Matthieu Despeisse

List of Publications by Citations

123 papers	4,612 citations	36 h-index	65 g-index
132 ext. papers	5,322 ext. citations	7.1 avg, IF	5.11 L-index

#	Paper	IF	Citations
123	Light trapping in solar cells: can periodic beat random?. *ACS Nano*, **2012**, 6, 2790-7	16.7	406
122	Raising the one-sun conversion efficiency of III/V/Si solar cells to 32.8% for two junctions and 35.9% for three junctions. *Nature Energy*, **2017**, 2,	62.3	303
121	22.5% efficient silicon heterojunction solar cell with molybdenum oxide hole collector. *Applied Physics Letters*, **2015**, 107, 081601	3.4	297
120	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	20.1	281
119	Nanomoulding of transparent zinc oxide electrodes for efficient light trapping in solar cells. *Nature Photonics*, **2011**, 5, 535-538	33.9	226
118	Nanoimprint lithography for high-efficiency thin-film silicon solar cells. *Nano Letters*, **2011**, 11, 661-5	11.5	156
117	Multiscale transparent electrode architecture for efficient light management and carrier collection in solar cells. *Nano Letters*, **2012**, 12, 1344-8	11.5	119
116	Mixed-phase p-type silicon oxide containing silicon nanocrystals and its role in thin-film silicon solar cells. *Applied Physics Letters*, **2010**, 97, 213502	3.4	110
115	Resistive interlayer for improved performance of thin film silicon solar cells on highly textured substrate. *Applied Physics Letters*, **2010**, 96, 073507	3.4	106
114	Silicon filaments in silicon oxide for next-generation photovoltaics. *Advanced Materials*, **2012**, 24, 1182-624		103
113	. *IEEE Journal of Photovoltaics*, **2016**, 6, 1012-1019	3.7	86
112	Geometric light trapping for high efficiency thin film silicon solar cells. *Solar Energy Materials and Solar Cells*, **2012**, 98, 185-190	6.4	83
111	High-efficiency microcrystalline silicon single-junction solar cells. *Progress in Photovoltaics: Research and Applications*, **2013**, 21, 821-826	6.8	80
110	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	3.7	75
109	Optimization of thin film silicon solar cells on highly textured substrates. *Physica Status Solidi (A) Applications and Materials Science*, **2011**, 208, 1863-1868	1.6	74
108	A passivating contact for silicon solar cells formed during a single firing thermal annealing. *Nature Energy*, **2018**, 3, 800-808	62.3	72
107	Simple processing of back-contacted silicon heterojunction solar cells using selective-area crystalline growth. *Nature Energy*, **2017**, 2,	62.3	70

106	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	15.6	69
105	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	6.4	68
104	Recent advances and remaining challenges in thin-film silicon photovoltaic technology. *Materials Today*, **2015**, 18, 378-384	21.8	63
103	Solar-to-Hydrogen Production at 14.2% Efficiency with Silicon Photovoltaics and Earth-Abundant Electrocatalysts. *Journal of the Electrochemical Society*, **2016**, 163, F1177-F1181	3.9	62
102	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	6.4	62
101	Amorphous silicon–germanium for triple and quadruple junction thin-film silicon based solar cells. *Solar Energy Materials and Solar Cells*, **2015**, 133, 163-169	6.4	56
100	Efficient light management scheme for thin film silicon solar cells via transparent random nanostructures fabricated by nanoimprinting. *Applied Physics Letters*, **2010**, 96, 213504	3.4	55
99	Optimized short-circuit current mismatch in multi-junction solar cells. *Solar Energy Materials and Solar Cells*, **2013**, 117, 120-125	6.4	52
98	Low-Temperature Screen-Printed Metallization for the Scale-Up of Two-Terminal Perovskite–Silicon Tandems. *ACS Applied Energy Materials*, **2019**, 2, 3815-3821	6.1	50
97	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	35.4	49
96	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	3.7	47
95	Comparison of amorphous silicon absorber materials: Light-induced degradation and solar cell efficiency. *Journal of Applied Physics*, **2013**, 114, 154509	2.5	46
94	High-Stable-Efficiency Tandem Thin-Film Silicon Solar Cell With Low-Refractive-Index Silicon-Oxide Interlayer. *IEEE Journal of Photovoltaics*, **2014**, 4, 1368-1373	3.7	45
93	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	6.4	44
92	Back-Contacted Silicon Heterojunction Solar Cells: Optical-Loss Analysis and Mitigation. *IEEE Journal of Photovoltaics*, **2015**, 5, 1293-1303	3.7	42
91	Silicon-Rich Silicon Carbide Hole-Selective Rear Contacts for Crystalline-Silicon-Based Solar Cells. *ACS Applied Materials & Interfaces*, **2016**, 8, 35660-35667	9.5	41
90	Silicon oxide buffer layer at the p–i interface in amorphous and microcrystalline silicon solar cells. *Solar Energy Materials and Solar Cells*, **2014**, 120, 143-150	6.4	40
89	Micromorph thin-film silicon solar cells with transparent high-mobility hydrogenated indium oxide front electrodes. *Journal of Applied Physics*, **2011**, 109, 114501	2.5	39

