Matthieu Despeisse

List of Publications by Year
in descending order

132	5,741	76294	79644
papers	citations	40 h-index	73 g-index

132	132	132	5035
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Light Trapping in Solar Cells: Can Periodic Beat Random?. ACS Nano, 2012, 6, 2790-2797.	7.3	480
2	Raising the one-sun conversion efficiency of IIIâ€“V/Si solar cells to 32.8% for two junctions andÂ35.9% for three junctions. Nature Energy, 2017, 2, .	19.8	424
3	22.5% efficient silicon heterojunction solar cell with molybdenum oxide hole collector. Applied Physics Letters, 2015, 107, .	1.5	360
4	Efficient Near-Infrared-Transparent Perovskite Solar Cells Enabling Direct Comparison of 4-Terminal and Monolithic Perovskite/Silicon Tandem Cells. ACS Energy Letters, 2016, 1, 474-480.	8.8	332
5	Nanomoulding of transparent zinc oxide electrodes for efficient light trapping in solar cells. Nature Photonics, 2011, 5, 535-538.	15.6	265
6	Nanoimprint Lithography for High-Efficiency Thin-Film Silicon Solar Cells. Nano Letters, 2011, 11, 661-665.	4.5	171
7	Multiscale Transparent Electrode Architecture for Efficient Light Management and Carrier Collection in Solar Cells. Nano Letters, 2012, 12, 1344-1348.	4.5	127
8	Mixed-phase p-type silicon oxide containing silicon nanocrystals and its role in thin-film silicon solar cells. Applied Physics Letters, 2010, 97, .	1.5	119
9	Silicon Filaments in Silicon Oxide for Nextâ€Generation Photovoltaics. Advanced Materials, 2012, 24, 1182-1186.	11.1	118
10	Resistive interlayer for improved performance of thin film silicon solar cells on highly textured substrate. Applied Physics Letters, 2010, 96, .	1.5	116
11	Realization of GaInP/Si Dual-Junction Solar Cells With 29.8% 1-Sun Efficiency. IEEE Journal of Photovoltaics, 2016, 6, 1012-1019.	1.5	114
12	A passivating contact for silicon solar cells formed during a single firing thermal annealing. Nature Energy, 2018, 3, 800-808.	19.8	109
13	Silicon Heterojunction Solar Cells With Copper-Plated Grid Electrodes: Status and Comparison With Silver Thick-Film Techniques. IEEE Journal of Photovoltaics, 2014, 4, 1055-1062.	1.5	96
14	Simple processing of back-contacted silicon heterojunction solar cells using selective-area crystalline growth. Nature Energy, 2017, 2, .	19.8	95
15	Geometric light trapping for high efficiency thin film silicon solar cells. Solar Energy Materials and Solar Cells, 2012, 98, 185-190.	3.0	94
16	Highâ€efficiency microcrystalline silicon singleâ€junction solar cells. Progress in Photovoltaics: Research and Applications, 2013, 21, 821-826.	4.4	90
17	Passivating electron contact based on highly crystalline nanostructured silicon oxide layers for silicon solar cells. Solar Energy Materials and Solar Cells, 2016, 158, 2-10.	3.0	90
18	Solar-to-Hydrogen Production at 14.2% Efficiency with Silicon Photovoltaics and Earth-Abundant Electrocatalysts. Journal of the Electrochemical Society, 2016, 163, F1177-F1181.	1.3	85

