Martin C Schubert

List of Publications by Year
in descending order

96 papers	2,554 citations	172457 29 h-index	206112 48 g-index
97 all docs	97 docs citations	97 times ranked	2479 citing authors

#	Article	IF	Citations
1	UV Degradation and Recovery of Perovskite Solar Cells. Scientific Reports, 2016, 6, 38150.	3.3	269
2	High-Efficiency n-Type HP mc Silicon Solar Cells. IEEE Journal of Photovoltaics, 2017, 7, 1171-1175.	2.5	135
3	Degradation of Crystalline Silicon Due to Boronâ€“Oxygen Defects. IEEE Journal of Photovoltaics, 2017, 7, 383-398.	2.5	126
4	Effective Passivation of Black Silicon Surfaces by Atomic Layer Deposition. IEEE Journal of Photovoltaics, 2013, 3, 90-94.	2.5	109
5	Impact of the firing temperature profile on light induced degradation of multicrystalline silicon. Physica Status Solidi - Rapid Research Letters, 2016, 10, 861-865.	2.4	96
6	The concept of skins for silicon solar cell modeling. Solar Energy Materials and Solar Cells, 2017, 173, 128-133.	6.2	91
7	Understanding the lightâ€induced degradation at elevated temperatures: Similarities between multicrystalline and floatzone pâ€type silicon. Progress in Photovoltaics: Research and Applications, 2018, 26, 533-542.	8.1	82
8	Impact of Impurities From Crucible and Coating on mc-Silicon Qualityâ€”the Example of Iron and Cobalt. IEEE Journal of Photovoltaics, 2013, 3, 1250-1258.	2.5	66
9	Can Luminescence Imaging Replace Lock-in Thermography on Solar Cells?. IEEE Journal of Photovoltaics, 2011, 1, 159-167.	2.5	62
10	Quantitative carrier lifetime measurement with micron resolution. Journal of Applied Physics, 2010, 108, 033705.	2.5	54
11	Diode breakdown related to recombination active defects in block-cast multicrystalline silicon solar cells. Journal of Applied Physics, 2009, 106, 063530.	2.5	52
12	Observation of metal precipitates at prebreakdown sites in multicrystalline silicon solar cells. Applied Physics Letters, 2009, 95, .	3.3	52
13	Imaging of Metastable Defects in Silicon. IEEE Journal of Photovoltaics, 2011, 1, 168-173.	2.5	50
14	Modeling majority carrier mobility in compensated crystalline silicon for solar cells. Solar Energy Materials and Solar Cells, 2012, 106, 31-36.	6.2	49
15	Microâ€photoluminescence spectroscopy on metal precipitates in silicon. Physica Status Solidi - Rapid Research Letters, 2009, 3, 230-232.	2.4	47
16	Towards a unified low-field model for carrier mobilities in crystalline silicon. Solar Energy Materials and Solar Cells, 2014, 131, 92-99.	6.2	46
17	Towards the efficiency limits of multicrystalline silicon solar cells. Solar Energy Materials and Solar Cells, 2018, 185, 198-204.	6.2	46
18	Cs<i>_x</i>FA_{1â€“<i>x</i>}Pb(I_{1â€“<i>y</i>}Br<i>_y</i>)₃ Perovskite Compositions: the Appearance of Wrinkled Morphology and its Impact on Solar Cell Performance. Journal of Physical Chemistry C, 2018, 122, 17123-17135.	3.1	42

