

# Harvey L Guthrey

## List of Publications by Year in descending order

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88  
papers

1,351  
citations

516710

16  
h-index

377865

34  
g-index

90  
all docs

90  
docs citations

90  
times ranked

2138  
citing authors

#	ARTICLE	IF	CITATIONS
1	Measurement of poly-Si film thickness on textured surfaces by X-ray diffraction in poly-Si/SiO <sub>2</sub> passivating contacts for monocrystalline Si solar cells. <i>Solar Energy Materials and Solar Cells</i> , 2022, 236, 111510.	6.2	9
2	Self-Aligned Selective Area Front Contacts on Poly-Si/SiO <sub>2</sub> Passivating Contact Si Solar Cells. <i>IEEE Journal of Photovoltaics</i> , 2022, 12, 678-689.	2.5	10
3	Light- and Elevated-Temperature-Induced Degradation-Affected Silicon Cells From a Utility-Scale Photovoltaic System Characterized by Deep-Level Transient Spectroscopy. <i>IEEE Journal of Photovoltaics</i> , 2022, 12, 703-710.	2.5	4
4	Understanding SiO <sub>2</sub> Layer Breakup in poly-Si/SiO <sub>2</sub> Passivating Contacts for Si Solar Cells Using Precisely Engineered Surface Textures. <i>ACS Applied Energy Materials</i> , 2022, 5, 3043-3051.	5.1	2
5	Mitigation of rapid capacity decay in silicon- LiNi <sub>0.6</sub> Mn <sub>0.2</sub> Co <sub>0.2</sub> O <sub>2</sub> full batteries. <i>Energy Storage Materials</i> , 2022, 49, 111-121.	18.0	8
6	Nondestructive microstructural investigation of defects in 4H-SiC epilayers using a multiscale luminescence analysis approach. <i>Journal of Applied Physics</i> , 2022, 131, 185705.	2.5	2
7	High-Efficiency Solar Cells Grown on Spalled Germanium for Substrate Reuse without Polishing. <i>Advanced Energy Materials</i> , 2022, 12, .	19.5	12
8	Local electrical degradations of solid-state electrolyte by nm-scale operando imaging of ionic and electronic transports. <i>Journal of Power Sources</i> , 2021, 481, 229138.	7.8	5
9	Compositionally graded Ga <sub>1-x</sub> In <sub>x</sub> P buffers grown by static and dynamic hydride vapor phase epitaxy at rates up to 1 $\mu\text{m}/\text{min}$ . <i>Applied Physics Letters</i> , 2021, 118, .	3.3	4
10	Morphology, microstructure, and doping behaviour: A comparison between different deposition methods for poly-Si/SiO <sub>2</sub> passivating contacts. <i>Progress in Photovoltaics: Research and Applications</i> , 2021, 29, 857-868.	8.1	16
11	Comparative studies of optoelectronic properties, structures, and surface morphologies for phosphorus-doped poly-Si/SiO <sub>x</sub> passivating contacts. , 2021, , .		0
12	LeTID-affected Cells from a Utility-scale Photovoltaic System Characterized by Deep Level Transient Spectroscopy. , 2021, , .		2
13	Improvement of front-junction GaInP by point-defect injection and annealing. , 2021, , .		5
14	Fabrication of Poly-Si on Locally Etched SiO <sub>x</sub> as Passivating Contacts for c-Si Solar Cells. , 2021, , .		0
15	Linking Transient Voltage to Spatially-Resolved Luminescence Imaging to Understand Reliability of Perovskite Photovoltaics. , 2021, , .		2
16	Inverted metamorphic GaInAs solar cell grown by dynamic hydride vapor phase epitaxy. <i>Applied Physics Letters</i> , 2021, 119, .	3.3	4
17	Development of Lattice-Mismatched GaInAsP for Radiation Hardness. <i>IEEE Journal of Photovoltaics</i> , 2020, 10, 103-108.	2.5	2
18	Guided Optimization of Phase-Unstable III-V Compositionally Graded Buffers by Cathodoluminescence Spectrum Imaging. <i>IEEE Journal of Photovoltaics</i> , 2020, 10, 109-116.	2.5	7

