

Hagendorf Ch

List of Publications by Year in descending order

Source: <https://exaly.com/author-pdf/9289483/publications.pdf>

Version: 2024-02-01

127
papers

3,341
citations

147801

31
h-index

168389

53
g-index

128
all docs

128
docs citations

128
times ranked

2196
citing authors

#	ARTICLE	IF	CITATIONS
1	Explanation of potential-induced degradation of the shunting type by Na decoration of stacking faults in Si solar cells. <i>Solar Energy Materials and Solar Cells</i> , 2014, 120, 383-389.	6.2	273
2	Techno-Economic Assessment of Soiling Losses and Mitigation Strategies for Solar Power Generation. <i>Joule</i> , 2019, 3, 2303-2321.	24.0	207
3	Fundamentals of soiling processes on photovoltaic modules. <i>Renewable and Sustainable Energy Reviews</i> , 2018, 98, 239-254.	16.4	185
4	On the mechanism of potential-induced degradation in crystalline silicon solar cells. <i>Physica Status Solidi - Rapid Research Letters</i> , 2012, 6, 331-333.	2.4	117
5	Potential-Induced Degradation (PID): Introduction of a Novel Test Approach and Explanation of Increased Depletion Region Recombination. <i>IEEE Journal of Photovoltaics</i> , 2014, 4, 834-840.	2.5	109
6	Comprehensive analysis of soiling and cementation processes on PV modules in Qatar. <i>Solar Energy Materials and Solar Cells</i> , 2018, 186, 309-323.	6.2	109
7	Micro Structural Root Cause Analysis of Potential Induced Degradation in c-Si Solar Cells. <i>Energy Procedia</i> , 2012, 27, 1-6.	1.8	104
8	The role of stacking faults for the formation of shunts during potential-induced degradation of crystalline Si solar cells. <i>Physica Status Solidi - Rapid Research Letters</i> , 2013, 7, 315-318.	2.4	90
9	Chemical and structural study of electrically passivating Al ₂ O ₃ /Si interfaces prepared by atomic layer deposition. <i>Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films</i> , 2012, 30, .	2.1	83
10	Microstructural Analysis of Crystal Defects Leading to Potential-Induced Degradation (PID) of Si Solar Cells. <i>Energy Procedia</i> , 2013, 33, 76-83.	1.8	81
11	Sodium Outdiffusion from Stacking Faults as Root Cause for the Recovery Process of Potential-induced Degradation (PID). <i>Energy Procedia</i> , 2014, 55, 486-493.	1.8	81
12	Simple Cleaning and Conditioning of Silicon Surfaces with UV/Ozone Sources. <i>Energy Procedia</i> , 2014, 55, 834-844.	1.8	78
13	Interface and Material Characterization of Thin ALD-Al ₂ O ₃ Layers on Crystalline Silicon. <i>Energy Procedia</i> , 2012, 27, 312-318.	1.8	77
14	Dew as a Detrimental Influencing Factor for Soiling of PV Modules. <i>IEEE Journal of Photovoltaics</i> , 2019, 9, 287-294.	2.5	68
15	Potential-induced Degradation at Interdigitated Back Contact Solar Cells. <i>Energy Procedia</i> , 2014, 55, 498-503.	1.8	63
16	Microstructural analysis of the cementation process during soiling on glass surfaces in arid and semi-arid climates. <i>Physica Status Solidi - Rapid Research Letters</i> , 2016, 10, 525-529.	2.4	57
17	Molecular structure and chiral separation in β -sexithiophene ultrathin films on Au(111): Low-energy electron diffraction and scanning tunneling microscopy. <i>Physical Review B</i> , 2007, 75, .	3.2	56
18	Snail Trails: Root Cause Analysis and Test Procedures. <i>Energy Procedia</i> , 2013, 38, 498-505.	1.8	55