#	Article	IF	Citations
19	Superacid-Treated Silicon Surfaces: Extending the Limit of Carrier Lifetime for Photovoltaic Applications. IEEE Journal of Photovoltaics, 2017, 7, 1574-1583.	2.5	40
20	Modeling Edge Recombination in Silicon Solar Cells. IEEE Journal of Photovoltaics, 2018, 8, 428-434.	2.5	39
21	Galliumâ€Doped Silicon for Highâ€Efficiency Commercial Passivated Emitter and Rear Solar Cells. Solar Rrl, 2021, 5, 2000754.	5.8	39
22	Optimized multicrystalline silicon for solar cells enabling conversion efficiencies of 22%. Solar Energy Materials and Solar Cells, 2017, 171, 180-186.	6.2	38
23	Microscopic origin of the aluminium assisted spiking effects in n-type silicon solar cells. Solar Energy Materials and Solar Cells, 2014, 131, 105-109.	6.2	35
24	Determination of Bulk Lifetime and Surface Recombination Velocity of Silicon Ingots From Dynamic Photoluminescence. IEEE Journal of Photovoltaics, 2013, 3, 1311-1318.	2.5	32
25	Analyses of the Evolution of Iron-Silicide Precipitates in Multicrystalline Silicon During Solar Cell Processing. IEEE Journal of Photovoltaics, 2013, 3, 131-137.	2.5	32
26	Solar Cell Efficiency Losses Due to Impurities From the Crucible in Multicrystalline Silicon. IEEE Journal of Photovoltaics, 2014, 4, 122-129.	2.5	32
27	Perovskites fabricated on textured silicon surfaces for tandem solar cells. Communications Chemistry, 2020, 3, .	4.5	31
28	Simultaneous stress and defect luminescence study on silicon. Physica Status Solidi (A) Applications and Materials Science, 2010, 207, 436-441.	1.8	30
29	Spatially Resolved Performance Analysis for Perovskite Solar Cells. Advanced Energy Materials, 2020, 10, 1904001.	19.5	30
30	Potential Gain in Multicrystalline Silicon Solar Cell Efficiency by n-Type Doping. IEEE Journal of Photovoltaics, 2015, 5, 499-506.	2.5	29
31	Distinguishing crystallization stages and their influence on quantum efficiency during perovskite solar cell formation in real-time. Scientific Reports, 2017, 7, 14899.	3.3	27
32	Lock-in Thermography. Springer Series in Advanced Microelectronics, 2018, , .	0.3	27
33	Sunsâ€PLI as a powerful tool for spatially resolved fill factor analysis of solar cells. Progress in Photovoltaics: Research and Applications, 2014, 22, 581-586.	8.1	25
34	Building intuition of iron evolution during solar cell processing through analysis of different process models. Applied Physics A: Materials Science and Processing, 2015, 120, 1357-1373.	2.3	25
35	High-Efficiency Multicrystalline Silicon Solar Cells: Potential of n-Type Doping. IEEE Journal of Photovoltaics, 2015, 5, 1571-1579.	2.5	24
36	Nondestructive Probing of Perovskite Silicon Tandem Solar Cells Using Multiwavelength Photoluminescence Mapping. IEEE Journal of Photovoltaics, 2017, 7, 1081-1086.	2.5	24

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37	Long-Term Stability of Aluminum Oxide Based Surface Passivation Schemes Under Illumination at Elevated Temperatures. IEEE Journal of Photovoltaics, 2017, 7, 1197-1202.	2.5	24
38	Carrier Recombination at Metallic Precipitates in p-and n-Type Silicon. IEEE Journal of Photovoltaics, 2015, 5, 1285-1292.	2.5	23
39	Loss Analysis in Perovskite Photovoltaic Modules. Solar Rrl, 2019, 3, 1900338.	5.8	23
40	Temporary Recovery of the Defect Responsible for Light- and Elevated Temperature-Induced Degradation: Insights Into the Physical Mechanisms Behind LeTID. IEEE Journal of Photovoltaics, 2020, 10, 1591-1603.	2.5	23
41	Temperature Coefficient Imaging for Silicon Solar Cells. IEEE Journal of Photovoltaics, 2018, 8, 930-936.	2.5	22
42	Influence of heterogeneous profiles in carrier density measurements with respect to iron concentration measurements in silicon. Journal of Applied Physics, 2009, 105, 114903.	2.5	20
43	Spatially Resolved Impurity Identification via Temperature- and Injection-Dependent Photoluminescence Imaging. IEEE Journal of Photovoltaics, 2015, 5, 1503-1509.	2.5	20
44	Impact of stress on the recombination at metal precipitates in silicon. Journal of Applied Physics, 2010, 108, .	2.5	19
45	Comprehensive Microscopic Analysis of Laser-Induced High Doping Regions in Silicon. IEEE Transactions on Electron Devices, 2011, 58, 2874-2877.	3.0	18
46	Wafer thickness optimization for silicon solar cells of heterogeneous material quality. Physica Status Solidi - Rapid Research Letters, 2013, 7, 955-958.	2.4	18
47	Adaption of Basic Metalâ€“Insulatorâ€“Semiconductor (MIS) Theory for Passivating Contacts Within Numerical Solar Cell Modeling. IEEE Journal of Photovoltaics, 2018, 8, 1546-1552.	2.5	18
48	Radiative recombination in silicon photovoltaics: Modeling the influence of charge carrier densities and photon recycling. Solar Energy Materials and Solar Cells, 2021, 230, 111198.	6.2	18
49	The potential of cast silicon. Solar Energy Materials and Solar Cells, 2021, 219, 110789.	6.2	16
50	On the implication of spatial carrier density non-uniformity on lifetime determination in silicon. Journal of Applied Physics, 2015, 118, 105706.	2.5	15
51	Doping Density in Silicon and Solar Cells Analyzed With Micrometer Resolution. IEEE Journal of Photovoltaics, 2013, 3, 341-347.	2.5	13
52	Separation of the surface and bulk recombination in silicon by means of transient photoluminescence. Applied Physics Letters, 2017, 110, .	3.3	12
53	How to achieve efficiencies exceeding 22% with multicrystalline n-type silicon solar cells. Energy Procedia, 2017, 124, 777-780.	1.8	12
54	Prediction of local temperatureâ€dependent performance of silicon solar cells. Progress in Photovoltaics: Research and Applications, 2019, 27, 999-1006.	8.1	11

