Ivan Garcia

List of Publications by Year in descending order

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124	2,301	279798	243625
papers	citations	23 h-index	44 g-index

127	127	127	1547
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Highâ€low refractive index stacks as antireflection coatings on tripleâ€junction solar cells. Progress in Photovoltaics: Research and Applications, 2023, 31, 62-70.	8.1	4
2	N-type doping of SiC-passivated Ge by pulsed laser melting towards the development of interdigitated back contact thermophotovoltaic devices. Solar Energy Materials and Solar Cells, 2022, 235, 111463.	6.2	1
3	Engineering of ultra-thin sintered porous silicon virtual substrates for lattice-mismatched growth compliance and epilayer detachability. Applied Surface Science, 2022, 577, 151907.	6.1	2
4	Study of the reverse Iâ€“V in component subcells of IIIâ€“V multijunction space solar cells. Progress in Photovoltaics: Research and Applications, 2022, 30, 481-489.	8.1	3
5	Fast chemical thinning of germanium wafers for optoelectronic applications. Applied Surface Science, 2022, 579, 152199.	6.1	12
6	Ultrathin Ge epilayers on Si produced by low-temperature PECVD acting as virtual substrates for III-V / c-Si tandem solar cells. Solar Energy Materials and Solar Cells, 2022, 236, 111535.	6.2	3
7	Progress in threeâ€terminal heterojunction bipolar transistor solar cells. Progress in Photovoltaics: Research and Applications, 2022, 30, 843-850.	8.1	6
8	Beaming power: Photovoltaic laser power converters for power-by-light. Joule, 2022, 6, 340-368.	24.0	36
9	Point-Defects Assisted Zn-Diffusion in AlGaInP/GaInP Systems During the MOVPE Growth of Inverted Multijunction Solar Cells. IEEE Journal of Photovoltaics, 2021, 11, 429-436.	2.5	4
10	High-low refractive index stacks for broadband antireflection coatings for multijunction solar cells. Solar Energy, 2021, 217, 29-39.	6.1	17
11	Growth of GaP Layers on Si Substrates in a Standard MOVPE Reactor for Multijunction Solar Cells. Coatings, 2021, 11, 398.	2.6	5
12	Advances in the development of high efficiency III-V multijunction solar cells on Ge|Si virtual substrates. , 2021, , .		0
13	GaInP solar cells grown on Ge-on-Ge engineered substrates. , 2021, , .		3
14	Towards a III-V solar cell with a metamorphic graded buffer directly grown on v-groove Si substrates. , 2021, , .		1
15	Thinned GaInP/GaInAs/Ge solar cells grown with reduced cracking on Ge|Si virtual substrates. Solar Energy Materials and Solar Cells, 2021, 225, 111034.	6.2	9
16	GaAsP/SiGe tandem solar cells on porous Si substrates. Solar Energy, 2021, 230, 925-934.	6.1	8
17	Inverted rear-heterojunction GaInP solar cells using Te memory effect. Solar Energy Materials and Solar Cells, 2020, 205, 110235.	6.2	6
18	On the use of graphene to improve the performance of concentrator IIIâ€V multijunction solar cells. Progress in Photovoltaics: Research and Applications, 2020, 28, 60-70.	8.1	6