#	ARTICLE	IF	CITATIONS
19	Study of Pinhole Conductivity at Passivated Carrier-selected Contacts of Silicon Solar Cells. Energy Procedia, 2016, 92, 116-121.	1.8	52
20	Intra-grain versus grain boundary degradation due to illumination and annealing behavior of multi-crystalline solar cells. Solar Energy Materials and Solar Cells, 2016, 158, 43-49.	6.2	47
21	Sodium Decoration of PID-s Crystal Defects after Corona Induced Degradation of Bare Silicon Solar Cells. Energy Procedia, 2015, 77, 397-401.	1.8	46
22	Time evolution of one-dimensional gapless models from a domain wall initial state: stochastic Loewner evolution continued?. Journal of Statistical Mechanics: Theory and Experiment, 2008, 2008, P07013.	2.3	44
23	Growth, atomic structure, and vibrational properties of MnO ultrathin films on Pt(111). Physical Review B, 2008, 77, .	3.2	44
24	Comparing Indoor and Outdoor Soiling Experiments for Different Glass Coatings and Microstructural Analysis of Particle Caking Processes. IEEE Journal of Photovoltaics, 2018, 8, 203-209.	2.5	43
25	Silver nanoparticles cause snail trails in photovoltaic modules. Solar Energy Materials and Solar Cells, 2014, 121, 171-175.	6.2	40
26	Advanced performance testing of anti-soiling coatings – Part I: Sequential laboratory test methodology covering the physics of natural soiling processes. Solar Energy Materials and Solar Cells, 2019, 202, 110048.	6.2	39
27	Real time scanning tunneling microscopy study of the initial stages of oxidation of Ni(111) between 400 and 470 K. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2000, 18, 1010-1015.	2.1	38
28	Root cause analysis on corrosive potential-induced degradation effects at the rear side of bifacial silicon PERC solar cells. Solar Energy Materials and Solar Cells, 2019, 201, 110062.	6.2	37
29	Local Corrosion of Silicon as Root Cause for Potential-induced Degradation at the Rear Side of Bifacial PERC Solar Cells. Physica Status Solidi - Rapid Research Letters, 2019, 13, 1900163.	2.4	37
30	Investigations on the Formation of Stacking Fault-like PID-shunts. Energy Procedia, 2016, 92, 569-575.	1.8	35
31	The Gaussian Free Field and SLE4 on Doubly Connected Domains. Journal of Statistical Physics, 2010, 140, 1-26.	1.2	33
32	Pressure-dependent Ni–O phase transitions and Ni oxide formation on Pt(111): An in situ STM study at elevated temperatures. Physical Chemistry Chemical Physics, 2006, 8, 1575.	2.8	31
33	Temperature-induced stoichiometric changes in thermally grown interfacial oxide in tunnel-oxide passivating contacts. Solar Energy Materials and Solar Cells, 2020, 218, 110713.	6.2	30
34	Scanning tunneling microscopy and spectroscopy investigation of the atomic and electronic structure of CoO islands on Ag(). Surface Science, 2003, 532-535, 346-350.	1.9	28
35	Spin Chains with Dynamical Lattice Supersymmetry. Journal of Statistical Physics, 2013, 150, 609-657.	1.2	28
36	Advanced performance testing of anti-soiling coatings - Part II: Particle-size dependent analysis for physical understanding of dust removal processes and determination of adhesion forces. Solar Energy Materials and Solar Cells, 2019, 202, 110049.	6.2	27

