Andres Cuevas

List of Publications by Year
in descending order

139	10,606	38742 50	31849 101
papers	citations	h-index	g-index

139	139	139	5750
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Contactless determination of currentâ€"voltage characteristics and minorityâ€carrier lifetimes in semiconductors from quasiâ€steadyâ€state photoconductance data. Applied Physics Letters, 1996, 69, 2510-2512.	3.3	1,383
2	High-efficiency crystalline silicon solar cells: status and perspectives. Energy and Environmental Science, 2016, 9, 1552-1576.	30.8	790
3	Improved quantitative description of Auger recombination in crystalline silicon. Physical Review B, 2012, 86, .	3.2	723
4	Efficient silicon solar cells with dopant-free asymmetric heterocontacts. Nature Energy, 2016, 1, .	39.5	461
5	General parameterization of Auger recombination in crystalline silicon. Journal of Applied Physics, 2002, 91, 2473-2480.	2.5	399
6	Charge Carrier Separation in Solar Cells. IEEE Journal of Photovoltaics, 2015, 5, 461-469.	2.5	327
7	Molybdenum oxide MoOx: A versatile hole contact for silicon solar cells. Applied Physics Letters, 2014, 105, .	3.3	279
8	Measuring and interpreting the lifetime of silicon wafers. Solar Energy, 2004, 76, 255-262.	6.1	255
9	Very low bulk and surface recombination in oxidized silicon wafers. Semiconductor Science and Technology, 2002, 17, 35-38.	2.0	238
10	Surface passivation of silicon solar cells using plasma-enhanced chemical-vapour-deposited SiN films and thin thermal SiO2/plasma SiN stacks. Semiconductor Science and Technology, 2001, 16, 164-170.	2.0	210
11	Surface recombination velocity of highly dopednâ€type silicon. Journal of Applied Physics, 1996, 80, 3370-3375.	2.5	200
12	Magnesium Fluoride Electron-Selective Contacts for Crystalline Silicon Solar Cells. ACS Applied Materials & Interfaces, 2016, 8, 14671-14677.	8.0	188
13	Electronic properties of light-induced recombination centers in boron-doped Czochralski silicon. Journal of Applied Physics, 1999, 86, 3175-3180.	2.5	187
14	Transition-metal profiles in a multicrystalline silicon ingot. Journal of Applied Physics, 2005, 97, 033523.	2.5	182
15	Conductive and Stable Magnesium Oxide Electronâ€Selective Contacts for Efficient Silicon Solar Cells. Advanced Energy Materials, 2017, 7, 1601863.	19.5	174
16	Stable Dopant-Free Asymmetric Heterocontact Silicon Solar Cells with Efficiencies above 20%. ACS Energy Letters, 2018, 3, 508-513.	17.4	164
17	Numerical modeling of highly doped Si:P emitters based on Fermiâ€"Dirac statistics and self-consistent material parameters. Journal of Applied Physics, 2002, 92, 3187-3197.	2.5	154
18	Phosphorus-diffused polysilicon contacts for solar cells. Solar Energy Materials and Solar Cells, 2015, 142, 75-82.	6.2	147

