Steven Hegedus

List of Publications by Year
in descending order

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94 papers	2,723 citations	686830 13 h-index	288905 40 g-index
124 all docs	124 docs citations	124 times ranked	3053 citing authors

#	Article	IF	Citations
1	Resilience analysis of renewable microgrids for commercial buildings with different usage patterns and weather conditions. Renewable Energy, 2022, 192, 731-744.	4.3	19
2	Making the case for time-of-use electric rates to boost the value of battery storage in commercial buildings with grid connected PV systems. Energy, 2021, 218, 119447.	4.5	30
3	Nanosecond Pulsed Laser Patterning of Interdigitated Back Contact Heterojunction Silicon Solar Cells. IEEE Journal of Photovoltaics, 2020, 10, 1648-1656.	1.5	8
4	Electroluminescence Characterization of Recombination in Back Junction Silicon Heterojunction Test Structures: Role of the Inversion Layer. IEEE Journal of Photovoltaics, 2020, 10, 634-643.	1.5	0
5	Interdigitated Back Contact (IBC) Heterojunction (HJ) Si Solar Cell Fabrication by Laser Patterning. , 2020, , .		0
6	Computation and assessment of solar electrolyzer field performance: comparing coupling strategies. Sustainable Energy and Fuels, 2019, 3, 422-430.	2.5	12
7	Correlation between in Situ Diagnostics of the Hydrogen Plasma and the Interface Passivation Quality of Hydrogen Plasma Post-Treated a-Si:H in Silicon Heterojunction Solar Cells. ACS Applied Materials & Interfaces, 2019, 11, 16181-16190.	4.0	15
8	a-Si:H/c-Si interface hydrogenation for implied Voc = 755 mV in Silicon heterojunction solar cell. , 2019, , .		2
9	Direct Laser Patterned Electroplated Copper Contacts for Interdigitated Back Contact Silicon Solar Cells. , 2019, , .		0
10	Electroluminescence analysis for spatial characterization of parasitic optical losses in silicon heterojunction solar cells. Journal of Applied Physics, 2018, 123, 143103.	1.1	6
11	Study of Passivation in the Gap Region Between Contacts of Interdigitated-Back-Contact Silicon Heterojunction Solar Cells: Simulation and Voltage-Modulated Laser-Beam-Induced-Current. IEEE Journal of Photovoltaics, 2018, 8, 404-412.	1.5	2
12	Direct Laser Isolation For Interdigitated Back Contact Heterojunction Solar Cells. , 2018, , .		1
13	Effect of dielectric layers on laser-fired-contact performance in a-Si/cSi heterojunction Solar Cells. , 2018, , .		1
14	Improving the Interface Passivation of Si HJ Solar Cells by Interrupted Deposition of Thin a-Si:H Film. , 2018, , .		1
15	Highly-integrated Hybrid Micro-Concentrating Photovoltaics. , 2018, , .		2
16	Wafer integrated microâ€scale concentrating photovoltaics. Progress in Photovoltaics: Research and Applications, 2018, 26, 651-658.	4.4	14
17	Wafer integrated micro-scale concentrating photovoltaics. AIP Conference Proceedings, 2017, , .	0.3	1
18	Toward a Practical Solar-Driven CO₂ Flow Cell Electrolyzer: Design and Optimization. ACS Sustainable Chemistry and Engineering, 2017, 5, 10959-10966.	3.2	32