#	ARTICLE	IF	CITATIONS
37	High-resolution structural investigation of passivated interfaces of silicon solar cells. <i>Solar Energy Materials and Solar Cells</i> , 2015, 142, 128-133.	6.2	25
38	An STM, XPS and LEED investigation of the BaTiO ₃ (111) surface. <i>Surface Science</i> , 1998, 402-404, 581-585.	1.9	24
39	The growth of thin NiO films on Ag(001) studied by scanning tunneling microscopy and spectroscopy. <i>Surface and Interface Analysis</i> , 2008, 40, 1741-1746.	1.8	22
40	Scanning tunneling microscopy and spectroscopy studies on structural and electronic properties of thin films of Co oxides and oxide precursor states on Ag(001). <i>Thin Solid Films</i> , 2004, 464-465, 65-75.	1.8	21
41	The Eight-Vertex Model and Lattice Supersymmetry. <i>Journal of Statistical Physics</i> , 2012, 146, 1122-1155.	1.2	21
42	Defect formation under high temperature dark-annealing compared to elevated temperature light soaking. <i>Solar Energy Materials and Solar Cells</i> , 2018, 187, 194-198.	6.2	21
43	Quick test for reversible and irreversible PID of bifacial PERC solar cells. <i>Solar Energy Materials and Solar Cells</i> , 2021, 219, 110755.	6.2	21
44	Exact and simple results for the XYZ and strongly interacting fermion chains. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2010, 43, 402004.	2.1	20
45	Tunnel oxide passivated carrier-selective contacts based on ultra-thin SiO ₂ layers grown by photo-oxidation or wet-chemical oxidation in ozonized water. , 2015, , .		20
46	Loss analysis and optimization of PV module components and design to achieve higher energy yield and longer service life in desert regions. <i>Applied Energy</i> , 2020, 280, 116028.	10.1	20
47	Polymer foil additives trigger the formation of snail trails in photovoltaic modules. <i>Solar Energy Materials and Solar Cells</i> , 2014, 130, 64-70.	6.2	18
48	Optimum PV module interconnection layout and mounting orientation to reduce inhomogeneous soiling losses in desert environments. <i>Solar Energy</i> , 2020, 203, 267-274.	6.1	18
49	Quantitative elemental analysis of photovoltaic Cu(In,Ga)Se ₂ thin films using MCs ⁺ clusters. <i>Surface and Interface Analysis</i> , 2013, 45, 434-436.	1.8	17
50	Influence of the feedstock purity on the solar cell efficiency. <i>Solar Energy Materials and Solar Cells</i> , 2014, 130, 668-672.	6.2	17
51	High-performance p-type multicrystalline silicon (mc-Si): Its characterization and projected performance in PERC solar cells. <i>Solar Energy</i> , 2018, 175, 68-74.	6.1	17
52	Classification of recombination active defect structures in multicrystalline silicon solar cells. <i>Energy Procedia</i> , 2011, 8, 28-34.	1.8	16
53	A scanning tunneling microscopy, X-ray photoelectron spectroscopy and low-energy electron diffraction investigation of the BaTiO ₃ (111) surface. <i>Surface Science</i> , 1999, 436, 121-130.	1.9	15
54	Cu diffusion-induced vacancy-like defects in freestanding GaN. <i>New Journal of Physics</i> , 2011, 13, 013029.	2.9	15