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19	Limiting efficiency of crystalline silicon solar cells due to Coulomb-enhanced Auger recombination. Progress in Photovoltaics: Research and Applications, 2003, 11, 97-104.	8.1	138
20	Effective surface passivation of crystalline silicon by rf sputtered aluminum oxide. Physica Status Solidi - Rapid Research Letters, 2009, 3, 160-162.	2.4	134
21	Lithium Fluoride Based Electron Contacts for High Efficiency nâ€Type Crystalline Silicon Solar Cells. Advanced Energy Materials, 2016, 6, 1600241.	19.5	134
22	Generalized analysis of quasi-steady-state and transient decay open circuit voltage measurements. Journal of Applied Physics, 2002, 91, 399.	2.5	133
23	Tantalum Oxide Electron-Selective Heterocontacts for Silicon Photovoltaics and Photoelectrochemical Water Reduction. ACS Energy Letters, 2018, 3, 125-131.	17.4	127
24	Prediction of the open-circuit voltage of solar cells from the steady-state photoconductance. Progress in Photovoltaics: Research and Applications, 1997, 5, 79-90.	8.1	122
25	The Recombination Parameter J0. Energy Procedia, 2014, 55, 53-62.	1.8	118
26	Tantalum Nitride Electronâ€Selective Contact for Crystalline Silicon Solar Cells. Advanced Energy Materials, 2018, 8, 1800608.	19.5	112
27	Recombination at the interface between silicon and stoichiometric plasma silicon nitride. Semiconductor Science and Technology, 2002, 17, 166-172.	2.0	111
28	Carrier population control and surface passivation in solar cells. Solar Energy Materials and Solar Cells, 2018, 184, 38-47.	6.2	109
29	The effect of emitter recombination on the effective lifetime of silicon wafers. Solar Energy Materials and Solar Cells, 1999, 57, 277-290.	6.2	107
30	A Low Resistance Calcium/Reduced Titania Passivated Contact for High Efficiency Crystalline Silicon Solar Cells. Advanced Energy Materials, 2017, 7, 1602606.	19.5	97
31	Dual-Function Electron-Conductive, Hole-Blocking Titanium Nitride Contacts for Efficient Silicon Solar Cells. Joule, 2019, 3, 1314-1327.	24.0	91
32	Polysilicon passivated junctions: The next technology for silicon solar cells?. Joule, 2021, 5, 811-828.	24.0	88
33	Reduced fill factors in multicrystalline silicon solar cells due to injection-level dependent bulk recombination lifetimes. Progress in Photovoltaics: Research and Applications, 2000, 8, 363-375.	8.1	85
34	23% efficient p-type crystalline silicon solar cells with hole-selective passivating contacts based on physical vapor deposition of doped silicon films. Applied Physics Letters, 2018, 113, .	3.3	84
35	Validity of simplified Shockley-Read-Hall statistics for modeling carrier lifetimes in crystalline silicon. Physical Review B, 2003, 67, .	3.2	81
36	Passivating contacts for silicon solar cells based on boron-diffused recrystallized amorphous silicon and thin dielectric interlayers. Solar Energy Materials and Solar Cells, 2016, 152, 73-79.	6.2	81

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37	Dopantâ€Free Partial Rear Contacts Enabling 23% Silicon Solar Cells. Advanced Energy Materials, 2019, 9, 1803367.	19.5	77
38	Millisecond minority carrier lifetimes in n-type multicrystalline silicon. Applied Physics Letters, 2002, 81, 4952-4954.	3.3	76
39	Capture cross sections of the acceptor level of ironâ€"boron pairs in p-type silicon by injection-level dependent lifetime measurements. Journal of Applied Physics, 2001, 89, 7932-7939.	2.5	75
40	High efficiency n-type silicon solar cells with passivating contacts based on PECVD silicon films doped by phosphorus diffusion. Solar Energy Materials and Solar Cells, 2019, 193, 80-84.	6.2	72
41	Empirical determination of the energy band gap narrowing in p+ silicon heavily doped with boron. Journal of Applied Physics, 2014, 116, .	2.5	69
42	On the use of a bias-light correction for trapping effects in photoconductance-based lifetime measurements of silicon. Journal of Applied Physics, 2001, 89, 2772-2778.	2.5	67
43	Titanium oxide: A re-emerging optical and passivating material for silicon solar cells. Solar Energy Materials and Solar Cells, 2016, 158, 115-121.	6.2	67
44	n- and p-typesilicon Solar Cells with Molybdenum Oxide Hole Contacts. Energy Procedia, 2015, 77, 446-450.	1.8	62
45	Misconceptions and Misnomers in Solar Cells. IEEE Journal of Photovoltaics, 2013, 3, 916-923.	2.5	61
46	Calcium contacts to nâ€type crystalline silicon solar cells. Progress in Photovoltaics: Research and Applications, 2017, 25, 636-644.	8.1	60
47	Highly effective electronic passivation of silicon surfaces by atomic layer deposited hafnium oxide. Applied Physics Letters, 2017, 110, .	3.3	58
48	Skin care for healthy silicon solar cells. , 2015, , .		57
49	Empirical determination of the energy band gap narrowing in highly doped n+ silicon. Journal of Applied Physics, 2013, 114, .	2.5	53
50	Co-optimisation of the emitter region and the metal grid of silicon solar cells. Progress in Photovoltaics: Research and Applications, 2000, 8, 603-616.	8.1	52
51	Low Surface Recombination Velocity by Low-Absorption Silicon Nitride on c-Si. IEEE Journal of Photovoltaics, 2013, 3, 554-559.	2.5	52
52	Proof-of-Concept p-Type Silicon Solar Cells With Molybdenum Oxide Local Rear Contacts. IEEE Journal of Photovoltaics, 2015, 5, 1591-1594.	2.5	49
53	Effective impurity gettering by phosphorus- and boron-diffused polysilicon passivating contacts for silicon solar cells. Solar Energy Materials and Solar Cells, 2018, 179, 136-141.	6.2	46
54	High minority carrier lifetime in phosphorus-gettered multicrystalline silicon. Applied Physics Letters, 1997, 70, 1017-1019.	3.3	44