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19	Design and Implementation of High Voltage Photovoltaic Electrolysis System for Solar Fuel Production from CO2. MRS Advances, 2017, 2, 3359-3364.	0.5	1
20	Hydrogen Plasma Post-Deposition Treatment for Passivation of a-Si/c-Si Interface for Heterojunction Solar Cell by Correlating Optical Emission Spectroscopy and Minority Carrier Lifetime. , 2017, , .		2
21	Electroluminescence Analysis For Separation of Series Resistance From Recombination Effects in Silicon Solar Cells with Interdigitated Back Contact Design. , 2017, , .		1
22	Processing Approaches and Challenges of Interdigitated Back Contact Si Solar Cells. , 2017, , .		3
23	Modeling and Analysis of Photovoltaic Electrochemical System Using Module-Level Power Electronics. , 2017, , .		1
24	The role of the intrinsic zinc oxide layers on the performance of wide-bandgap (AgCu)(InGa)Se2 thin-film solar cells. , 2015, , .		0
25	Laserâ€fired contact for nâ€type crystalline Si solar cells. Progress in Photovoltaics: Research and Applications, 2015, 23, 1091-1099.	4.4	25
26	Experimental and simulated analysis of front versus all-back-contact silicon heterojunction solar cells: effect of interface and doped a-Si:H layer defects. Progress in Photovoltaics: Research and Applications, 2015, 23, 78-93.	4.4	60
27	The role of back contact patterning on stability and performance of Si IBC heterojunction solar cells. , 2014, , .		2
28	Review of photovoltaic module energy yield (k<scp>W</scp>h/k<scp>W</scp>): comparison of crystalline <scp>S</scp>i and thin film technologies. Wiley Interdisciplinary Reviews: Energy and Environment, 2013, 2, 218-233.	1.9	22
29	Effect of RF or VHF Plasma on Nanocrystalline Silicon Thin Film Structure: Insight from OES and Langmuir Probe Measurements. Materials Research Society Symposia Proceedings, 2013, 1536, 161-166.	0.1	0
30	Optimizing emitter-buffer layer stack thickness for p-type silicon heterojunction solar cells. Journal of Renewable and Sustainable Energy, 2013, 5, 013117.	0.8	7
31	Laser textured heterojunction solar cells on 45 um thick Si wafers: Effect of optical configuration and light trapping. , 2013, , .		1
32	Laser fired contact for n-type crystalline Si solar cell. , 2013, , .		3
33	Sensitivity of surface passivation and interface quality in IBC-SHJ solar cells to patterning process. , 2013, , .		4
34	Effect of Si2H6 as a gas phase additive to increase growth rate of a-Si:H films and solar cells. Materials Research Society Symposia Proceedings, 2012, 1426, 415-420.	0.1	1
35	Modeling and Experimental Study of SiH4/GeH4/H2 Gas Discharge for Hydrogenated Silicon Germanium Deposition by RF PECVD. Materials Research Society Symposia Proceedings, 2012, 1426, 403-408.	0.1	4
36	Impact of back surface patterning process on FF in IBC-SHJ. , 2012, , .		3

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37	Analysis of voltage and temperature dependent photocurrent collection in p3ht/pcbm solar cells. Journal of Applied Physics, 2012, 112, .	1.1	13
38	Properties of amorphous silicon passivation layers for all back contact c-Si heterojunction solar cells. Materials Research Society Symposia Proceedings, 2011, 1321, 93.	0.1	2
39	Optimization of interdigitated back contact silicon heterojunction solar cells: tailoring heteroâ€interface band structures while maintaining surface passivation. Progress in Photovoltaics: Research and Applications, 2011, 19, 326-338.	4.4	79
40	Improved FF in P-Si heterojunction solar cells due to optimized ITO/emitter contact. , 2011, , .		0
41	Interdigitated back contact silicon hetero-junction solar cells: The effect of doped layer defect levels and rear surface i-layer band gap on fill factor using two-dimensional simulations. , 2011, , .		7
42	Quantitative analysis and extraction of cell parameters from interconnected thin-film solar modules through LBIC-voltage sweeps. , 2010, , .		1
43	Effect of junction interface modification of silicon heterojunction solar cells. , 2010, , .		6
44	Low temperature front surface passivation of interdigitated back contact silicon heterojunction solar cell. , 2009, , .		4
45	Optimization of interdigitated back contact silicon heterojunction solar cells by two-dimensional numerical simulation. , 2009, , .		14
46	NITRIDE BASED SCHOTTKY-BARRIER PHOTOVOLTAIC DEVICES. Materials Research Society Symposia Proceedings, 2007, 1040, 1.	0.1	1
47	Voltage dependent photocurrent collection in CdTe/CdS solar cells. Progress in Photovoltaics: Research and Applications, 2007, 15, 587-602.	4.4	114
48	Effect of Process Parameter Variation in Deposited Emitter and Buffer Layers on the Performance of Silicon Heterojunction Solar Cells. , 2006, , .		8
49	Cu(InGa)Se2 Solar Cells. , 2005, , 567-616.		46
50	Crystalline Silicon Solar Cells and Modules. , 2005, , 255-306.		8
51	Electrochemical Storage for Photovoltaics. , 2005, , 799-862.		2
52	PV in Architecture. , 2005, , 1005-1042.		2
53	Photovoltaics and Development. , 2005, , 1043-1071.		2
54	Amorphous Silicon-Based Solar Cells. , 2005, , 505-565.		26

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55	Economic Analysis and Environmental Aspects of Photovoltaic Systems. , 2005, , 971-1003.		5
56	Space Solar Cells and Arrays. , 2005, , 413-448.		4
57	Power Conditioning for Photovoltaic Power Systems. , 2005, , 863-903.		2
58	Photovoltaic Systems. , 2005, , 753-798.		8
59	Financing PV Growth. , 2005, , 1073-1115.		1
60	Solar Grade Silicon Feedstock. , 2005, , 153-204.		10
61	Photovoltaic Concentrators. , 2005, , 449-503.		15
62	Transparent ZnTe:Cu contacts for bifacial characterization of CdTe solar cells. Materials Research Society Symposia Proceedings, 2005, 865, 1491.	0.1	5
63	Theoretical Limits of Photovoltaic Conversion. , 2005, , 113-151.		13
64	Energy Collected and Delivered by PV Modules. , 2005, , 905-970.		14
65	Measurement and Characterization of Solar Cells and Modules. , 2005, , 701-752.		20
66	Cadmium Telluride Solar Cells. , 2005, , 617-662.		43
67	Thin-Film Silicon Solar Cells. , 2005, , 307-357.		9
68	High-Efficiency III-V Multijunction Solar Cells. , 2005, , 359-411.		19
69	Dye-Sensitized Solar Cells. , 2005, , 663-700.		28
70	Status, Trends, Challenges and the Bright Future of Solar Electricity from Photovoltaics. , 2005, , 1-43.		21
71	Motivation for Photovoltaic Application and Development. , 2005, , 45-60.		2
72	The Physics of the Solar Cell. , 2005, , 61-112.		39

