

Zachary C Holman

List of Publications by Year in Descending Order

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

86
papers

6,042
citations

32
h-index

77
g-index

103
ext. papers

7,377
ext. citations

11.9
avg, IF

6.02
L-index

#	Paper	IF	Citations
86	Reducing sputter induced stress and damage for efficient perovskite/silicon tandem solar cells. <i>Journal of Materials Chemistry A</i> , 2022 , 10, 1343-1349	13	5
85	Self-Aligned Selective Area Front Contacts on Poly-Si/SiO _x Passivating Contact c-Si Solar Cells. <i>IEEE Journal of Photovoltaics</i> , 2022 , 1-12	3.7	1
84	Thermal model to quantify the impact of sub-bandgap reflectance on operating temperature of fielded PV modules. <i>Solar Energy</i> , 2021 , 220, 246-250	6.8	1
83	Investigation of the Selectivity of Carrier Transport Layers in Wide-Bandgap Perovskite Solar Cells. <i>Solar Rrl</i> , 2021 , 5, 2100107	7.1	5
82	AluminumSilicon interdiffusion in silicon heterojunction solar cells with a-Si:H(i)/a-Si:H(n/p)/Al rear contacts. <i>Journal Physics D: Applied Physics</i> , 2021 , 54, 134002	3	1
81	Progress with Defect Engineering in Silicon Heterojunction Solar Cells. <i>Physica Status Solidi - Rapid Research Letters</i> , 2021 , 15, 2100170	2.5	2
80	Robust passivation of CdSeTe based solar cells using reactively sputtered magnesium zinc oxide. <i>Solar Energy Materials and Solar Cells</i> , 2021 , 233, 111388	6.4	2
79	Photonic Crystal Waveguides for >90% Light Trapping Efficiency in Luminescent Solar Concentrators. <i>ACS Photonics</i> , 2020 , 7, 2122-2131	6.3	13
78	Resolving spatial and energetic distributions of trap states in metal halide perovskite solar cells. <i>Science</i> , 2020 , 367, 1352-1358	33.3	322
77	Triple-halide wide-band gap perovskites with suppressed phase segregation for efficient tandems. <i>Science</i> , 2020 , 367, 1097-1104	33.3	366
76	Overcoming Redox Reactions at Perovskite-Nickel Oxide Interfaces to Boost Voltages in Perovskite Solar Cells. <i>Joule</i> , 2020 , 4, 1759-1775	27.8	121
75	Visualizing light trapping within textured silicon solar cells. <i>Journal of Applied Physics</i> , 2020 , 127, 063104	2.5	13
74	Aerosol impaction-driven assembly produces evenly dispersed nanoparticle coating on polymeric water treatment membranes. <i>Journal of Nanoparticle Research</i> , 2020 , 22, 1	2.3	2
73	Power Losses in the Front Transparent Conductive Oxide Layer of Silicon Heterojunction Solar Cells: Design Guide for Single-Junction and Four-Terminal Tandem Applications. <i>IEEE Journal of Photovoltaics</i> , 2020 , 10, 326-334	3.7	1
72	Contact Resistivity of the p-Type Amorphous Silicon Hole Contact in Silicon Heterojunction Solar Cells. <i>IEEE Journal of Photovoltaics</i> , 2020 , 10, 54-62	3.7	21
71	. <i>IEEE Journal of Photovoltaics</i> , 2020 , 10, 363-371	3.7	8
70	Sub-micrometer random-pyramid texturing of silicon solar wafers with excellent surface passivation and low reflectance. <i>Solar Energy Materials and Solar Cells</i> , 2020 , 218, 110761	6.4	10