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55	Insights into the Hydrogenâ€Related Mechanism behind Defect Formation during Lightâ€•and Elevatedâ€Temperatureâ€Induced Degradation. Physica Status Solidi - Rapid Research Letters, 2021, 15, 2000584.	2.4	11
56	Simulation of Iron Distribution after Crystallization of mc Silicon. Solid State Phenomena, 2009, 156-158, 223-228.	0.3	10
57	A combined transient and steady state approach for robust lifetime spectroscopy with micrometer resolution. Physica Status Solidi - Rapid Research Letters, 2015, 9, 697-700.	2.4	10
58	Microscopic charge carrier lifetime in silicon from a transient approach. Applied Physics Letters, 2015, 107, .	3.3	10
59	Material limits of multicrystalline silicon from stateâ€ofâ€theâ€art photoluminescence imaging techniques. Progress in Photovoltaics: Research and Applications, 2017, 25, 499-508.	8.1	10
60	Extraordinarily High Minority Charge Carrier Lifetime Observed in Crystalline Silicon. Solar Rrl, 2021, 5, 2100605.	5.8	10
61	X-ray excited optical luminescence from crystalline silicon. Physica Status Solidi - Rapid Research Letters, 2009, 3, 275-277.	2.4	9
62	Imaging of Metal Impurities in Silicon by Luminescence Spectroscopy and Synchrotron Techniques. Journal of Electronic Materials, 2010, 39, 787-793.	2.2	9
63	Excellent Average Diffusion Lengths of 600 Î¼m of N-Type Multicrystalline Silicon Wafers After the Full Solar Cell Process Including Boron Diffusion. Energy Procedia, 2013, 33, 41-49.	1.8	9
64	Efficiency Potential of p- and n-type High Performance Multicrystalline Silicon. Energy Procedia, 2015, 77, 633-638.	1.8	9
65	Local Series Resistance Imaging of Silicon Solar Cells With Complex Current Paths. IEEE Journal of Photovoltaics, 2015, 5, 752-758.	2.5	8
66	Imaging Interstitial Iron Concentrations in Galliumâ€Doped Silicon Wafers. Physica Status Solidi (A) Applications and Materials Science, 2019, 216, 1800655.	1.8	8
67	Quantitative Local Loss Analysis of Blade-Coated Perovskite Solar Cells. IEEE Journal of Photovoltaics, 2019, 9, 452-459.	2.5	8
68	High performance multicrystalline silicon: Grain structure and iron precipitation. Journal of Applied Physics, 2017, 122, 135103.	2.5	7
69	Photoluminescence Imaging at Uniform Excess Carrier Density Using Adaptive Nonuniform Excitation. IEEE Journal of Photovoltaics, 2018, 8, 1787-1792.	2.5	7
70	Investigation of LeTID where we can control it â€“ Application of FZ silicon for defect studies. AIP Conference Proceedings, 2019, , .	0.4	7
71	Edge recombination analysis of silicon solar cells using photoluminescence measurements. AIP Conference Proceedings, 2019, , .	0.4	7
72	Carrier Lifetime Limitation of Industrial Ga-Doped Cz-Grown Silicon After Different Solar Cell Process Flows. IEEE Journal of Photovoltaics, 2022, 12, 238-243.	2.5	7

