Robby Peibst

List of Publications by Year
in descending order

93 papers	3,847 citations	159585 30 h-index	128289 60 g-index
94 all docs	94 docs citations	94 times ranked	2379 citing authors

#	Article	IF	Citations
1	On the chances and challenges of combining electronâ€collecting <i>n</i>POLO and holeâ€collecting Alâ€<i>p</i>⁺ contacts in highly efficient <i>p</i>â€type câ€Si solar cells. Progress in Photovoltaics: Research and Applications, 2023, 31, 327-340.	8.1	9
2	Firing stability of tube furnaceâ€annealed nâ€type polyâ€Si on oxide junctions. Progress in Photovoltaics: Research and Applications, 2022, 30, 49-64.	8.1	12
3	Demonstration of Feeding Vehicleâ€Integrated Photovoltaicâ€Converted Energy into the Highâ€Voltage Onâ€Board Network of Practical Light Commercial Vehicles for Range Extension. Solar Rrl, 2022, 6, 2100516.	5.8	7
4	Towards 28 %-efficient Si single-junction solar cells with better passivating POLO junctions and photonic crystals. Solar Energy Materials and Solar Cells, 2022, 238, 111560.	6.2	10
5	Monolithic Perovskite/Silicon Tandem Solar Cells Fabricated Using Industrial pâ€Type Polycrystalline Silicon on Oxide/Passivated Emitter and Rear Cell Silicon Bottom Cell Technology. Solar Rrl, 2022, 6, .	5.8	17
6	Local Enhancement of Dopant Diffusion from Polycrystalline Silicon Passivating Contacts. ACS Applied Materials & Interfaces, 2022, 14, 17975-17986.	8.0	11
7	High time resolution measurement of solar irradiance onto driving car body for vehicle integrated photovoltaics. Progress in Photovoltaics: Research and Applications, 2022, 30, 543-551.	8.1	11
8	Light and elevated temperature induced degradation and recovery of gallium-doped Czochralski-silicon solar cells. Scientific Reports, 2022, 12, 8089.	3.3	5
9	716â€‰mV Openâ€Circuit Voltage with Fully Screenâ€Printed <i>p</i>â€Type Back Junction Solar Cells Featuring an Aluminum Front Grid and a Passivating Polysilicon on Oxide Contact at the Rear Side. Solar Rrl, 2021, 5, .	5.8	14
10	Simulation-based roadmap for the integration of poly-silicon on oxide contacts into screen-printed crystalline silicon solar cells. Scientific Reports, 2021, 11, 996.	3.3	24
11	Contacting a single nanometerâ€sized pinhole in the interfacial oxide of a polyâ€silicon on oxide (POLO) solar cell junction. Progress in Photovoltaics: Research and Applications, 2021, 29, 936-942.	8.1	5
12	Fully screenâ€printed silicon solar cells with local Alâ€p⁺ and nâ€type POLO interdigitated back contacts with a <i>V</i>_{OC} of 716 mV and an efficiency of 23%. Progress in Photovoltaics: Research and Applications, 2021, 29, 516-523.	8.1	10
13	Still in the game. Nature Energy, 2021, 6, 333-334.	39.5	4
14	Role of oxygen in the UV-ps laser triggered amorphization of poly-Si for Si solar cells with local passivated contacts. Journal of Applied Physics, 2021, 129, .	2.5	5
15	Optimization of four terminal rear heterojunction GaAs on Si interdigitated back contact tandem solar cells. Applied Physics Letters, 2021, 118, .	3.3	13
16	Inkjet-Printed <i>In Situ</i> Structured and Doped Polysilicon on Oxide Junctions. IEEE Journal of Photovoltaics, 2021, 11, 1149-1157.	2.5	1
17	Changes in hydrogen concentration and defect state density at the poly-Si/SiOx/c-Si interface due to firing. Solar Energy Materials and Solar Cells, 2021, 231, 111297.	6.2	19
18	Photonic crystals for highly efficient silicon single junction solar cells. Solar Energy Materials and Solar Cells, 2021, 233, 111337.	6.2	11