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19	Optical and Structural Properties of High-Efficiency Epitaxial Cu(In,Ga)Se <sub>2</sub> Grown on GaAs. ACS Applied Materials & Interfaces, 2020, 12, 3150-3160.	8.0	11
20	Effect of Surface Texture on Pinhole Formation in SiO <sub>x</sub> -Based Passivated Contacts for High-Performance Silicon Solar Cells. ACS Applied Materials & Interfaces, 2020, 12, 55737-55745.	8.0	18
21	Isolating p- and n-Doped Fingers With Intrinsic Poly-Si in Passivated Interdigitated Back Contact Silicon Solar Cells. IEEE Journal of Photovoltaics, 2020, 10, 1574-1581.	2.5	12
22	Impact of dopant-induced optoelectronic tails on open-circuit voltage in arsenic-doped Cd(Se)Te solar cells. Journal of Applied Physics, 2020, 128, .	2.5	25
23	Deposition pressure dependent structural and optoelectronic properties of ex-situ boron-doped poly-Si/SiO <sub>x</sub> passivating contacts based on sputtered silicon. Solar Energy Materials and Solar Cells, 2020, 215, 110602.	6.2	17
24	Solid State Electrolytes: Nonuniform Ionic and Electronic Transport of Ceramic and Polymer/Ceramic Hybrid Electrolyte by Nanometer-Scale Operando Imaging for Solid-State Battery (Adv. Energy Mater.) Tj ETQq0t0.0 rgBT #Overlock 1	19.5	22
25	A Review and Perspective on Cathodoluminescence Analysis of Halide Perovskites. Advanced Energy Materials, 2020, 10, 1903840.	19.5	26
26	Directly Linking Low-Angle Grain Boundary Misorientation to Device Functionality for GaAs Grown on Flexible Metal Substrates. ACS Applied Materials & Interfaces, 2020, 12, 10664-10672.	8.0	4
27	Six-junction III-V solar cells with 47.1% conversion efficiency under 143% concentration. Nature Energy, 2020, 5, 326-335.	39.5	408
28	Nonuniform Ionic and Electronic Transport of Ceramic and Polymer/Ceramic Hybrid Electrolyte by Nanometer-Scale Operando Imaging for Solid-State Battery. Advanced Energy Materials, 2020, 10, 2000219.	19.5	22
29	Evidence of Buried Junction in CdSeTe Absorbers. , 2020, , .		0
30	Submicron Thickness Characterization of poly-Si thin films on Textured Surfaces by X-ray Diffraction for Minimizing Parasitic Absorption in Poly-Si/SiO <sub>2</sub> Passivating Contact Cells. , 2020, , .		0
31	Pinhole formation in poly-Si/SiO <sub>x</sub> passivating contacts on Si(111)-oriented textures. , 2020, , .		0
32	Characterization and modeling of reverse-bias breakdown in Cu(In,Ga)Se <sub>2</sub> photovoltaic devices. Progress in Photovoltaics: Research and Applications, 2019, 27, 812-823.	8.1	8
33	Effect of Crystallographic Orientation and Nanoscale Surface Morphology on Poly-Si/SiO <sub>x</sub> Contacts for Silicon Solar Cells. ACS Applied Materials & Interfaces, 2019, 11, 42021-42031.	8.0	29
34	Modifications of Textured Silicon Surface Morphology and Its Effect on Poly-Si/SiO <sub>x</sub> Contact Passivation for Silicon Solar Cells. IEEE Journal of Photovoltaics, 2019, 9, 1513-1521.	2.5	13
35	Investigating PID Shunting in Polycrystalline CIGS Devices via Multi-Scale, Multi-Technique Characterization. IEEE Journal of Photovoltaics, 2019, 9, 559-564.	2.5	12
36	No Evidence for Passivation Effects of Na and K at Grain Boundaries in Polycrystalline Cu(In,Ga)Se <sub>2</sub> Thin Films for Solar Cells. Solar Rrl, 2019, 3, 1900095.	5.8	18