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19	Hybrid III-V/SiGe solar cells grown on Si substrates through reverse graded buffers. Solar Energy Materials and Solar Cells, 2020, 205, 110246.	6.2	13
20	Impact of the III-V/Ge nucleation routine on the performance of high efficiency multijunction solar cells. Solar Energy Materials and Solar Cells, 2020, 207, 110355.	6.2	5
21	Location-Specific Spectral and Thermal Effects in Tracking and Fixed Tilt Photovoltaic Systems. IScience, 2020, 23, 101634.	4.1	7
22	A Cathodoluminescence Study on the Diffusion Length in AlGaInP/InGaP/AlInP Solar Cell Heterostructures. Journal of Electronic Materials, 2020, 49, 5184-5189.	2.2	1
23	Development of germanium-on-germanium engineered substrates for III-V multijunction solar cells. , 2020, , .		4
24	Doping effects on the composition, electric and optical properties of MBE-grown 1.1 eV GaNAsSb layers. Semiconductor Science and Technology, 2020, 35, 115022.	2.0	1
25	Inverted GaInP/GaAs Three-Terminal Heterojunction Bipolar Transistor Solar Cell. , 2020, , .		4
26	Update on project ALCHEMI â€“ A low cost HCPV module for 1000 sun operation. AIP Conference Proceedings, 2019, , .	0.4	1
27	Assessment of the energy yield gain in high CPV systems using graphene-enhanced III-V multijunction solar cells. AIP Conference Proceedings, 2019, , .	0.4	1
28	Enhanced performance of GaInP/GaAs/Ge solar cells under high concentration through Pd/Ge/Ti/Pd/Al grid metallization. Progress in Photovoltaics: Research and Applications, 2019, 27, 789-797.	8.1	13
29	Dependence of Multijunction Optimal Gaps on Spectral Variability and Other Environmental and Device Parameters. , 2019, , .		0
30	Ge virtual substrates for high efficiency III-V solar cells: applications, potential and challenges. , 2019, , .		5
31	Demonstrating the GaInP/GaAs Three-Terminal Heterojunction Bipolar Transistor Solar Cell. , 2019, , .		7
32	Evidence of enhanced Zn-diffusion observed during the growth of Inverted Metamorphic Solar Cells. , 2019, , .		3
33	Hybrid III-V/SiGe solar cells on Si substrates and porous Si substrates. , 2019, , .		2
34	Space III-V Multijunction Solar Cells on Ge/Si virtual substrates. , 2019, , .		2
35	Refractive indexes and extinction coefficients of n- and p-type doped GaInP, AlInP and AlGaInP for multijunction solar cells. Solar Energy Materials and Solar Cells, 2018, 174, 388-396.	6.2	40
36	Degradation of Ge subcells by thermal load during the growth of multijunction solar cells. Progress in Photovoltaics: Research and Applications, 2018, 26, 102-111.	8.1	19

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37	Spectral binning for energy production calculations and multijunction solar cell design. Progress in Photovoltaics: Research and Applications, 2018, 26, 48-54.	8.1	11
38	Development of the Lattice Matched GaInP/GaInAs/Ge Triple Junction Solar Cell with an Efficiency Over 40%. , 2018, , .		11
39	Solar cell designs by maximizing energy production based on machine learning clustering of spectral variations. Nature Communications, 2018, 9, 5126.	12.8	28
40	Lowering perimeter recombination losses in micro-concentrator solar cells: A simulation study. AIP Conference Proceedings, 2018, , .	0.4	2
41	Low temperature annealed Pd/Ge/Ti metal systems for concentrator inverted metamorphic solar cells. AIP Conference Proceedings, 2018, , .	0.4	3
42	ALCHEMI â€“ A low cost, high efficiency, optoelectronic HCPV module for 1000Ã— operation. AIP Conference Proceedings, 2018, , .	0.4	1
43	Cathodoluminescence Characterization of Dilute Nitride GaNSbAs Alloys. Journal of Electronic Materials, 2018, 47, 5061-5067.	2.2	4
44	A substrate removal processing method for IIIâ€“V solar cells compatible with low-temperature characterization. Materials Science in Semiconductor Processing, 2017, 63, 58-63.	4.0	1
45	MOVPE issues in the development of ordered GaInP metamorphic buffers for multijunction solar cells. , 2017, , .		1
46	Degradation of subcells and tunnel junctions during growth of GaInP/Ga(In)As/GaNAsSb/Ge 4â€junction solar cells. Progress in Photovoltaics: Research and Applications, 2017, 25, 887-895.	8.1	19
47	On the thermal degradation of tunnel diodes in multijunction solar cells. AIP Conference Proceedings, 2017, , .	0.4	10
48	Effect of Ge autodoping during III-V MOVPE growth on Ge substrates. Journal of Crystal Growth, 2017, 475, 378-383.	1.5	10
49	On the Use of Transparent Conductive Oxides in High Concentrator III-V Multijunction Solar Cells. , 2017, , .		1
50	Component Integration Effects in 4-Junction Solar Cells with Dilute Nitride 1eV Subcell. , 2017, , .		0
51	Preliminary analysis of annealing impact on 1 eV GaNAsSb solar cells. , 2017, , .		0
52	Influence of temperature on luminescent coupling and material quality evaluation in inverted latticeâ€matched and metamorphic multiâ€junction solar cells. Progress in Photovoltaics: Research and Applications, 2016, 24, 357-367.	8.1	7
53	Limiting factors on the semiconductor structure of III-V multijunction solar cells for ultra-high concentration (1000-5000 suns). Progress in Photovoltaics: Research and Applications, 2016, 24, 1332-1345.	8.1	33
54	Modelling of lattice matched dilute nitride 4-junction concentrator solar cells on Ge substrates. AIP Conference Proceedings, 2016, , .	0.4	7