#	Article	IF	Citations
19	Rear side dielectrics on interdigitating p+-(i)-n+ back-contact solar cells âˆ’ hydrogenation vs. charge effects. EPJ Photovoltaics, 2021, 12, 6.	1.6	2
20	A round Robin-Highliting on the passivating contact technology. EPJ Photovoltaics, 2021, 12, 12.	1.6	0
21	For none, one, or two polaritiesâ€"How do POLO junctions fit best into industrial Si solar cells?. Progress in Photovoltaics: Research and Applications, 2020, 28, 503-516.	8.1	28
22	Three-terminal IIIâ€"V/Si tandem solar cells enabled by a transparent conductive adhesive. Sustainable Energy and Fuels, 2020, 4, 549-558.	4.9	46
23	Ultraâ€Thin Polyâ€Si Layers: Passivation Quality, Utilization of Charge Carriers Generated in the Polyâ€Si and Application on Screenâ€Printed Doubleâ€Side Contacted Polycrystalline Si on Oxide Cells. Solar Rrl, 2020, 4, 2000177.	5.8	21
24	A 22.3% Efficient pâ€Type Back Junction Solar Cell with an Alâ€Printed Frontâ€Side Grid and a Passivating n⁺â€Type Polysilicon on Oxide Contact at the Rear Side. Solar Rrl, 2020, 4, 2000435.	5.8	13
25	Modeling recombination and contact resistance of polyâ€Si junctions. Progress in Photovoltaics: Research and Applications, 2020, 28, 1289-1307.	8.1	20
26	Evolutionary PERC+ solar cell efficiency projection towards 24% evaluating shadow-mask-deposited poly-Si fingers below the Ag front contact as next improvement step. Solar Energy Materials and Solar Cells, 2020, 212, 110586.	6.2	36
27	The 2020 photovoltaic technologies roadmap. Journal Physics D: Applied Physics, 2020, 53, 493001.	2.8	274
28	2D/3D Heterostructure for Semitransparent Perovskite Solar Cells with Engineered Bandgap Enables Efficiencies Exceeding 25% in Fourâ€Terminal Tandems with Silicon and CIGS. Advanced Functional Materials, 2020, 30, 1909919.	14.9	123
29	A Taxonomy for Three-Terminal Tandem Solar Cells. ACS Energy Letters, 2020, 5, 1233-1242.	17.4	51
30	Degradation and Regeneration of <i>n</i> ⁺-Doped Poly-Si Surface Passivation on <i>p</i>-Type and <i>n</i>-Type Cz-Si Under Illumination and Dark Annealing. IEEE Journal of Photovoltaics, 2020, 10, 423-430.	2.5	17
31	Separating the two polarities of the POLO contacts of an 26.1%-efficient IBC solar cell. Scientific Reports, 2020, 10, 658.	3.3	66
32	Nanostructured front electrodes for perovskite/c-Si tandem photovoltaics. Optics Express, 2020, 28, 8878.	3.4	8
33	2D Surface Passivation in Semi-transparent Perovskite Top Solar Cells with Engineered Bandgap for Tandem Photovoltaics. , 2020, , .		0
34	Specifications for maximum power point tracking in vehicle-integrated photovoltaics based on high-resolution transient irradiance measurements. , 2020, , .		2
35	26%-efficient and 2â€¯cm narrow interdigitated back contact silicon solar cells with passivated slits on two edges. Solar Energy Materials and Solar Cells, 2019, 200, 110021.	6.2	16
36	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

#	Article	IF	Citations
37	Simulation of solar cell performance based on in the field measured ambience parameters. AIP Conference Proceedings, 2019, , .	0.4	0
38	Toward Low-Cost 4-Terminal GaAs//Si Tandem Solar Cells. ACS Applied Energy Materials, 2019, 2, 2375-2380.	5.1	17
39	Backâ€contacted bottom cells with three terminals: Maximizing power extraction from currentâ€mismatched tandem cells. Progress in Photovoltaics: Research and Applications, 2019, 27, 410-423.	8.1	31
40	Transferring the Record p-type Si POLO-IBC Cell Technology Towards an Industrial Level. , 2019, , .		8
41	Three-Terminal Bipolar Junction Bottom Cell as Simple as PERC: Towards Lean Tandem Cell Processing. , 2019, , .		6
42	High Temperature Annealing of ZnO:Al on Passivating POLO Junctions: Impact on Transparency, Conductivity, Junction Passivation, and Interface Stability. IEEE Journal of Photovoltaics, 2019, 9, 89-96.	2.5	19
43	From PERC to Tandem: POLO- and p⁺/n⁺ Poly-Si Tunneling Junction as Interface Between Bottom and Top Cell. IEEE Journal of Photovoltaics, 2019, 9, 49-54.	2.5	29
44	26.1%â€efficient POLOâ€IBC cells: Quantification of electrical and optical loss mechanisms. Progress in Photovoltaics: Research and Applications, 2019, 27, 950-958.	8.1	76
45	Maximizing tandem solar cell power extraction using a three-terminal design. Sustainable Energy and Fuels, 2018, 2, 1141-1147.	4.9	67
46	Building Blocks for Industrial, Screen-Printed Double-Side Contacted POLO Cells With Highly Transparent ZnO:Al Layers. IEEE Journal of Photovoltaics, 2018, , 1-7.	2.5	19
47	Perimeter Recombination in 25%-Efficient IBC Solar Cells With Passivating POLO Contacts for Both Polarities. IEEE Journal of Photovoltaics, 2018, 8, 23-29.	2.5	49
48	Equivalent Performance in Three-Terminal and Four-Terminal Tandem Solar Cells. IEEE Journal of Photovoltaics, 2018, 8, 1584-1589.	2.5	31
49	Increasing the photo-generated current in solar cells with passivating contacts by reducing the poly-Si deposition temperature. AIP Conference Proceedings, 2018, , .	0.4	6
50	Temperature-dependent contact resistance of carrier selective Poly-Si on oxide junctions. Solar Energy Materials and Solar Cells, 2018, 185, 425-430.	6.2	54
51	Present status and future perspectives of bifacial PERC+ solar cells and modules. Japanese Journal of Applied Physics, 2018, 57, 08RA01.	1.5	29
52	Laser contact openings for local poly-Si-metal contacts enabling 26.1%-efficient POLO-IBC solar cells. Solar Energy Materials and Solar Cells, 2018, 186, 184-193.	6.2	475
53	Surface passivation of crystalline silicon solar cells: Present and future. Solar Energy Materials and Solar Cells, 2018, 187, 39-54.	6.2	285
54	ZnO:Al/a-SiOx front contact for polycrystalline-silicon-on-oxide (POLO) solar cells. AIP Conference Proceedings, 2018, , .	0.4	7