88	Light-induced performance increase of silicon heterojunction solar cells. *Applied Physics Letters*, **2016**, 109, 153503	3.4	37
87	Optimization of ZnO Front Electrodes for High-Efficiency Micromorph Thin-Film Si Solar Cells. *IEEE Journal of Photovoltaics*, **2012**, 2, 229-235	3.7	36
86	Increasing the efficiency of silicon heterojunction solar cells and modules by light soaking. *Solar Energy Materials and Solar Cells*, **2017**, 173, 43-49	6.4	34
85	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	6.4	33
84	Highly Conductive and Broadband Transparent Zr-Doped In2O3 as Front Electrode for Solar Cells. *IEEE Journal of Photovoltaics*, **2018**, 8, 1202-1207	3.7	30
83	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	3.7	28
82	New progress in the fabrication of nip micromorph solar cells for opaque substrates. *Solar Energy Materials and Solar Cells*, **2013**, 114, 147-155	6.4	28
81	. *IEEE Journal of Photovoltaics*, **2019**, 9, 346-354	3.7	28
80	. *IEEE Journal of Photovoltaics*, **2018**, 8, 389-396	3.7	27
79	On the Interplay Between Microstructure and Interfaces in High-Efficiency Microcrystalline Silicon Solar Cells. *IEEE Journal of Photovoltaics*, **2013**, 3, 11-16	3.7	27
78	Class AAA LED-Based Solar Simulator for Steady-State Measurements and Light Soaking. *IEEE Journal of Photovoltaics*, **2014**, 4, 1282-1287	3.7	25
77	Light-induced Voc increase and decrease in high-efficiency amorphous silicon solar cells. *Journal of Applied Physics*, **2014**, 116, 094503	2.5	25
76	Nanometer- and Micrometer-Scale Texturing for High-Efficiency Micromorph Thin-Film Silicon Solar Cells. *IEEE Journal of Photovoltaics*, **2012**, 2, 83-87	3.7	25
75	Light trapping in solar cells: Analytical modeling. *Applied Physics Letters*, **2012**, 101, 151105	3.4	25
74	Substrate dependent stability and interplay between optical and electrical properties in μc-Si:H single junction solar cells. *Solar Energy Materials and Solar Cells*, **2011**, 95, 195-198	6.4	25
73	Unlinking absorption and haze in thin film silicon solar cells front electrodes. *Physica Status Solidi - Rapid Research Letters*, **2010**, 4, 326-328	2.5	25
72	Analysis of hydrogen distribution and migration in fired passivating contacts (FPC). *Solar Energy Materials and Solar Cells*, **2019**, 200, 110018	6.4	24
71	Light absorption in textured thin film silicon solar cells: A simple scalar scattering approach versus rigorous simulation. *Applied Physics Letters*, **2011**, 98, 051102	3.4	22