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55	A magnesium/amorphous silicon passivating contact for <i>n</i>-type crystalline silicon solar cells. Applied Physics Letters, 2016, 109, .	3.3	44
56	Effect of boron concentration on recombination at the <i>p</i>-Siâ€“Al2O3 interface. Journal of Applied Physics, 2014, 115, .	2.5	43
57	Thermal activation energy for the passivation of the n-type crystalline silicon surface by hydrogenated amorphous silicon. Applied Physics Letters, 2009, 94, .	3.3	40
58	Superacid Passivation of Crystalline Silicon Surfaces. ACS Applied Materials & Interfaces, 2016, 8, 24205-24211.	8.0	38
59	Passivation of aluminium-n+silicon contacts for solar cells by ultrathin Al2O3and SiO2dielectric layers. Physica Status Solidi - Rapid Research Letters, 2013, 7, 946-949.	2.4	37
60	Boron-related minority-carrier trapping centers in p-type silicon. Applied Physics Letters, 1999, 75, 1571-1573.	3.3	35
61	Understanding carrier trapping in multicrystalline silicon. Solar Energy Materials and Solar Cells, 2001, 65, 509-516.	6.2	35
62	Plasma enhanced atomic layer deposition of gallium oxide on crystalline silicon: demonstration of surface passivation and negative interfacial charge. Physica Status Solidi - Rapid Research Letters, 2015, 9, 220-224.	2.4	35
63	Temperature and Humidity Stable Alkali/Alkalineâ€Earth Metal Carbonates as Electron Heterocontacts for Silicon Photovoltaics. Advanced Energy Materials, 2018, 8, 1800743.	19.5	35
64	Passivation of c-Si surfaces by ALD tantalum oxide capped with PECVD silicon nitride. Solar Energy Materials and Solar Cells, 2015, 142, 42-46.	6.2	34
65	A contactless photoconductance technique to evaluate the quantum efficiency of solar cell emitters. Solar Energy Materials and Solar Cells, 2002, 71, 295-312.	6.2	29
66	Modelling silicon characterisation. Energy Procedia, 2011, 8, 94-99.	1.8	28
67	Recombination in compensated crystalline silicon for solar cells. Journal of Applied Physics, 2011, 109, 043704-043704-8.	2.5	28
68	Physical model of back line-contact front-junction solar cells. Journal of Applied Physics, 2013, 113, 164502.	2.5	26
69	Tantalum oxide/silicon nitride: A negatively charged surface passivation stack for silicon solar cells. Applied Physics Letters, 2015, 106, .	3.3	26
70	Impact of light-induced recombination centres on the current-voltage characteristic of czochralski silicon solar cells. Progress in Photovoltaics: Research and Applications, 2001, 9, 249-255.	8.1	25
71	Simple silicon solar cells featuring an a-Si:H enhanced rear MIS contact. Solar Energy Materials and Solar Cells, 2015, 138, 22-25.	6.2	24
72	Comparison of the open circuit voltage of simplified PERC cells passivated with PECVD silicon nitride and thermal silicon oxide. Progress in Photovoltaics: Research and Applications, 2000, 8, 529-536.	8.1	22