#	Article	IF	Citations
55	Pinhole density and contact resistivity of carrier selective junctions with polycrystalline silicon on oxide. Applied Physics Letters, 2017, 110, .	3.3	61
56	A simple method for pinhole detection in carrier selective POLO-junctions for high efficiency silicon solar cells. Solar Energy Materials and Solar Cells, 2017, 173, 106-110.	6.2	56
57	Optimized Metallization for Interdigitated Back Contact Silicon Heterojunction Solar Cells. Solar Rrl, 2017, 1, 1700021.	5.8	12
58	ITO-free metallization for interdigitated back contact silicon heterojunction solar cells. Energy Procedia, 2017, 124, 379-383.	1.8	4
59	Introducing pinhole magnification by selective etching: application to poly-Si on ultra-thin silicon oxide films. Energy Procedia, 2017, 124, 435-440.	1.8	14
60	UV radiation hardness of photovoltaic modules featuring crystalline Si solar cells with AlO<i>_x</i>/p⁺â€type Si and SiN<i>_y</i>/n⁺â€type Si interfaces. Physica Status Solidi - Rapid Research Letters, 2017, 11, 1700178.	2.4	11
61	Silicon nanopowder as diffuse rear reflector for silicon solar cells. Journal of Applied Physics, 2017, 122, .	2.5	2
62	On the recombination behavior of p^{<i>+</i>}-type polysilicon on oxide junctions deposited by different methods on textured and planar surfaces. Physica Status Solidi (A) Applications and Materials Science, 2017, 214, 1700058.	1.8	48
63	Junction Resistivity of Carrier-Selective Polysilicon on Oxide Junctions and Its Impact on Solar Cell Performance. IEEE Journal of Photovoltaics, 2017, 7, 11-18.	2.5	91
64	Notice of Removal Junction resistivity of carrier selective polysilicon on oxide junctions and its impact on the solar cell performance. , 2017, , .		4
65	Improvement of the SRH bulk lifetime upon formation of n-type POLO junctions for 25% efficient Si solar cells. Solar Energy Materials and Solar Cells, 2017, 173, 85-91.	6.2	65
66	Interdigitated back contact solar cells with polycrystalline silicon on oxide passivating contacts for both polarities. Japanese Journal of Applied Physics, 2017, 56, 08MB15.	1.5	75
67	PERC+: industrial PERC solar cells with rear Al grid enabling bifaciality and reduced Al paste consumption. Progress in Photovoltaics: Research and Applications, 2016, 24, 1487-1498.	8.1	99
68	Zinc tin oxide as high-temperature stable recombination layer for mesoscopic perovskite/silicon monolithic tandem solar cells. Applied Physics Letters, 2016, 109, .	3.3	105
69	Evolution of oxide disruptions: The (W)hole story about poly-Si/c-Si passivating contacts. , 2016, , .		18
70	Dopant diffusion from p⁺-poly-Si into c-Si during thermal annealing. , 2016, , .		6
71	Recombination Behavior of Photolithography-free Back Junction Back Contact Solar Cells with Carrier-selective Polysilicon on Oxide Junctions for Both Polarities. Energy Procedia, 2016, 92, 412-418.	1.8	42
72	Parasitic Absorption in Polycrystalline Si-layers for Carrier-selective Front Junctions. Energy Procedia, 2016, 92, 199-204.	1.8	77