#	ARTICLE	IF	CITATIONS
55	One-dimensional classical diffusion in a random force field with weakly concentrated absorbers. <i>Europhysics Letters</i> , 2009, 86, 37011.	2.0	14
56	Ground-state properties of a supersymmetric fermion chain. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2011, 2011, P02014.	2.3	14
57	Nanosopic studies of 2D extended defects in silicon that cause shunting of Si solar cells. <i>Physica Status Solidi C: Current Topics in Solid State Physics</i> , 2015, 12, 1103-1107.	0.8	14
58	Microstructural identification of Cu in solar cells sensitive to light-induced degradation. <i>Physica Status Solidi - Rapid Research Letters</i> , 2017, 11, 1600426.	2.4	14
59	Potential-Induced Degradation of Bifacial PERC Solar Cells Under Illumination. <i>IEEE Journal of Photovoltaics</i> , 2019, 9, 1522-1525.	2.5	14
60	Open spin chains with dynamic lattice supersymmetry. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2017, 50, 185202.	2.1	13
61	Resilience of industrial PV module glass coatings to cleaning processes. <i>Journal of Renewable and Sustainable Energy</i> , 2020, 12, 053504.	2.0	13
62	Outdoor performance of anti-soiling coatings in various climates of Saudi Arabia. <i>Solar Energy Materials and Solar Cells</i> , 2022, 235, 111470.	6.2	13
63	Surface physical studies of poly- and single-crystalline BaTiO ₃ . <i>Applied Surface Science</i> , 1999, 142, 106-113.	6.1	12
64	The effect of boundaries on the spectrum of a one-dimensional random mass Dirac Hamiltonian. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2010, 43, 025002.	2.1	12
65	Combined Soiling and Abrasion Testing of Antisoiling Coatings. <i>IEEE Journal of Photovoltaics</i> , 2020, 10, 243-249.	2.5	12
66	A growth model for RNA secondary structures. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2008, 2008, P04008.	2.3	11
67	Microstructural Analysis of Local Silicon Corrosion of Bifacial Solar Cells as Root Cause of Potential-Induced Degradation at the Rear Side. <i>Physica Status Solidi (A) Applications and Materials Science</i> , 2019, 216, 1900334.	1.8	11
68	Particle size-dependent adhesion forces and wind removal efficiency of anti-soiling coatings on textured solar glasses. <i>MRS Communications</i> , 2019, 9, 964-970.	1.8	11
69	Quantification of abrasion-induced ARC transmission losses from reflection spectroscopy. , 2019, , .		11
70	Determination of crystal grain orientations by optical microscopy at textured surfaces. <i>Journal of Applied Physics</i> , 2013, 114, .	2.5	10
71	Microstructural investigation of LID sensitive mc-PERC solar cells. <i>Energy Procedia</i> , 2017, 124, 759-766.	1.8	10
72	Breaking supersymmetry in a one-dimensional random Hamiltonian. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2008, 41, 405302.	2.1	9

#	ARTICLE	IF	CITATIONS
73	Classification of Recombination-Active Defects in Multicrystalline Solar Cells Made from Upgraded Metallurgical Grade (UMG) Silicon. <i>Solid State Phenomena</i> , 2011, 178-179, 88-93.	0.3	9
74	Shunt Analysis in Solar Cells - Electro-Optical Classification and High Resolution Defect Diagnostics. <i>Energy Procedia</i> , 2012, 27, 7-12.	1.8	9
75	Geometrical correction factors for finite-size probe tips in microscopic four-point-probe resistivity measurements. <i>Journal of Applied Physics</i> , 2014, 116, .	2.5	9
76	Elemental evolution of the SiO _x F _y self-masking layer of plasma textured silicon and its modification during air exposure. <i>Journal of Applied Physics</i> , 2017, 121, .	2.5	9
77	Cathodoluminescence and Surface Physical Studies of Polycrystalline BaTiO ₃ . <i>Physica Status Solidi A</i> , 1999, 173, 183-193.	1.7	8
78	Time-Resolved Investigation of Transient Field Effect Passivation States during Potential-Induced Degradation and Recovery of Bifacial Silicon Solar Cells. <i>Solar Rrl</i> , 2021, 5, 2100140.	5.8	8
79	Microscale Contact Formation by Laser Enhanced Contact Optimization. <i>IEEE Journal of Photovoltaics</i> , 2022, 12, 26-30.	2.5	8
80	Scanning tunneling microscopy and spectroscopy of CoO precursor and oxide layers on Ag(001). <i>Surface Science</i> , 2004, 566-568, 68-73.	1.9	7
81	Microstructure of Void Formation Stages at Local Rear Contacts. <i>Energy Procedia</i> , 2015, 77, 701-706.	1.8	7
82	Influence of Different Types of Recombination Active Defects on the Integral Electrical Properties of Multicrystalline Silicon Solar Cells. <i>Journal of Solar Energy</i> , 2015, 2015, 1-9.	0.8	7
83	Abrasion testing of anti-reflective coatings under various conditions. <i>Solar Energy Materials and Solar Cells</i> , 2022, 240, 111732.	6.2	7
84	SLE on Doubly-Connected Domains and the Winding of Loop-Erased Random Walks. <i>Journal of Statistical Physics</i> , 2008, 133, 231-254.	1.2	6
85	A staggered fermion chain with supersymmetry on open intervals. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2012, 45, 365201.	2.1	6
86	Search for Microstructural Defects as Nuclei for PID-Shunts in Silicon Solar Cells. , 2017, , .		6
87	Rotational force test method for determination of particle adhesion from a simplified model to realistic dusts. <i>Journal of Renewable and Sustainable Energy</i> , 2020, 12, .	2.0	6
88	Impact of Samarium on the Growth of Epitaxial Bismuth Ferrite Thin Films. <i>Physica Status Solidi (B): Basic Research</i> , 2020, 257, 1900625.	1.5	6
89	The nineteen-vertex model and alternating sign matrices. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2015, 2015, P01017.	2.3	5
90	A Comparison of PV Power Forecasts Using PVLib-Python. , 2017, , .		5

