Ville VÃ¤hÃ¤nissi

List of Publications by Year
in descending order

63 papers	760 citations	623188 14 h-index	580395 25 g-index
63 all docs	63 docs citations	63 times ranked	768 citing authors

#	Article	IF	Citations
1	Tailoring Femtosecondâ€Laser Processed Black Silicon for Reduced Carrier Recombination Combined with >95% Aboveâ€Bandgap Absorption. Advanced Photonics Research, 2022, 3, .	1.7	7
2	Fast Wafer-Level Characterization of Silicon Photodetectors by Photoluminescence Imaging. IEEE Transactions on Electron Devices, 2022, 69, 2449-2456.	1.6	5
3	Effect of anode sheet resistance on rise time of black silicon induced junction photodiodes. , 2022, , .		1
4	Effects of post oxidation of SiO2/Si interfaces in ultrahigh vacuum below 450ÂÂ°C. Vacuum, 2022, 202, 111134.	1.6	4
5	Electron Injection in Metal Assisted Chemical Etching as a Fundamental Mechanism for Electroless Electricity Generation. Journal of Physical Chemistry Letters, 2022, 13, 5648-5653.	2.1	9
6	Perspectives on Black Silicon in Semiconductor Manufacturing: Experimental Comparison of Plasma Etching, MACE, and Fs-Laser Etching. IEEE Transactions on Semiconductor Manufacturing, 2022, 35, 504-510.	1.4	17
7	Millisecond-Level Minority Carrier Lifetime in Femtosecond Laser-Textured Black Silicon. IEEE Photonics Technology Letters, 2022, 34, 870-873.	1.3	8
8	Alâ€neal Degrades Al 2 O 3 Passivation of Silicon Surface. Physica Status Solidi (A) Applications and Materials Science, 2021, 218, 2100214.	0.8	2
9	Increased surface recombination in crystalline silicon under light soaking due to Cu contamination. Solar Energy Materials and Solar Cells, 2021, 232, 111360.	3.0	0
10	Efficient photon capture on germanium surfaces using industrially feasible nanostructure formation. Nanotechnology, 2021, 32, 035301.	1.3	5
11	Harnessing Carrier Multiplication in Silicon Solar Cells Using UV Photons. IEEE Photonics Technology Letters, 2021, 33, 1415-1418.	1.3	7
12	Grass-like alumina coated window harnesses the full omnidirectional potential of black silicon photodiodes. Applied Optics, 2021, 60, 10415.	0.9	3
13	Achieving surface recombination velocity below 10 cm/s in <i>n</i>-type germanium using ALD Al2O3. APL Materials, 2021, 9, .	2.2	8
14	Black silicon backâ€contact module with wide light acceptance angle. Progress in Photovoltaics: Research and Applications, 2020, 28, 210-216.	4.4	8
15	Decreasing Interface Defect Densities via Silicon Oxide Passivation at Temperatures Below 450 Â°C. ACS Applied Materials & Interfaces, 2020, 12, 46933-46941.	4.0	6
16	How Much Physics is in a Currentâ€"Voltage Curve? Inferring Defect Properties From Photovoltaic Device Measurements. IEEE Journal of Photovoltaics, 2020, 10, 1532-1537.	1.5	5
17	Black-Silicon Ultraviolet Photodiodes Achieve External Quantum Efficiency above 130%. Physical Review Letters, 2020, 125, 117702.	2.9	49
18	Modeling Field Effect in Black Silicon and Its Impact on Device Performance. IEEE Transactions on Electron Devices, 2020, 67, 1645-1652.	1.6	7

#	Article	IF	Citations
19	AlOx surface passivation of black silicon by spatial ALD: Stability under light soaking and damp heat exposure. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2020, 38, 022401.	0.9	6
20	Nanostructured Germanium with >99% Absorption at 300â€“1600 nm Wavelengths. Advanced Optical Materials, 2020, 8, 2000047.	3.6	18
21	Impact of doping and silicon substrate resistivity on the blistering of atomic-layer-deposited aluminium oxide. Applied Surface Science, 2020, 522, 146400.	3.1	4
22	Improved emitter performance of RIE black silicon through the application of in-situ oxidation during POCl3 diffusion. Solar Energy Materials and Solar Cells, 2020, 210, 110480.	3.0	16
23	High-sensitivity NIR photodiodes using black silicon. , 2020, , .		2
24	Can hydrogenation mitigate Cu-induced bulk degradation in silicon?. , 2020, , .		0
25	Black silicon boron emitter solar cells with EQE above 95% in UV. , 2020, , .		0
26	Cast Monocrystalline Silicon: New Alternative for Micro- and Nano-Electromechanical Systems?. Journal of Microelectromechanical Systems, 2019, 28, 695-699.	1.7	0
27	Passivation of Detectorâ€Grade Float Zone Silicon with Atomic Layer Deposited Aluminum Oxide. Physica Status Solidi (A) Applications and Materials Science, 2019, 216, 1900309.	0.8	7
28	Effect of MACE Parameters on Electrical and Optical Properties of ALD Passivated Black Silicon. IEEE Journal of Photovoltaics, 2019, 9, 974-979.	1.5	24
29	Dissociation and Formation Kinetics of Ironâ€“Boron Pairs in Silicon after Phosphorus Implantation Gettering. Physica Status Solidi (A) Applications and Materials Science, 2019, 216, 1900253.	0.8	4
30	Stability of the surface passivation properties of atomic layer deposited aluminum oxide in damp heat conditions. AIP Conference Proceedings, 2019, , .	0.3	3
31	Compatibility of 3-D printed devices in cleanroom environments for semiconductor processing. Materials Science in Semiconductor Processing, 2019, 89, 59-67.	1.9	12
32	MACE nano-texture process applicable for both single- and multi-crystalline diamond-wire sawn Si solar cells. Solar Energy Materials and Solar Cells, 2019, 191, 1-8.	3.0	40
33	Impact of black silicon on lightâ€•and elevated temperatureâ€induced degradation in industrial passivated emitter and rear cells. Progress in Photovoltaics: Research and Applications, 2019, 27, 918-925.	4.4	8
34	Black silicon significantly enhances phosphorus diffusion gettering. Scientific Reports, 2018, 8, 1991.	1.6	23
35	Elucidation of Iron Gettering Mechanisms in Boron-Implanted Silicon Solar Cells. IEEE Journal of Photovoltaics, 2018, 8, 79-88.	1.5	1
36	Cu gettering by phosphorus-doped emitters in p-type silicon: Effect on light-induced degradation. AIP Advances, 2018, 8, 015112.	0.6	3