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73	Impact of compensation on the boron and oxygen-related degradation of upgraded metallurgical-grade silicon solar cells. Solar Energy Materials and Solar Cells, 2014, 120, 390-395.	6.2	22
74	Direct Observation of the Impurity Gettering Layers in Polysilicon-Based Passivating Contacts for Silicon Solar Cells. ACS Applied Energy Materials, 2018, 1, 2275-2282.	5.1	22
75	Role of hydrogen in the surface passivation of crystalline silicon by sputtered aluminum oxide. Progress in Photovoltaics: Research and Applications, 2011, 19, 320-325.	8.1	21
76	Low resistance Ohmic contact to p-type crystalline silicon via nitrogen-doped copper oxide films. Applied Physics Letters, 2016, 109, .	3.3	21
77	Process Control of Reactive Sputter Deposition of AlO $_{x}$ and Improved Surface Passivation of Crystalline Silicon. IEEE Journal of Photovoltaics, 2013, 3, 183-188.	2.5	20
78	Zirconium oxide surface passivation of crystalline silicon. Applied Physics Letters, 2018, 112, .	3.3	19
79	Silicon Surface Passivation by Gallium Oxide Capped With Silicon Nitride. IEEE Journal of Photovoltaics, 2016, 6, 900-905.	2.5	18
80	Sub-Bandgap Luminescence from Doped Polycrystalline and Amorphous Silicon Films and Its Application to Understanding Passivating-Contact Solar Cells. ACS Applied Energy Materials, 2018, 1, 6619-6625.	5.1	18
81	Surface passivation of crystalline silicon by sputter deposited hydrogenated amorphous silicon. Physica Status Solidi - Rapid Research Letters, 2014, 8, 231-234.	2.4	16
82	Demonstration of c-Si Solar Cells With Gallium Oxide Surface Passivation and Laser-Doped Gallium p⁺Regions. IEEE Journal of Photovoltaics, 2015, 5, 1586-1590.	2.5	16
83	Morphology, microstructure, and doping behaviour: A comparison between different deposition methods for polyâ€Si/SiO_{<i>x</i>} passivating contacts. Progress in Photovoltaics: Research and Applications, 2021, 29, 857-868.	8.1	16
84	A Contactless Method for Determining the Carrier Mobility Sum in Silicon Wafers. IEEE Journal of Photovoltaics, 2012, 2, 41-46.	2.5	15
85	Plasma hydrogenated, reactively sputtered aluminium oxide for silicon surface passivation. Physica Status Solidi - Rapid Research Letters, 2013, 7, 619-622.	2.4	15
86	Silicon nitride/silicon oxide interlayers for solar cell passivating contacts based on PECVD amorphous silicon. Physica Status Solidi - Rapid Research Letters, 2015, 9, 617-621.	2.4	15
87	Influence of the dopant density profile on minority-carrier current in shallow, heavily doped emitters of silicon bipolar devices. Solid-State Electronics, 1985, 28, 247-254.	1.4	14
88	Electrons and holes in solar cells with partial rear contacts. Progress in Photovoltaics: Research and Applications, 2014, 22, 764-774.	8.1	14
89	Hydrogenation Mechanisms of Polyâ€Si/SiO_{<i>x</i>} Passivating Contacts by Different Capping Layers. Solar Rrl, 2020, 4, 1900476.	5.8	13
90	Survey of dopant-free carrier-selective contacts for silicon solar cells. , 2016, , .		12

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91	Hydrogen-Assisted Defect Engineering of Doped Poly-Si Films for Passivating Contact Solar Cells. ACS Applied Energy Materials, 2019, 2, 8783-8791.	5.1	12
92	Silicon solar cells with passivating contacts: Classification and performance. Progress in Photovoltaics: Research and Applications, 2023, 31, 310-326.	8.1	12
93	Reactive ion etched black silicon texturing: A comparative study. , 2014, , .		11
94	The Role of Silicon Interstitials in the Formation of Boron-Oxygen Defects in Crystalline Silicon. Solid State Phenomena, 2005, 108-109, 497-502.	0.3	10
95	Limitations of a simplified dangling bond recombination model for a-Si:H. Journal of Applied Physics, 2008, 104, .	2.5	10
96	Passivated contacts to n⁺ and p⁺ silicon based on amorphous silicon and thin dielectrics. , 2014, , .		10
97	Hydrogenation Mechanisms of Polyâ€Si/SiO_{<i>x</i>} Passivating Contacts by Different Capping Layers. Solar Rrl, 2020, 4, 2070033.	5.8	10
98	Capturing the spectral response of solar cells with a quasi-steady-state, large-signal technique. Progress in Photovoltaics: Research and Applications, 2006, 14, 203-212.	8.1	9
99	Passivation of c-Si surfaces by sub-nm amorphous silicon capped with silicon nitride. Applied Physics Letters, 2015, 107, .	3.3	9
100	The paradox of compensated silicon. Optoelectronic and Microelectronic Materials and Devices (COMMAD), Conference on, 2008, , .	0.0	8
101	Compensation engineering for uniform n-type silicon ingots. Solar Energy Materials and Solar Cells, 2013, 111, 146-152.	6.2	8
102	Microchannel contacting of crystalline silicon solar cells. Scientific Reports, 2017, 7, 9085.	3.3	8
103	Generalized models of the spectral response of the voltage for the extraction of recombination parameters in silicon devices. Journal of Applied Physics, 2005, 98, 083708.	2.5	6
104	FTIR Analysis of Microwave-Excited PECVD Silicon Nitride Layers. , 2006, , .		6
105	Modelling Silicon Solar Cells with up-to-date Material Parameters. Energy Procedia, 2013, 38, 66-71.	1.8	6
106	Influence of PECVD Deposition Power and Pressure on Phosphorus-Doped Polysilicon Passivating Contacts. IEEE Journal of Photovoltaics, 2020, 10, 1239-1245.	2.5	6
107	Low surface recombination velocity by low-absorption silicon nitride on c-Si. , 2012, , .		5
108	Passivation of Phosphorus Diffused Black Multiâ€Crystalline Silicon by Hafnium Oxide. Physica Status Solidi - Rapid Research Letters, 2017, 11, 1700296.	2.4	5