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73	The Principle of Adaptive Excitation for Photoluminescence Imaging of Silicon: Theory. Physica Status Solidi - Rapid Research Letters, 2018, 12, 1800137.	2.4	6
74	Re-evaluation of the SRH-parameters for the FeGa defect. AIP Conference Proceedings, 2019, , .	0.4	4
75	Analysis of temperature dependent surface recombination properties. AIP Conference Proceedings, 2019, , .	0.4	4
76	Experimental Proof of the Slow Light-Induced Degradation Component in Compensated <i>n</i>-Type Silicon. Solid State Phenomena, 2015, 242, 102-108.	0.3	3
77	Correlation of Defect Luminescence and Recombination in Multicrystalline Silicon. IEEE Journal of Photovoltaics, 2019, 9, 55-63.	2.5	3
78	Photoluminescence imaging of chromium in crystalline silicon. , 2010, , .		2
79	Recombination activity enhancement by stress in silicon. , 2010, , .		2
80	Resistivity, Doping Concentrations, and Carrier Mobilities in Compensated n- and p-Type Czochralski Silicon: Comparison of Measurements and Simulations and Consistent Description of Material Parameters. IEEE Journal of Photovoltaics, 2015, 5, 1276-1284.	2.5	2
81	Contact fault characterisation of complex silicon solar cells: a guideline based on current voltage characteristics and luminescence imaging. Progress in Photovoltaics: Research and Applications, 2016, 24, 326-339.	8.1	2
82	Moving Beyond p-Type mc-Si: Quantified Measurements of Iron Content and Lifetime of Iron-Rich Precipitates in n-Type Silicon. IEEE Journal of Photovoltaics, 2018, 8, 1525-1530.	2.5	2
83	Experimental and Theoretical Study of Oxygen Precipitation and the Resulting Limitation of Silicon Solar Cell Wafers. IEEE Journal of Photovoltaics, 2021, 11, 289-297.	2.5	2
84	Quantitative Iron Concentration Imaging. Solid State Phenomena, 2009, 156-158, 407-412.	0.3	1
85	Modeling the size distribution of iron silicide precipitates in multicrystalline silicon. , 2012, , .		1
86	Efficiency-Limiting Recombination in Multicrystalline Silicon Solar Cells. Solid State Phenomena, 2013, 205-206, 110-117.	0.3	1
87	Swirl defect investigation using temperature- and injection-dependent photoluminescence imaging. , 2016, , .		1
88	Stress Mapping by Confocal Raman Spectroscopy on Solar Cells and Modules. , 2018, , .		1
89	Limiting Defects in nâ€Type Multicrystalline Silicon Solar Cells. Physica Status Solidi (A) Applications and Materials Science, 2019, 216, 1900331.	1.8	1
90	Analysis of Temperature Dependent Characteristics of Diffused Regions in Silicon Solar Cells. , 2019, , .		1

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91	Breakdown of temperature sensitivity of silicon solar cells by simulation input parameters. Solar Energy Materials and Solar Cells, 2021, 219, 110836.	6.2	1
92	Cause of increased currents under reverse-bias conditions of upgraded metallurgical grade multicrystalline silicon solar cells. , 2010, , .		0
93	Electrical Limitations in Epitaxially Grown Kerfless Silicon Wafers for Solar Cells. , 2018, , .		0
94	Temperature dependent imaging of solar cell losses. AIP Conference Proceedings, 2018, , .	0.4	0
95	The radiative recombination coefficient of silicon: reassesement of its charge carrier density dependence. , 2021, , .		0
96	Optimization of electron selective layer and perovskite crystallization for efficient outdoor and indoor light harvesting in graphite-based perovskite solar cells. , 0, , .		0