69	Current-Matched III/V/Si Epitaxial Tandem Solar Cells with 25.0% Efficiency. <i>Cell Reports Physical Science</i> , 2020 , 1, 100208	6.1	18
68	Simplified interconnection structure based on C60/SnO _{2-x} for all-perovskite tandem solar cells. <i>Nature Energy</i> , 2020 , 5, 657-665	62.3	85
67	Ultra-wide-bandgap AlGaIn homojunction tunnel diodes with negative differential resistance. <i>Applied Physics Letters</i> , 2019 , 115, 082104	3.4	16
66	Nature-inspired chiral metasurfaces for circular polarization detection and full-Stokes polarimetric measurements. <i>Light: Science and Applications</i> , 2019 , 8, 78	16.7	75
65	20%-efficient epitaxial GaAsP/Si tandem solar cells. <i>Solar Energy Materials and Solar Cells</i> , 2019 , 202, 110144	6.4	19
64	Silicon Nitride Barrier Layers Mitigate Minority-Carrier Lifetime Degradation in Silicon Wafers During Simulated MBE Growth of III/V Layers. <i>IEEE Journal of Photovoltaics</i> , 2019 , 9, 431-436	3.7	5
63	GaAs/silicon PVMirror tandem photovoltaic mini-module with 29.6% efficiency with respect to the outdoor global irradiance. <i>Progress in Photovoltaics: Research and Applications</i> , 2019 , 27, 469-475	6.8	4
62	P-type Upgraded Metallurgical-Grade Multicrystalline Silicon Heterojunction Solar Cells with Open-Circuit Voltages over 690 mV. <i>Physica Status Solidi (A) Applications and Materials Science</i> , 2019 , 216, 1900319	1.6	4
61	Series Resistance Measurements of Perovskite Solar Cells Using J_{sc}/V_{oc} Measurements. <i>Solar Rrl</i> , 2019 , 3, 1800378	7.1	30
60	AC-STEM and HRSEM Investigation of Silica Nanoparticle Film Structure. <i>Microscopy and Microanalysis</i> , 2019 , 25, 2008-2009	0.5	
59	Passivation, conductivity, and selectivity in solar cell contacts: Concepts and simulations based on a unified partial-resistances framework. <i>Journal of Applied Physics</i> , 2019 , 126, 183103	2.5	28
58	Inserting a Low-Refractive-Index Dielectric Rear Reflector into PERC Cells: Challenges and Opportunities 2019 ,		2
57	Evaluating the Impact of and Solutions to Light-induced Degradation in Silicon Heterojunction Solar Cells 2019 ,		2
56	Defect engineering of p-type silicon heterojunction solar cells fabricated using commercial-grade low-lifetime silicon wafers. <i>Progress in Photovoltaics: Research and Applications</i> , 2019 ,	6.8	9
55	Origins of hydrogen that passivates bulk defects in silicon heterojunction solar cells. <i>Applied Physics Letters</i> , 2019 , 115, 252103	3.4	9
54	Grain Engineering for Perovskite/Silicon Monolithic Tandem Solar Cells with Efficiency of 25.4%. <i>Joule</i> , 2019 , 3, 177-190	27.8	227
53	. <i>IEEE Journal of Photovoltaics</i> , 2018 , 8, 581-586	3.7	6
52	Pre-Fabrication Gettering and Hydrogenation Treatments for Silicon Heterojunction Solar Cells: A Possible Path to >700 mV Open-Circuit Voltages Using Low-Lifetime Commercial-Grade p-Type Czochralski Silicon. <i>Solar Rrl</i> , 2018 , 2, 1700221	7.1	19