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37	Impact of Standard Cleaning on Electrical and Optical Properties of Phosphorus-Doped Black Silicon. IEEE Journal of Photovoltaics, 2018, , 1-6.	1.5	7
38	Semiconductor parameter extraction via current-voltage characterization and Bayesian inference methods. , 2018, , .		1
39	Rapid thermal anneal activates light induced degradation due to copper redistribution. Applied Physics Letters, 2018, 113, 032104.	1.5	4
40	Electronic Quality Improvement of Highly Defective Quasiâ€Mono Silicon Material by Phosphorus Diffusion Gettering. Advanced Electronic Materials, 2017, 3, 1600435.	2.6	10
41	Black silicon n-type photodiodes with high response over wide spectral range. , 2017, , .		2
42	Full recovery of red zone in p-type high-performance multicrystalline silicon. Solar Energy Materials and Solar Cells, 2017, 173, 120-127.	3.0	5
43	N-type induced junction black silicon photodiode for UV detection. Proceedings of SPIE, 2017, , .	0.8	4
44	Efficient surface passivation of black silicon using spatial atomic layer deposition. Energy Procedia, 2017, 124, 282-287.	1.8	8
45	Surface passivation of black silicon phosphorus emitters with atomic layer deposited SiO2/Al2O3 stacks. Energy Procedia, 2017, 124, 307-312.	1.8	32
46	Toward Effective Gettering in Boron-Implanted Silicon Solar Cells. , 2017, , .		0
47	Finite- vs. infinite-source emitters in silicon photovoltaics: Effect on transition metal gettering. , 2016, , .		1
48	Near-unity quantum efficiency of broadband black silicon photodiodes with an induced junction. Nature Photonics, 2016, 10, 777-781.	15.6	113
49	Impact of Iron Precipitation on Phosphorus-Implanted Silicon Solar Cells. IEEE Journal of Photovoltaics, 2016, 6, 1094-1102.	1.5	11
50	Main defect reactions behind phosphorus diffusion gettering of iron. Journal of Applied Physics, 2014, 116, 244503.	1.1	16
51	Iron precipitation upon gettering in phosphorus-implanted Czochralski silicon and its impact on solar cell performance. , 2014, , .		1
52	Gettering of Iron in Silicon Solar Cells With Implanted Emitters. IEEE Journal of Photovoltaics, 2014, 4, 142-147.	1.5	17
53	Impact of phosphorus gettering parameters and initial iron level on silicon solar cell properties. Progress in Photovoltaics: Research and Applications, 2013, 21, 1127-1135.	4.4	39
54	Passivation of black silicon boron emitters with atomic layer deposited aluminum oxide. Physica Status Solidi - Rapid Research Letters, 2013, 7, 950-954.	1.2	25

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55	N-type Black Silicon Solar Cells. Energy Procedia, 2013, 38, 866-871.	1.8	62
56	Significant minority carrier lifetime improvement in red edge zone in n-type multicrystalline silicon. Solar Energy Materials and Solar Cells, 2013, 114, 54-58.	3.0	12
57	Diffusion gettering of metal impurities in crystalline silicon. , 2012, , .		0
58	Phosphorus and boron diffusion gettering of iron in monocrystalline silicon. Journal of Applied Physics, 2011, 109, .	1.1	40
59	Experimental study of iron redistribution between bulk defects and boron doped layer in silicon wafers. Physica Status Solidi (A) Applications and Materials Science, 2011, 208, 2430-2436.	0.8	2
60	Gettering of iron in CZâ€silicon by polysilicon layer. Physica Status Solidi C: Current Topics in Solid State Physics, 2011, 8, 751-754.	0.8	7
61	Physical mechanisms of boron diffusion gettering of iron in silicon. Physica Status Solidi - Rapid Research Letters, 2010, 4, 136-138.	1.2	17
62	Analysis of Heterogeneous Iron Precipitation in Multicrystalline Silicon. Solid State Phenomena, 0, 156-158, 27-33.	0.3	1
63	Effect of Oxygen in Low Temperature Boron and Phosphorus Diffusion Gettering of Iron in Czochralski-Grown Silicon. Solid State Phenomena, 0, 156-158, 395-400.	0.3	1