#	Article	IF	Citations
19	Recent advances and remaining challenges in thin-film silicon photovoltaic technology. Materials Today, 2015, 18, 378-384.	8.3	83
20	Optimization of thin film silicon solar cells on highly textured substrates. Physica Status Solidi (A) Applications and Materials Science, 2011, 208, 1863-1868.	0.8	82
21	Interplay of annealing temperature and doping in hole selective rear contacts based on silicon-rich silicon-carbide thin films. Solar Energy Materials and Solar Cells, 2017, 173, 18-24.	3.0	79
22	Low-Temperature Screen-Printed Metallization for the Scale-Up of Two-Terminal Perovskiteâ€“Silicon Tandems. ACS Applied Energy Materials, 2019, 2, 3815-3821.	2.5	78
23	The impact of silicon solar cell architecture and cell interconnection on energy yield in hot & sunny climates. Energy and Environmental Science, 2017, 10, 1196-1206.	15.6	76
24	A New View of Microcrystalline Silicon: The Role of Plasma Processing in Achieving a Dense and Stable Absorber Material for Photovoltaic Applications. Advanced Functional Materials, 2012, 22, 3665-3671.	7.8	74
25	Light-induced performance increase of silicon heterojunction solar cells. Applied Physics Letters, 2016, 109, .	1.5	67
26	Optimized short-circuit current mismatch in multi-junction solar cells. Solar Energy Materials and Solar Cells, 2013, 117, 120-125.	3.0	65
27	Increasing the efficiency of silicon heterojunction solar cells and modules by light soaking. Solar Energy Materials and Solar Cells, 2017, 173, 43-49.	3.0	65
28	Efficient light management scheme for thin film silicon solar cells via transparent random nanostructures fabricated by nanoimprinting. Applied Physics Letters, 2010, 96, .	1.5	63
29	Amorphous siliconâ€“germanium for triple and quadruple junction thin-film silicon based solar cells. Solar Energy Materials and Solar Cells, 2015, 133, 163-169.	3.0	60
30	Silicon-Rich Silicon Carbide Hole-Selective Rear Contacts for Crystalline-Silicon-Based Solar Cells. ACS Applied Materials & Interfaces, 2016, 8, 35660-35667.	4.0	57
31	High-Stable-Efficiency Tandem Thin-Film Silicon Solar Cell With Low-Refractive-Index Silicon-Oxide Interlayer. IEEE Journal of Photovoltaics, 2014, 4, 1368-1373.	1.5	52
32	ITO/MoOx/a-Si:H(i) Hole-Selective Contacts for Silicon Heterojunction Solar Cells: Degradation Mechanisms and Cell Integration. IEEE Journal of Photovoltaics, 2017, 7, 1584-1590.	1.5	52
33	Comparison of amorphous silicon absorber materials: Light-induced degradation and solar cell efficiency. Journal of Applied Physics, 2013, 114, 154509.	1.1	50
34	Control of LPCVD ZnO growth modes for improved light trapping in thin film silicon solar cells. Solar Energy Materials and Solar Cells, 2011, 95, 1031-1034.	3.0	47
35	Highly Conductive and Broadband Transparent Zr-Doped In₂O₃ as Front Electrode for Solar Cells. IEEE Journal of Photovoltaics, 2018, 8, 1202-1207.	1.5	46
36	Back-Contacted Silicon Heterojunction Solar Cells: Optical-Loss Analysis and Mitigation. IEEE Journal of Photovoltaics, 2015, 5, 1293-1303.	1.5	45

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37	Phosphorous-Doped Silicon Carbide as Front-Side Full-Area Passivating Contact for Double-Side Contacted c-Si Solar Cells. IEEE Journal of Photovoltaics, 2019, 9, 346-354.	1.5	44
38	Micromorph thin-film silicon solar cells with transparent high-mobility hydrogenated indium oxide front electrodes. Journal of Applied Physics, 2011, 109, .	1.1	43
39	Silicon oxide buffer layer at the pâ€“i interface in amorphous and microcrystalline silicon solar cells. Solar Energy Materials and Solar Cells, 2014, 120, 143-150.	3.0	43
40	Optimization of ZnO Front Electrodes for High-Efficiency Micromorph Thin-Film Si Solar Cells. IEEE Journal of Photovoltaics, 2012, 2, 229-235.	1.5	42
41	Recombination Analysis of Phosphorus-Doped Nanostructured Silicon Oxide Passivating Electron Contacts for Silicon Solar Cells. IEEE Journal of Photovoltaics, 2018, 8, 389-396.	1.5	42
42	Increased Speed: 3D Silicon Sensors; Fast Current Amplifiers. IEEE Transactions on Nuclear Science, 2011, 58, 404-417.	1.2	40
43	Highly transparent ZnO bilayers by LP-MOCVD as front electrodes for thin-film micromorph silicon solar cells. Solar Energy Materials and Solar Cells, 2012, 98, 331-336.	3.0	38
44	Analysis of hydrogen distribution and migration in fired passivating contacts (FPC). Solar Energy Materials and Solar Cells, 2019, 200, 110018.	3.0	38
45	Class AAA LED-Based Solar Simulator for Steady-State Measurements and Light Soaking. IEEE Journal of Photovoltaics, 2014, 4, 1282-1287.	1.5	33
46	Influence of Light Soaking on Silicon Heterojunction Solar Cells With Various Architectures. IEEE Journal of Photovoltaics, 2021, 11, 575-583.	1.5	33
47	Substrate dependent stability and interplay between optical and electrical properties in Î¼c-Si:H single junction solar cells. Solar Energy Materials and Solar Cells, 2011, 95, 195-198.	3.0	31
48	Light trapping in solar cells: Analytical modeling. Applied Physics Letters, 2012, 101, .	1.5	31
49	Radiation hardness of amorphous silicon particle sensors. Journal of Non-Crystalline Solids, 2006, 352, 1797-1800.	1.5	30
50	Thin-Film Silicon Triple-Junction Solar Cells on Highly Transparent Front Electrodes With Stabilized Efficiencies up to 12.8%. IEEE Journal of Photovoltaics, 2014, 4, 757-762.	1.5	30
51	Silicon Heterojunction Solar Cells: Towards Low-cost High-Efficiency Industrial Devices and Application to Low-concentration PV. Energy Procedia, 2015, 77, 508-514.	1.8	30
52	Metallization of Si heterojunction solar cells by nanosecond laser ablation and Ni-Cu plating. Solar Energy Materials and Solar Cells, 2017, 159, 243-250.	3.0	30
53	On the Interplay Between Microstructure and Interfaces in High-Efficiency Microcrystalline Silicon Solar Cells. IEEE Journal of Photovoltaics, 2013, 3, 11-16.	1.5	29
54	New progress in the fabrication of nâ€“iâ€“p micromorph solar cells for opaque substrates. Solar Energy Materials and Solar Cells, 2013, 114, 147-155.	3.0	29