#	ARTICLE	IF	CITATIONS
91	On the transfer matrix of the supersymmetric eight-vertex model. I. Periodic boundary conditions. Journal of Statistical Mechanics: Theory and Experiment, 2018, 2018, 033106.	2.3	5
92	Influence of soiling and moisture ingress on long term PID susceptibility of photovoltaic modules. AIP Conference Proceedings, 2019, . .	0.4	5
93	A generalization of Schramm's formula for SLE2. Journal of Statistical Mechanics: Theory and Experiment, 2009, 2009, P02033.	2.3	4
94	Bethe ansatz solvability and supersymmetry of the M2 model of single fermions and pairs. Journal of Physics A: Mathematical and Theoretical, 2014, 47, 485201.	2.1	4
95	Advanced Metal Contamination Analysis for High Efficiency Solar Cell Manufacturing. Energy Procedia, 2016, 92, 369-373.	1.8	4
96	Quantification of Void Defects on PERC Solar Cell Rear Contacts. Energy Procedia, 2016, 92, 37-41.	1.8	4
97	Microstructural Analysis of Local Silicon Corrosion of Bifacial Solar Cells as Root Cause of Potential-Induced Degradation at the Rear Side. Physica Status Solidi (A) Applications and Materials Science, 2019, 216, 1970056.	1.8	4
98	Soiling induced nano-defects on aluminum telescope mirror coatings. Applied Optics, 2022, 61, 2727.	1.8	4
99	Surface physical studies of barium titanate ceramics. Surface Science, 2003, 532-535, 501-507.	1.9	3
100	Structural and Chemical Investigations of Adapted Siemens Feed Rods for an Optimized Float Zone Process. Energy Procedia, 2013, 38, 604-610.	1.8	3
101	Polymer Foil Additives Trigger the Formation of Snail Trails in Photovoltaic Modules. Energy Procedia, 2014, 55, 494-497.	1.8	3
102	Symmetry classes of alternating sign matrices in a nineteen-vertex model. Journal of Statistical Mechanics: Theory and Experiment, 2016, 2016, 053111.	2.3	3
103	Evaluation of localized vertical current formation in carrier selective passivation layers of silicon solar cells by conductive AFM. AIP Conference Proceedings, 2019, . .	0.4	3
104	On the transfer matrix of the supersymmetric eight-vertex model. II. Open boundary conditions. Journal of Statistical Mechanics: Theory and Experiment, 2020, 2020, 033104.	2.3	3
105	Surface contaminations on silicon wafers – Monitoring of cleaning processes and specifying wafer quality. , 2011, . .		2
106	Investigation of modified p-n junctions in crystalline silicon on glass solar cells. Journal of Applied Physics, 2011, 109, 084513.	2.5	2
107	High-resolution Optical and Electro-optical Microscopy for PV-modules. Energy Procedia, 2014, 55, 451-455.	1.8	2
108	Influence of Slim Rod Material Properties to the Siemens Feed Rod and the Float Zone Process. Energy Procedia, 2014, 55, 596-601.	1.8	2