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109	Characterization and Diagnosis of Silicon Wafers, Ingots, and Solar Cells. , 2018, , 1119-1154.		5
110	Low surface recombination velocity by low-absorption silicon nitride on c-Si. , 2013, , .		4
111	Towards industrial advanced front-junction n-type silicon solar cells. , 2014, , .		4
112	Development of a self-aligned etch-back process for selectively doped silicon solar cells. , 2014, , .		4
113	Recombination and thin film properties of silicon nitride and amorphous silicon passivated c-Si following ammonia plasma exposure. Applied Physics Letters, 2015, 106, 041607.	3.3	4
114	Characterisation and diagnosis of silicon wafers and devices. , 2005, , 163-188.		3
115	Behaviour of Natural and Implanted Iron during Annealing of Multicrystalline Silicon Wafers. Solid State Phenomena, 2005, 108-109, 519-524.	0.3	3
116	Enhanced rearâ€side reflection and firingâ€stable surface passivation of silicon solar cells with capping polymer films. Physica Status Solidi - Rapid Research Letters, 2013, 7, 530-533.	2.4	3
117	Proof-of-concept p-type silicon solar cells with molybdenum oxide partial rear contacts. , 2015, , .		3
118	Laserâ€Patterned nâ€Type Frontâ€Junction Silicon Solar Cell With Tantalum Oxide/Silicon Nitride Passivation and Antireflection. Solar Rrl, 2018, 2, 1700187.	5.8	3
119	Investigation of Galliumâ€“Boron Spinâ€On Codoping for polyâ€Si/SiO_{<i>x</i>} Passivating Contacts. Solar Rrl, 2021, 5, 2100653.	5.8	3
120	Recombination in n- and p-Type Silicon Emitters Contaminated with Iron. , 2006, , .		2
121	Impurity Gettering by Diffusion-doped Polysilicon Passivating Contacts for Silicon Solar Cells. , 2018, , .		2
122	Hydrogenation of polycrystalline silicon films for passivating contacts solar cells. , 2019, , .		2
123	Comment on â€œMechanisms for the anomalous dependence of carrier lifetime on injection level and photoconductance on light intensityâ€•[J. Appl. Phys.89, 332 (2001)]. Journal of Applied Physics, 2001, 90, 2621-2622.	2.5	1
124	Characterisation and Diagnosis of Silicon Wafers and Devices. , 2003, , 227-252.		1
125	Unveiling the Injection-Dependence of the Diffusion Length Via the Spectral Response of the Voltage of Silicon Solar Cells. , 2006, , .		1
126	Characterization and Diagnosis of Silicon Wafers, Ingots, and Solar Cells. , 2012, , 1011-1044.		1

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127	Influence of the NH<inf>3</inf>:SiH<inf>4</inf> ratio and surface morphology on the surface passivation of phosphorus-diffused C-Si by PECVD SiN<inf>x</inf>. , 2014, , .		1
128	Characterisation of sputtering deposited amorphous silicon films for silicon heterojunction solar cells. , 2016, , .		1
129	23% efficient n-type crystalline silicon solar cells with passivated partial rear contacts. , 2018, , .		1
130	Reduced fill factors in multicrystalline silicon solar cells due to injection-level dependent bulk recombination lifetimes. , 2000, 8, 363.		1
131	Investigation of Galliumâ€"Boron Spinâ€On Codoping for polyâ€Si/SiO_{<i>x</i>} Passivating Contacts. Solar Rrl, 2021, 5, .	5.8	1
132	Open-circuit voltage quantum efficiency technique for defect spectroscopy in semiconductors. Applied Physics Letters, 2005, 87, 104102.	3.3	0
133	Process control of reactive sputter deposition of AlO<inf>x</inf> and improved surface passivation of crystalline silicon. , 2012, , .		0
134	Characterization and Diagnosis of Silicon Wafers, Ingots, and Solar Cells. , 2013, , 469-499.		0
135	Process control of reactive sputter deposition of AlO<inf>x</inf> and improved surface passivation of crystalline silicon. , 2013, , .		0
136	Magnesium fluoride based electron-selective contact. , 2016, , .		0
137	Efficient electron contacts for n-type silicon solar cells using Magnesium metal, oxide, and fluoride. , 2017, , .		0
138	Tantalum Nitride Hole-Blocking Layer for Efficient Silicon Solar Cells. , 2018, , .		0
139	Electron-Conductive, Hole-Blocking Contact for Silicon Solar Cells. , 2019, , .		0