption spectroscopy elucidates the impact of structural disorder on electron mobility in amorphous zinc-tin-oxide thin films. Applied Physics Letters, 2014, 104, .	3.3	19
160	Darwin at High Temperature: Advancing Solar Cell Material Design Using Defect Kinetics Simulations and Evolutionary Optimization. Advanced Energy Materials, 2014, 4, 1400459.	19.5	12
161	In situ PL imaging toward real-time plating process control. , 2014, , .		0
162	Dislocation formation in seeds for quasi-monocrystalline silicon for solar cells. Acta Materialia, 2014, 67, 199-206.	7.9	39

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163	Improved Cu₂Oâ€Based Solar Cells Using Atomic Layer Deposition to Control the Cu Oxidation State at the pâ€n Junction. Advanced Energy Materials, 2014, 4, 1301916.	19.5	142
164	Room-temperature sub-band gap optoelectronic response of hyperdoped silicon. Nature Communications, 2014, 5, 3011.	12.8	202
165	Minority-carrier lifetime and defect content of n-type silicon grown by the noncontact crucible method. Journal of Crystal Growth, 2014, 407, 31-36.	1.5	29
166	Ten-percent solar-to-fuel conversion with nonprecious materials. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 14057-14061.	7.1	262
167	3.88% Efficient Tin Sulfide Solar Cells using Congruent Thermal Evaporation. Advanced Materials, 2014, 26, 7488-7492.	21.0	227
168	Atomic Layer Deposited Gallium Oxide Buffer Layer Enables 1.2 V Openâ€Circuit Voltage in Cuprous Oxide Solar Cells. Advanced Materials, 2014, 26, 4704-4710.	21.0	242
169	Investigation of Lifetime-Limiting Defects After High-Temperature Phosphorus Diffusion in High-Iron-Content Multicrystalline Silicon. IEEE Journal of Photovoltaics, 2014, 4, 866-873.	2.5	11
170	Enhancing the Infrared Photoresponse of Silicon by Controlling the Fermi Level Location within an Impurity Band. Advanced Functional Materials, 2014, 24, 2852-2858.	14.9	60
171	Analyses of the Evolution of Iron-Silicide Precipitates in Multicrystalline Silicon During Solar Cell Processing. IEEE Journal of Photovoltaics, 2013, 3, 131-137.	2.5	32
172	Supersaturating silicon with transition metals by ion implantation and pulsed laser melting. Journal of Applied Physics, 2013, 114, .	2.5	59
173	Nitrogen-doped cuprous oxide as a p-type hole-transporting layer in thin-film solar cells. Journal of Materials Chemistry A, 2013, 1, 15416.	10.3	108
174	Assessing the drivers of regional trends in solar photovoltaic manufacturing. Energy and Environmental Science, 2013, 6, 2811.	30.8	115
175	Organic Vapor Passivation of Silicon at Room Temperature. Advanced Materials, 2013, 25, 2078-2083.	21.0	37
176	Rapid dislocationâ€density mapping of asâ€cut crystalline silicon wafers. Physica Status Solidi - Rapid Research Letters, 2013, 7, 1041-1044.	2.4	14
177	Ultrathin amorphous zinc-tin-oxide buffer layer for enhancing heterojunction interface quality in metal-oxide solar cells. Energy and Environmental Science, 2013, 6, 2112.	30.8	160
178	Modeling the Cost and Minimum Sustainable Price of Crystalline Silicon Photovoltaic Manufacturing in the United States. IEEE Journal of Photovoltaics, 2013, 3, 662-668.	2.5	80
179	Interfaces between water splitting catalysts and buried silicon junctions. Energy and Environmental Science, 2013, 6, 532-538.	30.8	58
180	Origins of Structural Hole Traps in Hydrogenated Amorphous Silicon. Physical Review Letters, 2013, 110, 146805.	7.8	19

#	Article	IF	Citations
181	Extended X-ray absorption fine structure spectroscopy of selenium-hyperdoped silicon. Journal of Applied Physics, 2013, 114, 133507.	2.5	25
182	Deactivation of metastable single-crystal silicon hyperdoped with sulfur. Journal of Applied Physics, 2013, 114, .	2.5	41
183	Thin Films: Organic Vapor Passivation of Silicon at Room Temperature (Adv. Mater. 14/2013). Advanced Materials, 2013, 25, 2077-2077.	21.0	0
184	Controlling dopant profiles in hyperdoped silicon by modifying dopant evaporation rates during pulsed laser melting. Applied Physics Letters, 2012, 100, .	3.3	18
185	Antimony-Doped Tin(II) Sulfide Thin Films. Chemistry of Materials, 2012, 24, 4556-4562.	6.7	88
186	Synchrotronâ€based microprobe investigation of impurities in raw quartzâ€bearing and carbonâ€bearing feedstock materials for photovoltaic applications. Progress in Photovoltaics: Research and Applications, 2012, 20, 217-225.	8.1	5
187	Light-induced water oxidation at silicon electrodes functionalized with a cobalt oxygen-evolving catalyst. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 10056-10061.	7.1	195
188	Reactivation of sub-bandgap absorption in chalcogen-hyperdoped silicon. Applied Physics Letters, 2011, 98, .	3.3	49
189	SnS thin-films by RF sputtering at room temperature. Thin Solid Films, 2011, 519, 7421-7424.	1.8	224
190	Seeding of Silicon Wire Growth by Outâ€Diffused Metal Precipitates. Small, 2011, 7, 563-567.	10.0	3
191	Extended infrared photoresponse and gain in chalcogen-supersaturated silicon photodiodes. Applied Physics Letters, 2011, 99, .	3.3	100
192	Hall mobility of cuprous oxide thin films deposited by reactive direct-current magnetron sputtering. Applied Physics Letters, 2011, 98, .	3.3	120
193	Retrograde Melting and Internal Liquid Gettering in Silicon. Advanced Materials, 2010, 22, 3948-3953.	21.0	19
194	Stress and temperature coupling effects on dislocation density reduction in multicrystalline silicon. , 2010, , .		0
195	Iron point defect reduction in multicrystalline silicon solar cells. Applied Physics Letters, 2008, 92, .	3.3	87
196	Dislocation density reduction in multicrystalline silicon solar cell material by high temperature annealing. Applied Physics Letters, 2008, 93, .	3.3	74
197	Engineering metal-impurity nanodefects for low-cost solar cells. Nature Materials, 2005, 4, 676-679.	27.5	185
198	Synchrotron-based investigations of the nature and impact of iron contamination in multicrystalline silicon solar cells. Journal of Applied Physics, 2005, 97, 074901.	2.5	100