51	Controlling Thin-Film Stress and Wrinkling during Perovskite Film Formation. <i>ACS Energy Letters</i> , 2018 , 3, 1225-1232	20.1	108
50	Techno-economic viability of silicon-based tandem photovoltaic modules in the United States. <i>Nature Energy</i> , 2018 , 3, 747-753	62.3	56
49	Aerosol Impaction-Driven Assembly System for the Production of Uniform Nanoparticle Thin Films with Independently Tunable Thickness and Porosity. <i>ACS Applied Nano Materials</i> , 2018 , 1, 4351-4357	5.6	22
48	Minimizing Current and Voltage Losses to Reach 25% Efficient Monolithic Two-Terminal Perovskite/Silicon Tandem Solar Cells. <i>ACS Energy Letters</i> , 2018 , 3, 2173-2180	20.1	143
47	Optical modeling of wide-bandgap perovskite and perovskite/silicon tandem solar cells using complex refractive indices for arbitrary-bandgap perovskite absorbers. <i>Optics Express</i> , 2018 , 26, 27441-27460	27.4	56
46	P-type Hybrid Heterojunction Solar Cells Naturally Incorporating Gettering and Bulk Hydrogenation 2018 ,		1
45	19.5%-Efficient Back-Contact Silicon Heterojunction Solar Cell With Self Aligned Metallization Using Multilayer Aluminum Foils 2018 ,		1
44	Numerical analysis of bifacial silicon-based tandem devices: Shifts in the optimum top-cell bandgap with varying albedo 2018 ,		2
43	Understanding Transport in Heterojunction Contact Stacks by Simulating Silicon Heterojunction TLM Structures 2018 ,		2
42	Impact of Tabula Rasa and Phosphorus Diffusion Gettering on 21% Heterojunction Solar Cells Based on n-Type Czochralski-Grown Upgrade Metallurgical-Grade Silicon 2018 ,		1
41	2018,		3
40	Complete regeneration of BO-related defects in n-type upgraded metallurgical-grade Czochralski-grown silicon heterojunction solar cells. <i>Applied Physics Letters</i> , 2018 , 113, 152105	3.4	11
39	CdCl ₂ passivation of polycrystalline CdMgTe and CdZnTe absorbers for tandem photovoltaic cells. <i>Journal of Applied Physics</i> , 2018 , 123, 203101	2.5	11
38	Carrier scattering mechanisms limiting mobility in hydrogen-doped indium oxide. <i>Journal of Applied Physics</i> , 2018 , 123, 245102	2.5	8
37	23.6%-efficient monolithic perovskite/silicon tandem solar cells with improved stability. <i>Nature Energy</i> , 2017 , 2,	62.3	965
36	Silicon heterojunction solar cells with effectively transparent front contacts. <i>Sustainable Energy and Fuels</i> , 2017 , 1, 593-598	5.8	25
35	Monocrystalline CdTe/MgCdTe Double-Heterostructure Solar Cells With ZnTe Hole Contacts. <i>IEEE Journal of Photovoltaics</i> , 2017 , 7, 307-312	3.7	6
34	Low-refractive-index nanoparticle interlayers to reduce parasitic absorption in metallic rear reflectors of solar cells. <i>Physica Status Solidi (A) Applications and Materials Science</i> , 2017 , 214, 1700179	1.6	8

33	Substrate-independent analysis of microcrystalline silicon thin films using UV Raman spectroscopy. <i>Physica Status Solidi (B): Basic Research</i> , 2017 , 254, 1700204	1.3	4
32	Loss Analysis of Monocrystalline CdTe Solar Cells With 20% Active-Area Efficiency. <i>IEEE Journal of Photovoltaics</i> , 2017 , 7, 900-905	3.7	16
31	15.3%-Efficient GaAsP Solar Cells on GaP/Si Templates. <i>ACS Energy Letters</i> , 2017 , 2, 1911-1918	20.1	36
30	PVMirrors: Hybrid PV/CSP collectors that enable lower LCOEs 2017 ,		3
29	Silicon wafers with optically specular surfaces formed by chemical polishing. <i>Journal of Materials Science: Materials in Electronics</i> , 2016 , 27, 10270-10275	2.1	5
28	Efficient Semitransparent Perovskite Solar Cells for 23.0%-Efficiency Perovskite/Silicon Four-Terminal Tandem Cells. <i>Advanced Energy Materials</i> , 2016 , 6, 1601128	21.8	203
27	Monocrystalline CdTe solar cells with open-circuit voltage over 1 V and efficiency of 17%. <i>Nature Energy</i> , 2016 , 1,	62.3	117
26	Properties of hydrogenated indium oxide prepared by reactive sputtering with hydrogen gas 2016 ,		1
25	Accuracy of expressions for the fill factor of a solar cell in terms of open-circuit voltage and ideality factor. <i>Journal of Applied Physics</i> , 2016 , 120, 123111	2.5	24
24	Plasma-initiated rehydrogenation of amorphous silicon to increase the temperature processing window of silicon heterojunction solar cells. <i>Applied Physics Letters</i> , 2016 , 109, 031601	3.4	16
23	CdTe nBn photodetectors with ZnTe barrier layer grown on InSb substrates. <i>Applied Physics Letters</i> , 2016 , 109, 121112	3.4	6
22	Hetero-emitter GaP/Si solar cells with high Si bulk lifetime 2016 ,		11
21	. <i>IEEE Journal of Photovoltaics</i> , 2015 , 5, 1791-1799	3.7	37
20	Amorphous silicon carbide passivating layers for crystalline-silicon-based heterojunction solar cells. <i>Journal of Applied Physics</i> , 2015 , 118, 065704	2.5	41
19	Manufacturing 100- μ m-thick silicon solar cells with efficiencies greater than 20% in a pilot production line. <i>Physica Status Solidi (A) Applications and Materials Science</i> , 2015 , 212, 13-24	1.6	33
18	Evaluation of metal oxides prepared by reactive sputtering as carrier-selective contacts for crystalline silicon solar cells 2015 ,		6
17	Parasitic absorption in the rear reflector of a silicon solar cell: Simulation and measurement of the sub-bandgap reflectance for common dielectric/metal reflectors. <i>Solar Energy Materials and Solar Cells</i> , 2014 , 120, 426-430	6.4	57
16	Scanning Laser-Beam-Induced Current Measurements of Lateral Transport Near-Junction Defects in Silicon Heterojunction Solar Cells. <i>IEEE Journal of Photovoltaics</i> , 2014 , 4, 154-159	3.7	3