#	ARTICLE	IF	CITATIONS
109	Methods for resistivity and thickness measurements of high resistivity interfacial layers in photovoltaic TCO multilayers. , 2015, , .		2
110	Fs-laser micro machining for $\lambda/4$ -TLM resistivity test structures in photovoltaic TCO multilayers. Proceedings of SPIE, 2016, , .	0.8	2
111	Mitigation of soiling losses by smart heating and night tilting for ASC and standard PV module glass. , 2021, , .		2
112	Microscopic Study of Defect Luminescence between 0.72 - 0.85 eV by Optical Microscopy. Microscopy Research, 2014, 02, 9-12.	0.3	2
113	Chemical characterization of SiC and Si ₃ N ₄ precipitates in multicrystalline silicon by NIR microscopy and ToF-SIMS. Physica Status Solidi C: Current Topics in Solid State Physics, 2011, 8, 796-799.	0.8	1
114	Quantitative elemental analysis of photovoltaic Cu(In,Ga)Se ₂ thin films using MCs ⁺ clusters. , 2012, , .		1
115	Rapid Determination of Organic Contaminations on Wafer Surfaces. Solid State Phenomena, 0, 219, 317-319.	0.3	1
116	Localization of Inorganic Impurities in Silicon Samples by Sequential Etching and ICP-MS Detection. Energy Procedia, 2016, 92, 392-398.	1.8	1
117	Potential Induced Degradation Studies with high Temporal Resolution Reveal Changes of Field Effect Passivation States at the Rear Side of Bifacial Silicon Solar Cells. , 2021, , .		1
118	Analyses and Excess Oxygen Investigations by Scanning Transmission Electron Microscopy and Electron Energy Loss Spectroscopy at AlO _x /Si Interfaces in Passivated Emitter and Rear Solar Cells. Physica Status Solidi (A) Applications and Materials Science, 2021, 218, 2100223.	1.8	1
119	Evolution of Corrosive Potential-Induced Degradation at the Rear Side of Bifacial Passivated Emitter and Rear Solar Cells. Physica Status Solidi - Rapid Research Letters, 2022, 16, 2100519.	2.4	1
120	Scanning tunneling microscopy, spectroscopy and tunneling-induced light emission on donor-doped BaTiO ₃ . Surface Science, 2004, 566-568, 1211-1216.	1.9	0
121	Investigation of modified p-n junctions in CSG solar cells. Physica Status Solidi C: Current Topics in Solid State Physics, 2011, 8, 1418-1422.	0.8	0
122	Layer-selective lift-off processing in a TCO/Si thin film system by ultra-short (ps, fs) laser pulses. , 2016, , .		0
123	Indirect ablation of Cu(In, Ga)Se ₂ -layers by ns pulses with a wavelength of 1342 nm. , 2016, , .		0
124	Microstructure and recombination activity of grain boundaries from front and rear side during a LID-cycle of mc-PERC solar cells. , 2017, , .		0
125	Metallized Boron-Doped Black Silicon Emitters For Front Contact Solar Cells. , 2017, , .		0
126	Resistor network modeling of microscopic transfer length measurements at bilayer systems for heterojunction solar cells. AIP Conference Proceedings, 2018, , .	0.4	0

#	ARTICLE	IF	CITATIONS
127	Mobiler PrÃ¼faufbau fÃ¼r Solarkraftwerke. Nachrichten Aus Der Chemie, 2019, 67, 32-34.	0.0	0