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55	Advances towards 4J lattice-matched including dilute nitride subcell for terrestrial and space applications. , 2016, , .		8
56	Optically Enhanced Photon Recycling in Mechanically Stacked Multijunction Solar Cells. IEEE Journal of Photovoltaics, 2016, 6, 358-365.	2.5	33
57	Differences between GaAs/GaInP and GaAs/AlInP interfaces grown by movpe revealed by depth profiling and angle-resolved X-ray photoelectron spectroscopies. Applied Surface Science, 2016, 360, 477-484.	6.1	7
58	Design Flexibility of Ultrahigh Efficiency Four-Junction Inverted Metamorphic Solar Cells. IEEE Journal of Photovoltaics, 2016, 6, 578-583.	2.5	79
59	Metamorphic IIIâ€“V Solar Cells: Recent Progress and Potential. IEEE Journal of Photovoltaics, 2016, 6, 366-373.	2.5	25
60	Mechanically stacked four-junction concentrator solar cells. , 2015, , .		3
61	Analysis of perimeter recombination in the subcells of GaInP/GaAs/Ge tripleâ€junction solar cells. Progress in Photovoltaics: Research and Applications, 2015, 23, 874-882.	8.1	50
62	Energy yield determination of concentrator solar cells using laboratory measurements. AIP Conference Proceedings, 2015, , .	0.4	3
63	Design flexibility of ultra-high efficiency 4-junction inverted metamorphic solar cells. , 2015, , .		12
64	Metamorphic IIIâ€“V solar cells: recent progress and potential. , 2015, , .		0
65	Field spectra binning for energy production calculations and multijunction solar cell design. , 2015, , .		3
66	Generalized Optoelectronic Model of Series-Connected Multijunction Solar Cells. IEEE Journal of Photovoltaics, 2015, 5, 1827-1839.	2.5	97
67	Implications of Redesigned, High-Radiative-Efficiency GaInP Junctions on III-V Multijunction Concentrator Solar Cells. IEEE Journal of Photovoltaics, 2015, 5, 418-424.	2.5	17
68	Quadruple-Junction Inverted Metamorphic Concentrator Devices. IEEE Journal of Photovoltaics, 2015, 5, 432-437.	2.5	101
69	Optimization of Multijunction Solar Cells Through Indoor Energy Yield Measurements. IEEE Journal of Photovoltaics, 2015, 5, 438-445.	2.5	11
70	Improved modeling of photoluminescent and electroluminescent coupling in multijunction solar cells. Solar Energy Materials and Solar Cells, 2015, 143, 48-51.	6.2	30
71	Analysis of the behavior of multijunction solar cells under high irradiance Gaussian light profiles showing chromatic aberration with emphasis on tunnel junction performance. Progress in Photovoltaics: Research and Applications, 2015, 23, 743-753.	8.1	16
72	Component integration strategies in metamorphic 4-junction III-V concentrator solar cells. , 2014, , .		6