15	Improving metal reflectors by suppressing surface plasmon polaritons: a priori calculation of the internal reflectance of a solar cell. <i>Light: Science and Applications</i> , 2013 , 2, e106-e106	16.7	123
14	>21% Efficient Silicon Heterojunction Solar Cells on n- and p-Type Wafers Compared. <i>IEEE Journal of Photovoltaics</i> , 2013 , 3, 83-89	3.7	165
13	Infrared light management in high-efficiency silicon heterojunction and rear-passivated solar cells. <i>Journal of Applied Physics</i> , 2013 , 113, 013107	2.5	221
12	Record Infrared Internal Quantum Efficiency in Silicon Heterojunction Solar Cells With Dielectric/Metal Rear Reflectors. <i>IEEE Journal of Photovoltaics</i> , 2013 , 3, 1243-1249	3.7	81
11	Analysis of lateral transport through the inversion layer in amorphous silicon/crystalline silicon heterojunction solar cells. <i>Journal of Applied Physics</i> , 2013 , 114, 074504	2.5	46
10	Current Losses at the Front of Silicon Heterojunction Solar Cells. <i>IEEE Journal of Photovoltaics</i> , 2012 , 2, 7-15	3.7	379
9	High-efficiency Silicon Heterojunction Solar Cells: A Review. <i>Green</i> , 2012 , 2, 7-24		576
8	An all-gas-phase approach for the fabrication of silicon nanocrystal light-emitting devices. <i>Nano Letters</i> , 2012 , 12, 2822-5	11.5	58
7	Absolute absorption cross sections of ligand-free colloidal germanium nanocrystals. <i>Applied Physics Letters</i> , 2012 , 100, 133108	3.4	20
6	Nanocrystal inks without ligands: stable colloids of bare germanium nanocrystals. <i>Nano Letters</i> , 2011 , 11, 2133-6	11.5	43
5	Germanium and silicon nanocrystal thin-film field-effect transistors from solution. <i>Nano Letters</i> , 2010 , 10, 2661-6	11.5	114
4	Optimization of Si NC/P3HT Hybrid Solar Cells. <i>Advanced Functional Materials</i> , 2010 , 20, 2157-2164	15.6	116
3	Solution-processed germanium nanocrystal thin films as materials for low-cost optical and electronic devices. <i>Langmuir</i> , 2009 , 25, 11883-9	4	36
2	Hybrid solar cells from P3HT and silicon nanocrystals. <i>Nano Letters</i> , 2009 , 9, 449-52	11.5	353
1	Plasma synthesis of group IV quantum dots for luminescence and photovoltaic applications. <i>Pure and Applied Chemistry</i> , 2008 , 80, 1901-1908	2.1	22