70	. *IEEE Transactions on Nuclear Science*, **2011**, 58, 404-417	1.7	21
69	Silicon Heterojunction Solar Cells: Towards Low-cost High-Efficiency Industrial Devices and Application to Low-concentration PV. *Energy Procedia*, **2015**, 77, 508-514	2.3	20
68	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	6.4	20
67	Radiation hardness of amorphous silicon particle sensors. *Journal of Non-Crystalline Solids*, **2006**, 352, 1797-1800	3.9	20
66	Dopant-Free Back-Contacted Silicon Solar Cells with an Efficiency of 22.1%. *Physica Status Solidi - Rapid Research Letters*, **2020**, 14, 1900688	2.5	20
65	Metallization of Si heterojunction solar cells by nanosecond laser ablation and Ni-Cu plating. *Solar Energy Materials and Solar Cells*, **2017**, 159, 243-250	6.4	19
64	LPCVD ZnO-based intermediate reflector for micromorph tandem solar cells. *Solar Energy Materials and Solar Cells*, **2011**, 95, 2161-2166	6.4	19
63	Mixed phase silicon oxide layers for thin-film silicon solar cells. *Materials Research Society Symposia Proceedings*, **2011**, 1321, 349		18
62	Low-Power Amplifier-Discriminators for High Time Resolution Detection. *IEEE Transactions on Nuclear Science*, **2009**, 56, 375-381	1.7	16
61	A high-speed low-noise transimpedance amplifier in a 0.25μm CMOS technology. *Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, **2003**, 512, 117-128	1.2	16
60	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	3.7	15
59	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	3.9	15
58	Comparison of amorphous silicon absorber materials: Kinetics of light-induced degradation. *Progress in Photovoltaics: Research and Applications*, **2016**, 24, 446-457	6.8	14
57	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	1.2	14
56	. *IEEE Transactions on Nuclear Science*, **2011**, 58, 202-208	1.7	13
55	Profilometry of thin films on rough substrates by Raman spectroscopy. *Scientific Reports*, **2016**, 6, 37859	4.9	13
54	Variable light biasing method to measure component IV characteristics of multi-junction solar cells. *Solar Energy Materials and Solar Cells*, **2012**, 103, 128-133	6.4	12
53	Characterization of 13 and 30μm 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	1.2	12

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51	**2010**,		11
50	Time based readout of a silicon photomultiplier (SiPM) for time of flight positron emission tomography (TOF-PET) **2009**,		11
49	A novel low noise hydrogenated amorphous silicon pixel detector. *Journal of Non-Crystalline Solids*, **2004**, 338-340, 729-731	3.9	11
48	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	6.1	10
47	Smoothening intermediate reflecting layer for tandem thin-film silicon solar cells. *Solar Energy Materials and Solar Cells*, **2013**, 119, 12-17	6.4	10
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45	New Generation Transparent LPCVD ZnO Electrodes for Enhanced Photocurrent in Micromorph Solar Cells and Modules. *IEEE Journal of Photovoltaics*, **2012**, 2, 88-93	3.7	10
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43	Hydrogenated Amorphous Silicon Sensor Deposited on Integrated Circuit for Radiation Detection. *IEEE Transactions on Nuclear Science*, **2008**, 55, 802-811	1.7	10
42	Accurate Determination of Photovoltaic Cell and Module Peak Power From Their Current–Voltage Characteristics. *IEEE Journal of Photovoltaics*, **2016**, 6, 1564-1575	3.7	9
41	Influence of Light Soaking on Silicon Heterojunction Solar Cells With Various Architectures. *IEEE Journal of Photovoltaics*, **2021**, 11, 575-583	3.7	9
40	Field test and electrode optimization of electrodynamic cleaning systems for solar panels. *Progress in Photovoltaics: Research and Applications*, **2019**, 27, 1020-1033	6.8	8
39	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	1.2	8
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37	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	3.9	5
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35	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	1.2	5