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55	Unlinking absorption and haze in thin film silicon solar cells front electrodes. Physica Status Solidi - Rapid Research Letters, 2010, 4, 326-328.	1.2	28
56	Dopantâ€Free Backâ€Contacted Silicon Solar Cells with an Efficiency of 22.1%. Physica Status Solidi - Rapid Research Letters, 2020, 14, 1900688.	1.2	27
57	Nanometer- and Micrometer-Scale Texturing for High-Efficiency Micromorph Thin-Film Silicon Solar Cells. IEEE Journal of Photovoltaics, 2012, 2, 83-87.	1.5	25
58	Light-induced Voc increase and decrease in high-efficiency amorphous silicon solar cells. Journal of Applied Physics, 2014, 116, 094503.	1.1	25
59	Realization of high efficiency micromorph tandem silicon solar cells on glass and plastic substrates: Issues and potential. Solar Energy Materials and Solar Cells, 2011, 95, 127-130.	3.0	24
60	The versatility of passivating carrierâ€selective silicon thin films for diverse highâ€efficiency screenâ€printed heterojunctionâ€based solar cells. Progress in Photovoltaics: Research and Applications, 2020, 28, 569-577.	4.4	23
61	Light absorption in textured thin film silicon solar cells: A simple scalar scattering approach versus rigorous simulation. Applied Physics Letters, 2011, 98, .	1.5	22
62	A high-speed low-noise transimpedance amplifier in a 0.25Î¼m CMOS technology. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2003, 512, 117-128.	0.7	21
63	LPCVD ZnO-based intermediate reflector for micromorph tandem solar cells. Solar Energy Materials and Solar Cells, 2011, 95, 2161-2166.	3.0	20
64	Hydrogenated Amorphous Silicon Sensor Deposited on Integrated Circuit for Radiation Detection. IEEE Transactions on Nuclear Science, 2008, 55, 802-811.	1.2	19
65	Multi-Channel Amplifier-Discriminator for Highly Time-Resolved Detection. IEEE Transactions on Nuclear Science, 2011, 58, 202-208.	1.2	19
66	Mixed phase silicon oxide layers for thin-film silicon solar cells. Materials Research Society Symposia Proceedings, 2011, 1321, 349.	0.1	19
67	A new concept of monolithic silicon pixel detectors: hydrogenated amorphous silicon on ASIC. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2004, 518, 366-372.	0.7	18
68	Low-Power Amplifier-Discriminators for High Time Resolution Detection. IEEE Transactions on Nuclear Science, 2009, 56, 375-381.	1.2	17
69	Time evolution of surface defect states in hydrogenated amorphous silicon studied by photothermal and photocurrent spectroscopy and optical simulation. Journal of Non-Crystalline Solids, 2012, 358, 2035-2038.	1.5	17
70	Latest Developments of High-Efficiency Micromorph Tandem Silicon Solar Cells Implementing Innovative Substrate Materials and Improved Cell Design. IEEE Journal of Photovoltaics, 2012, 2, 236-240.	1.5	15
71	Variable light biasing method to measure component Iâ€“V characteristics of multi-junction solar cells. Solar Energy Materials and Solar Cells, 2012, 103, 128-133.	3.0	15
72	Comparison of amorphous silicon absorber materials: Kinetics of lightâ€induced degradation. Progress in Photovoltaics: Research and Applications, 2016, 24, 446-457.	4.4	15