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73	Device characterization for design optimization of 4 junction inverted metamorphic concentrator solar cells. AIP Conference Proceedings, 2014, , .	0.4	17
74	Back reflectors based on buried Al2O3 for enhancement of photon recycling in monolithic, on-substrate III-V solar cells. Applied Physics Letters, 2014, 105, .	3.3	9
75	Metamorphic Ga0.76In0.24As/GaAs0.75Sb0.25 tunnel junctions grown on GaAs substrates. Journal of Applied Physics, 2014, 116, .	2.5	23
76	Highly conductive p ^{â€‰+â€‰+â€‰}â€AlGaAs/n ^{â€‰+â€‰+â€‰}â€GaInP tunnel junctions for ultraâ€high concentrator solar cells. Progress in Photovoltaics: Research and Applications, 2014, 22, 399-404.	8.1	35
77	Thin, high quality GaInP compositionally graded buffer layers grown at high growth rates for metamorphic IIIâ€“V solar cell applications. Journal of Crystal Growth, 2014, 393, 64-69.	1.5	14
78	3-D modeling of perimeter recombination in GaAs diodes and its influence on concentrator solar cells. Solar Energy Materials and Solar Cells, 2014, 120, 48-58.	6.2	21
79	Lattice-Mismatched 0.7-eV GaInAs Solar Cells Grown on GaAs Using GaInP Compositionally Graded Buffers. IEEE Journal of Photovoltaics, 2014, 4, 190-195.	2.5	39
80	Enhanced external radiative efficiency for 20.8% efficient single-junction GaInP solar cells. Applied Physics Letters, 2013, 103, .	3.3	254
81	Effects of Internal Luminescence and Internal Optics on $V_{f oc}$ and $J_{f sc}$ of III--V Solar Cells. IEEE Journal of Photovoltaics, 2013, 3, 1437-1442.	2.5	77
82	Understanding phosphorus diffusion into silicon in a MOVPE environment for IIIâ€“V on silicon solar cells. Solar Energy Materials and Solar Cells, 2013, 116, 61-67.	6.2	19
83	Experimental and modeling analysis of internal luminescence in III-V solar cells. AIP Conference Proceedings, 2013, , .	0.4	5
84	Experimental confirmation of FK concentrator insensitivity to chromatic aberrations. , 2013, , .		2
85	Influence of PH₃ exposure on silicon substrate morphology in the MOVPE growth of IIIâ€“V on silicon multijunction solar cells. Journal Physics D: Applied Physics, 2013, 46, 445104.	2.8	12
86	Optical enhancement of the open-circuit voltage in high quality GaAs solar cells. Journal of Applied Physics, 2013, 113, .	2.5	258
87	Triple-junction solar cell performance under Fresnel-based concentrators taking into account chromatic aberration and off-axis operation. AIP Conference Proceedings, 2012, , .	0.4	23
88	Design of semiconductor-based back reflectors for high V<inf>oc</inf> monolithic multijunction solar cells. , 2012, , .		12
89	Optimization of 3-junction inverted metamorphic solar cells for high-temperature and high-concentration operation. AIP Conference Proceedings, 2012, , .	0.4	14
90	Optimization of the silicon subcell for III-V on silicon multijunction solar cells: Key differences with conventional silicon technology. AIP Conference Proceedings, 2012, , .	0.4	7