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73	Thin-film solar cells: device measurements and analysis. Progress in Photovoltaics: Research and Applications, 2004, 12, 155-176.	4.4	994
74	Accurate determination of optical constants of textured SnO2 using low incidence angle spectroscopic ellipsometry. Journal of Applied Physics, 2004, 96, 5469-5477.	1.1	15
75	Effect of plasma and thermal annealing on optical and electronic properties of SnO2 substrates used for a-Si solar cells. Journal of Applied Physics, 2002, 92, 620-626.	1.1	9
76	Analysis of quantum efficiency and optical enhancement in amorphous Sip-i-n solar cells. Progress in Photovoltaics: Research and Applications, 2002, 10, 257-269.	4.4	41
77	A New Method to Characterize TCO/P Contact Resistance in a-SI Solar Cells. Materials Research Society Symposia Proceedings, 1999, 557, 737.	0.1	3
78	Infrared Electroabsorption Spectra in Amorphous Silicon Solar Cells. Materials Research Society Symposia Proceedings, 1999, 557, 457.	0.1	2
79	Optical Modeling of a-Si Solar Cells. Materials Research Society Symposia Proceedings, 1999, 557, 755.	0.1	11
80	Transparent conducting oxide contacts for n-i-p and p-i-n amorphous silicon solar cells. AIP Conference Proceedings, 1997, , .	0.3	1
81	Currentâ€“Voltage Analysis of a-Si and a-SiGe Solar Cells Including Voltage-dependent Photocurrent Collection. Progress in Photovoltaics: Research and Applications, 1997, 5, 151-168.	4.4	112
82	Introduction to the Thin Film Photovoltaic Symposium commemorating the 25th Anniversary of the Institute of Energy Conversion at the University of Delaware, USA. Progress in Photovoltaics: Research and Applications, 1997, 5, 305-307.	4.4	0
83	Summary of 4 1/2 years of research experience of the US amorphous silicon research teams. Progress in Photovoltaics: Research and Applications, 1997, 5, 345-352.	4.4	0
84	Substrates, contacts and monolithic integration. Progress in Photovoltaics: Research and Applications, 1997, 5, 365-370.	4.4	9
85	Photovoltaics as a demand-side management technology: An analysis of peak-shaving and direct load control options. Progress in Photovoltaics: Research and Applications, 1994, 2, 235-248.	4.4	7
86	Built-In Potentials Via Electroabsorption Measurements in a-Si:H p-i-n Solar Cells: a Critical Assessment. Materials Research Society Symposia Proceedings, 1994, 336, 365.	0.1	3
87	Steadyâ€state mobility lifetimes and photoconductivity inaâ€Si:Ge:H thin films. Journal of Applied Physics, 1990, 67, 3885-3888.	1.1	5
88	Lightâ€induced degradation in undoped hydrogenated amorphous silicon films studied by the surface photovoltage technique: A comparison of lifetime versus spaceâ€charge effects. Journal of Applied Physics, 1988, 64, 1215-1219.	1.1	13
89	Novel photochemical vapor deposition reactor for amorphous silicon solar cell deposition. Applied Physics Letters, 1987, 51, 133-135.	1.5	27
90	Performance and analysis of amorphous siliconpâ€iâ€nsolar cells made by chemicalâ€vapor deposition from disilane. Journal of Applied Physics, 1987, 61, 381-389.	1.1	7

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91	Density of midgap states and Urbach edge in chemically vapor deposited hydrogenated amorphous silicon films. Journal of Applied Physics, 1986, 60, 1046-1054.	1.1	11
92	Properties of Intrinsic a-Si Films Deposited From Higher Order Silanes by Chemical Vapor Deposition. Materials Research Society Symposia Proceedings, 1985, 49, 15.	0.1	3
93	Design of a Resilient and Eco-friendly Microgrid for a Commercial Building. Aibi Revista De InvestigaciÃ³n AdministraciÃ³n E IngenierÃa, 0, , 8-18.	0.1	0
94	Bulk Crystal Growth and Wafering for PV. , 0, , 205-254.		8