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73	Field test and electrode optimization of electrodynamic cleaning systems for solar panels. Progress in Photovoltaics: Research and Applications, 2019, 27, 1020-1033.	4.4	15
74	Time based readout of a silicon photomultiplier (SiPM) for time of flight positron emission tomography (TOF-PET). , 2009, , .		14
75	Internal electric field and fill factor of amorphous silicon solar cells. , 2010, , .		14
76	Profilometry of thin films on rough substrates by Raman spectroscopy. Scientific Reports, 2016, 6, 37859.	1.6	14
77	Implementation and understanding of p+ fired rear hole selective tunnel oxide passivating contacts enabling >22% conversion efficiency in p-type c-Si solar cells. Solar Energy Materials and Solar Cells, 2021, 219, 110809.	3.0	14
78	Characterization of 13 and 30Î¼m thick hydrogenated amorphous silicon diodes deposited over CMOS integrated circuits for particle detection application. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2004, 518, 357-361.	0.7	13
79	ZnO transparent conductive oxide for thin film silicon solar cells. Proceedings of SPIE, 2010, , .	0.8	13
80	Record-Efficiency n-Type and High-Efficiency p-Type Monolike Silicon Heterojunction Solar Cells with a High-Temperature Gettering Process. ACS Applied Energy Materials, 2019, 2, 4900-4906.	2.5	13
81	A novel low noise hydrogenated amorphous silicon pixel detector. Journal of Non-Crystalline Solids, 2004, 338-340, 729-731.	1.5	12
82	New Generation Transparent LPCVD ZnO Electrodes for Enhanced Photocurrent in Micromorph Solar Cells and Modules. IEEE Journal of Photovoltaics, 2012, 2, 88-93.	1.5	11
83	Smoothening intermediate reflecting layer for tandem thin-film silicon solar cells. Solar Energy Materials and Solar Cells, 2013, 119, 12-17.	3.0	11
84	Microcrystalline silicon solar cells with passivated interfaces for high openâ€circuit voltage. Physica Status Solidi (A) Applications and Materials Science, 2015, 212, 840-845.	0.8	11
85	A Mixed-Phase SiO_x Hole Selective Junction Compatible With High Temperatures Used in Industrial Solar Cell Manufacturing. IEEE Journal of Photovoltaics, 2020, 10, 1262-1269.	1.5	11
86	Hole-Selective Front Contact Stack Enabling 24.1%-Efficient Silicon Heterojunction Solar Cells. IEEE Journal of Photovoltaics, 2021, 11, 9-15.	1.5	11
87	Accurate Determination of Photovoltaic Cell and Module Peak Power From Their Currentâ€“Voltage Characteristics. IEEE Journal of Photovoltaics, 2016, 6, 1564-1575.	1.5	10
88	A multi-channel high time resolution detector for high content imaging. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2009, 610, 123-127.	0.7	9
89	Current matching optimization in high-efficiency thin-film silicon tandem solar cells. , 2013, , .		8
90	Optimization of the Asymmetric Intermediate Reflector Morphology for High Stabilized Efficiency Thin n-i-p Micromorph Solar Cells. IEEE Journal of Photovoltaics, 2013, 3, 41-45.	1.5	7

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91	A high-throughput, multi-channel photon-counting detector with picosecond timing. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2009, 604, 199-201.	0.7	6
92	Boosting the efficiency of III-V/Si tandem solar cells. , 2016, , .		6
93	Transferability of the Light-Soaking Benefits on Silicon Heterojunction Cells to Module. IEEE Journal of Photovoltaics, 2022, 12, 662-668.	1.5	6
94	Research and developments in thin-film silicon photovoltaics. , 2009, , .		5
95	Micro-Channel Plate Detectors Based on Hydrogenated Amorphous Silicon. Materials Research Society Symposia Proceedings, 2010, 1245, 1.	0.1	5
96	Measurement of the Open-Circuit Voltage of Individual Subcells in a Dual-Junction Solar Cell. IEEE Journal of Photovoltaics, 2012, 2, 164-168.	1.5	5
97	Charge collection in amorphous silicon solar cells: Cell analysis and simulation of high-efficiency pin devices. Journal of Non-Crystalline Solids, 2012, 358, 2187-2189.	1.5	5
98	High-performance hetero-junction crystalline silicon photovoltaic technology. , 2014, , .		5
99	Hydrogenated Amorphous Silicon Sensors Based on Thin Film on ASIC Technology. , 0, , .		4
100	TFA pixel sensor technology for vertex detectors. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2006, 560, 122-126.	0.7	4
101	High Spatial Resolution of Thin-Film-on-ASIC Particle Detectors. IEEE Transactions on Nuclear Science, 2012, 59, 2614-2621.	1.2	4
102	The role of front and back electrodes in parasitic absorption in thin-film solar cells. EPJ Photovoltaics, 2014, 5, 50601.	0.8	4
103	The boron-tailing myth in hydrogenated amorphous silicon solar cells. Applied Physics Letters, 2015, 107, 201112.	1.5	4
104	Passivating contacts for silicon solar cells with 800 Â°C stability based on tunnel-oxide and highly crystalline thin silicon layer. , 2016, , .		4
105	Silicon Heterojunction Solar Cells on Quasi-mono Wafers. , 2018, , .		4
106	Preliminary radiation tests of 32Î¼m thick hydrogenated amorphous silicon films. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2005, 552, 88-92.	0.7	3
107	A time driven readout scheme for PET and CT using APDs and SiPMs. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2010, 617, 232-236.	0.7	3
108	Metal-free crystalline silicon solar cells in module. , 2015, , .		3