34	**2014**,		4
33	The role of front and back electrodes in parasitic absorption in thin-film solar cells. *EPJ Photovoltaics*, **2014**, 5, 50601	0.7	4
32	. *IEEE Journal of Photovoltaics*, **2012**, 2, 164-168	3.7	4
31	Current matching optimization in high-efficiency thin-film silicon tandem solar cells **2013**,		4
30	Micro-Channel Plate Detectors Based on Hydrogenated Amorphous Silicon. *Materials Research Society Symposia Proceedings*, **2010**, 1245, 1		4
29	Boosting the efficiency of III-V/Si tandem solar cells **2016**,		4
28	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	6.4	4
27	New guidelines for a more accurate extraction of solar cells and modules key data from their current□oltage curves. *Progress in Photovoltaics: Research and Applications*, **2017**, 25, 623-635	6.8	3
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25	High Spatial Resolution of Thin-Film-on-ASIC Particle Detectors. *IEEE Transactions on Nuclear Science*, **2012**, 59, 2614-2621	1.7	3
24	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	1.2	3
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22	A Mixed-Phase SiOx Hole Selective Junction Compatible With High Temperatures Used in Industrial Solar Cell Manufacturing. *IEEE Journal of Photovoltaics*, **2020**, 10, 1262-1269	3.7	3
21	Passivating contacts for silicon solar cells with 800 □C stability based on tunnel-oxide and highly crystalline thin silicon layer **2016**,		3
20	Hole-Selective Front Contact Stack Enabling 24.1%-Efficient Silicon Heterojunction Solar Cells. *IEEE Journal of Photovoltaics*, **2021**, 11, 9-15	3.7	3
19	Silicon Heterojunction Solar Cells on Quasi-mono Wafers **2018**,		3
18	Perovskite/Silicon Tandem Solar Cells: Challenges Towards High- Efficiency in 4-Terminal and Monolithic Devices **2017**,		2
17	Metal-free crystalline silicon solar cells in module **2015**,		2

16	Light harvesting schemes for high efficiency thin film silicon solar cells **2012**,		2
15	Hydrogenated amorphous silicon sensors based on thin film on ASIC technology		2
14	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	1.7	2
13	New concept of PECVD reactor for efficient production of silicon heterojunction solar cells **2015**,		1
12	Advances in crystalline silicon heterojunction research and opportunities for low manufacturing costs **2015**,		1
11	THIN-FILM SOLAR CELLS BASED ON AMORPHOUS AND MICROCRYSTALLINE SILICON. *Series on Photoconversion of Solar Energy*, **2014**, 139-207		1
10	**2013**,		1
9	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
8	Quantum efficiency measurement of nip a-Si:H photodiode array on CMOS circuit for positron emission tomography (PET). *Journal of Non-Crystalline Solids*, **2008**, 354, 2603-2605	3.9	1
7	Preliminary radiation tests of 32 m thick hydrogenated amorphous silicon films. *Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, **2005**, 552, 88-92	1.2	1
6	High-efficiency perovskite/silicon heterojunction tandem solar cells **2016**,		1
5	Transferability of the Light-Soaking Benefits on Silicon Heterojunction Cells to Module. *IEEE Journal of Photovoltaics*, **2022**, 1-7	3.7	0
4	Amorphous Silicon Based Particle Detectors. *Materials Research Society Symposia Proceedings*, **2011** , 1321, 423		
3	Innovative Device Architecture for High Efficiency Thin Film Silicon Solar Cells. *Materials Research Society Symposia Proceedings*, **2012**, 1426, 131-135		
2	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	3.9	
1	Corrections to Highly Conductive and Broadband Transparent Zr-Doped In2O3 as Front Electrode for Solar Cells/*IEEE Journal of Photovoltaics*, **2019**, 9, 1155-1155	3.7	