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91	Impact of a Metalâ€“Organic Vapor Phase Epitaxy Environment on Silicon Substrates for IIIâ€“V-on-Si Multijunction Solar Cells. Japanese Journal of Applied Physics, 2012, 51, 10ND05.	1.5	8
92	Analysis of the surface state of epi-ready Ge wafers. Applied Surface Science, 2012, 258, 8166-8170.	6.1	6
93	Performance analysis of AlGaAs/GaAs tunnel junctions for ultra-high concentration photovoltaics. Journal Physics D: Applied Physics, 2012, 45, 045101.	2.8	47
94	Analysis of chromatic aberration effects in triple-junction solar cells using advanced distributed models. , 2011, , .		3
95	Triple-junction solar cells for ultra-high concentrator applications. , 2011, , .		1
96	Integration of III-V materials on silicon substrates for multi-junction solar cell applications. , 2011, , .		3
97	Analysis of Chromatic Aberration Effects in Triple-Junction Solar Cells Using Advanced Distributed Models. IEEE Journal of Photovoltaics, 2011, 1, 219-224.	2.5	33
98	Extended Triple-Junction Solar Cell 3D Distributed Model: Application to Chromatic Aberration-Related Losses. , 2011, , .		12
99	Extended description of tunnel junctions for distributed modeling of concentrator multi-junction solar cells. Solar Energy Materials and Solar Cells, 2011, 95, 2693-2697.	6.2	20
100	Optimizing bottom subcells for III-V-on-Si multijunction solar cells. , 2011, , .		7
101	XPS as characterization tool for PV: From the substrate to complete III-V multijunction solar cells. , 2011, , .		0
102	Roadmap towards efficiencies over 40% at ultra-high concentrations (> 1000 suns). , 2011, , .		2
103	Distributed Simulation of Real Tunnel Junction Effects in Multi-Junction Solar Cells. AIP Conference Proceedings, 2010, , .	0.4	7
104	Capacitance measurements for subcell characterization in multijunction solar cells. , 2010, , .		3
105	A 32.6% efficient lattice-matched dual-junction solar cell working at 1000 suns. Applied Physics Letters, 2009, 94, .	3.3	74
106	Simulating IIIâ€“V concentrator solar cells: A comparison of advantages and limitations of lumped analytical models; distributed analytical models and numerical simulation. , 2009, , .		6
107	Application of capacitance-based techniques to the characterization of multijunction solar cells. , 2009, , .		2
108	GaInP/GaInAs/Ge triple junction solar cells for ultra high concentration. , 2009, , .		10

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109	IIIâ€“V multijunction solar cells for ultra-high concentration photovoltaics. , 2009, , .		15
110	Influence of GaInP ordering on the electronic quality of concentrator solar cells. Journal of Crystal Growth, 2008, 310, 5209-5213.	1.5	22
111	Electroluminescence characterization of III–V multi-junction solar cells. Conference Record of the IEEE Photovoltaic Specialists Conference, 2008, , .	0.0	4
112	Study of non-uniform light profiles on high concentration III–V solar cells using quasi-3D distributed models. Conference Record of the IEEE Photovoltaic Specialists Conference, 2008, , .	0.0	37
113	Te doping of GaAs using metalorganic vapor phase epitaxy: Volatile versus nonvolatile behavior. Journal of Applied Physics, 2008, 104, .	2.5	17
114	Lattice-Matched IIIâ€“V Dual-Junction Solar Cells for Concentrations Around 1000 Suns. Journal of Solar Energy Engineering, Transactions of the ASME, 2007, 129, 336-339.	1.8	6
115	III-V multijunction solar cells for concentrations around 1000X: the IES-UPM strategy. , 2007, , .		0
116	MOVPE Technology for the Growth of III-V Semiconductor Structures. , 2007, , .		1
117	ARXPS characterization of InGaP/GaAs heterointerface grown by MOVPE. , 2007, , .		0
118	Improvements in the MOVPE growth of multi-junction solar cells for very high concentration. Journal of Crystal Growth, 2007, 298, 762-766.	1.5	10
119	Analysis of tellurium as n-type dopant in GaInP: Doping, diffusion, memory effect and surfactant properties. Journal of Crystal Growth, 2007, 298, 794-799.	1.5	37
120	A comparative study of BSF layers for GaAs-based single-junction or multijunction concentrator solar cells. Semiconductor Science and Technology, 2006, 21, 1387-1392.	2.0	41
121	Specific Growth and Characterization Issues in Multi-Junction Solar Cells for Concentrations Above 1000 Suns. , 2006, , .		2
122	Strategic Options for a Led-Like Approach in III-V Concentrator Photovoltaics. , 2006, , .		15
123	A 3-D Model for Concentrator Solar Cells Based on Distributed Circuit Units. IEEE Transactions on Electron Devices, 2005, 52, 2552-2558.	3.0	90
124	Numerical analysis of GaInP solar cells: toward advanced photovoltaic devices modeling. , 0, , .		5