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109	New guidelines for a more accurate extraction of solar cells and modules key data from their currentâ€“voltage curves. Progress in Photovoltaics: Research and Applications, 2017, 25, 623-635.	4.4	3
110	Perovskite/Silicon Tandem Solar Cells: Challenges Towards High- Efficiency in 4-Terminal and Monolithic Devices. , 2017, , .		3
111	Modeling of an integrated active feedback preamplifier in a 0.25 /spl mu/m CMOS technology at cryogenic temperatures. IEEE Transactions on Nuclear Science, 2003, 50, 1290-1296.	1.2	2
112	Quantum efficiency measurement of nâ€“iâ€“p a-Si:H photodiode array on CMOS circuit for positron emission tomography (PET). Journal of Non-Crystalline Solids, 2008, 354, 2603-2605.	1.5	2
113	Light harvesting schemes for high efficiency thin film silicon solar cells. , 2012, , .		2
114	High-efficiency perovskite/silicon heterojunction tandem solar cells. , 2016, , .		2
115	High rate deposition of microcrystalline silicon with silicon oxide doped layers: Highlighting the competing roles of both intrinsic and extrinsinc defects on the cells performances. , 2011, , .		1
116	Advanced intermediate reflector layers for thin film silicon tandem solar cells. , 2013, , .		1
117	THIN-FILM SOLAR CELLS BASED ON AMORPHOUS AND MICROCRYSTALLINE SILICON. Series on Photoconversion of Solar Energy, 2014, , 139-207.	0.2	1
118	New concept of PECVD reactor for efficient production of silicon heterojunction solar cells. , 2015, , .		1
119	Advances in crystalline silicon heterojunction research and opportunities for low manufacturing costs. , 2015, , .		1
120	Characterization of a thick layer a-Si:H pixel detector with TFA technology using a scanning electron microscope. Journal of Non-Crystalline Solids, 2006, 352, 1832-1836.	1.5	0
121	Low-power amplifier-discriminators for high time resolution detection. , 2008, , .		0
122	Back Cover: Optimization of thin film silicon solar cells on highly textured substrates (Phys. Status) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 50	0.8	0
123	Amorphous Silicon Based Particle Detectors. Materials Research Society Symposia Proceedings, 2011, 1321, 423.	0.1	0
124	Innovative Device Architecture for High Efficiency Thin Film Silicon Solar Cells. Materials Research Society Symposia Proceedings, 2012, 1426, 131-135.	0.1	0
125	Optimization of the asymmetric intermediate reflector morphology for high stabilized efficiency thin n-i-p micromorph solar cells. , 2012, , .		0
126	On the interplay between microstructure and interfaces in high-efficiency microcrystalline silicon solar cells. , 2012, , .		0

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127	Nanomoulding of Functional Materials, a Versatile Complementary Pattern Replication Method to Nanoimprinting. Journal of Visualized Experiments, 2013, , .	0.2	0
128	Optimization of the asymmetric intermediate reflector morphology for high stabilized efficiency thin n-i-p micromorph solar cells. , 2013, , .		0
129	On the interplay between microstructure and interfaces in high-efficiency microcrystalline silicon solar cells. , 2013, , .		0
130	Silicon heterojunction solar cells with plated contacts for low to medium concentration photovoltaics. , 2015, , .		0
131	A passivating contact concept compatible with a short thermal treatment. , 2018, , .		0
132	Corrections to â€œHighly Conductive and Broadband Transparent Zr-Doped In2O3 as Front Electrode for Solar Cellsâ€•[Sep 18 1202-1207]. IEEE Journal of Photovoltaics, 2019, 9, 1155-1155.	1.5	0