#	Article	IF	Citations
73	Structural Investigation of Printed Ag/Al Contacts on Silicon and Numerical Modeling of Their Contact Recombination. IEEE Journal of Photovoltaics, 2016, 6, 1175-1182.	2.5	19
74	Contact Selectivity and Efficiency in Crystalline Silicon Photovoltaics. IEEE Journal of Photovoltaics, 2016, 6, 1413-1420.	2.5	140
75	Working principle of carrier selective poly-Si/c-Si junctions: Is tunnelling the whole story?. Solar Energy Materials and Solar Cells, 2016, 158, 60-67.	6.2	177
76	Breakdown of the efficiency gap to 29% based on experimental input data and modeling. Progress in Photovoltaics: Research and Applications, 2016, 24, 1475-1486.	8.1	41
77	Hierarchical Etching for Improved Optical Front-side Properties of Monocrystalline Si Solar Cells. Energy Procedia, 2015, 77, 810-815.	1.8	1
78	Ion Implantation for Poly-Si Passivated Back-Junction Back-Contacted Solar Cells. IEEE Journal of Photovoltaics, 2015, 5, 507-514.	2.5	131
79	Basic Study on the Influence of Glass Composition and Aluminum Content on the Ag/Al Paste Contact Formation to Boron Emitters. Energy Procedia, 2015, 67, 20-30.	1.8	10
80	A Simple Model Describing the Symmetric <formula formulatype="inline"><tex Notation="TeX">$Ihbox{--}V$</tex></formula> Characteristics of <formula formulatype="inline"><tex Notation="TeX">$hbox{p}$</tex></formula> Polycrystalline Si/ <formula formulatype="inline"><tex Notation="TeX">$hbox{n}$</tex></formula> Monocrystalline Si, and <formula formulatype="inline"> <tex Notation="TeX">$hbox{n}$</tex></formula> P. IEEE Jour	2.5	91
81	Recombination behavior and contact resistance of n+ and p+ poly-crystalline Si/mono-crystalline Si junctions. Solar Energy Materials and Solar Cells, 2014, 131, 85-91.	6.2	195
82	Two-level Metallization and Module Integration of Point-contacted Solar Cells. Energy Procedia, 2014, 55, 361-368.	1.8	5
83	Increased Front Surface Recombination by Rear-Side Laser Processing on Thin Silicon Solar Cells. IEEE Journal of Photovoltaics, 2013, 3, 976-984.	2.5	8
84	Electrical characterization and modelling of <i>nâ€“n</i> Ge-Si heterojunctions with relatively low interface state densities. Journal of Applied Physics, 2012, 112, .	2.5	8
85	Single-Electron Charging and Discharging Analyses in Ge-Nanocrystal Memories. IEEE Transactions on Electron Devices, 2011, 58, 376-383.	3.0	6
86	Interface defect-assisted single electron charging (and discharging) dynamics in Ge nanocrystals memories. Applied Physics Letters, 2010, 97, .	3.3	2
87	Determination of the<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:mtext>Ge-nanocrystal</mml:mtext><mml:mo>/</mml:mo><mml:msub><mml:mrow><mml:mtext interface trap density from the small signal response of charge stored in the nanocrystals. Physical Review B, 2010, 82, .	3.2	17
88	PECVD grown Ge nanocrystals embedded in : From disordered to templated self-organization. Microelectronics Journal, 2009, 40, 759-761.	2.0	4
89	Driving mechanisms for the formation of nanocrystals by annealing of ultrathin Ge layers in<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mrow><mml:mtext>SiO</mml:mtext></mml:mrow><mml:mn>2</mml:mn></mml:m Physical Review B, 2009, 79, .	3.2	21
90	PE-CVD fabrication of germanium nanoclusters for memory applications. Materials Science and Engineering B: Solid-State Materials for Advanced Technology, 2008, 147, 213-217.	3.5	8

#	Article	IF	Citations
91	Ion diffusion and mechanical losses in mixed alkali glasses. Journal of Non-Crystalline Solids, 2006, 352, 5178-5187.	3.1	31
92	Internal Friction and Vulnerability of Mixed Alkali Glasses. Physical Review Letters, 2005, 95, 115901.	7.8	20
93	Perovskite Tandem Photovoltaics: Employing 2D/3D Perovskite Heterostructure for Perovskite Top Solar Cell with Engineered Bandgap. , 0, , .		0