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37	Synchronized electrospinning and electrospraying technique for manufacturing of all-solid-state lithium-ion batteries. <i>Journal of Power Sources</i> , 2019, 431, 17-24.	7.8	23
38	Understanding the charge transport mechanisms through ultrathin SiO <sub>x</sub> layers in passivated contacts for high-efficiency silicon solar cells. <i>Applied Physics Letters</i> , 2019, 114, .	3.3	41
39	Transmission Electron Microscopy Study on Microstructure of Degraded CdTe Mini-Modules. <i>IEEE Journal of Photovoltaics</i> , 2019, 9, 893-897.	2.5	0
40	Nonuniform Charge Collection in SiO <sub>x</sub> -Based Passivated-Contact Silicon Solar Cells. , 2019, , .		1
41	Evidence of reversible oxidation at CuInSe <sub>2</sub> grain boundaries. , 2019, , .		0
42	Temperature and excitation dependence of recombination in CIGS thin films with high spatial resolution. , 2019, , .		0
43	High-efficiency inverted metamorphic 1.7/1.1 eV GaInAsP/GaInAs dual-junction solar cells. <i>Applied Physics Letters</i> , 2018, 112, .	3.3	47
44	Identification and analysis of partial shading breakdown sites in CuIn <sub>x</sub> Ga(1-x)Se <sub>2</sub> modules. <i>Solar Energy</i> , 2018, 161, 1-5.	6.1	28
45	Effect of thermal annealing on the redistribution of alkali metals in Cu(In,Ga)Se <sub>2</sub> solar cells on glass substrate. <i>Journal of Applied Physics</i> , 2018, 123, 093101.	2.5	14
46	Electrical characterization and comparison of CIGS solar cells made with different structures and fabrication techniques. <i>Solar Energy Materials and Solar Cells</i> , 2018, 174, 77-83.	6.2	41
47	Tunneling or Pinholes: Understanding the Transport Mechanisms in SiO <sub>x</sub> Based Passivated Contacts for High-Efficiency Silicon Solar Cells. , 2018, , .		7
48	Nanoscale investigation of grain boundary characteristics of single-crystalline-like GaAs films and solar cells on flexible metal substrates. , 2018, , .		0
49	Thin-Film Module Reverse-Bias Breakdown Sites Identified by Thermal Imaging. , 2018, , .		9
50	Luminescence methodology to determine grain-boundary, grain-interior, and surface recombination in thin-film solar cells. <i>Journal of Applied Physics</i> , 2018, 124, .	2.5	25
51	Multijunction Solar Cells With Graded Buffer Bragg Reflectors. <i>IEEE Journal of Photovoltaics</i> , 2018, 8, 1608-1615.	2.5	14
52	Sub-Bandgap Luminescence from Doped Polycrystalline and Amorphous Silicon Films and Its Application to Understanding Passivating-Contact Solar Cells. <i>ACS Applied Energy Materials</i> , 2018, 1, 6619-6625.	5.1	18
53	Spatially Resolved Recombination Analysis of CuIn <sub>x</sub> Ga <sub>1-x</sub> Se <sub>2</sub> Absorbers With Alkali Postdeposition Treatments. <i>IEEE Journal of Photovoltaics</i> , 2018, 8, 1833-1840.	2.5	12
54	Strategies for Thinning Graded Buffer Regions in Metamorphic Solar Cells and Performance Tradeoffs. <i>IEEE Journal of Photovoltaics</i> , 2018, 8, 1349-1354.	2.5	4

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55	Cross-Sectional Transport Imaging in a Multijunction Solar Cell. IEEE Journal of Photovoltaics, 2017, 7, 354-358.	2.5	2
56	Imaging the Thickness of Passivation Layers for Crystalline Silicon with Micron-Scale Spatial Resolution Using Spectral Photoluminescence. Solar Rrl, 2017, 1, 1700157.	5.8	3
57	Analytical (S)TEM Studies of Defects Associated with PID in Stressed Si PV Modules. , 2017, , .		1
58	Identifying Reverse-Bias Breakdown Sites in $\text{CuIn}_x\text{Ga}(1-x)\text{Se}_2$ . , 2017, , .		5
59	Conduction and rectification in $\text{NbO}_x$ - and $\text{NiO}$ -based metal-insulator-metal diodes. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2016, 34, .	2.1	5
60	Synchrotron x-ray characterization of alkali elements at grain boundaries in $\text{Cu}(\text{In}, \text{Ga})\text{Se}_2$ solar cells. , 2016, , .		4
61	Module degradation mechanisms studied by a multi-scale approach. , 2016, , .		7
62	Spatial distribution of dopant incorporation in $\text{CdTe}$ . , 2016, , .		0
63	Spectrum-per-pixel cathodoluminescence imaging of $\text{CdTe}$ thin-film bevels. , 2016, , .		1
64	Sodium Accumulation at Potential-Induced Degradation Shunted Areas in Polycrystalline Silicon Modules. IEEE Journal of Photovoltaics, 2016, 6, 1440-1445.	2.5	48
65	Increased Optoelectronic Quality and Uniformity of Hydrogenated p-InP Thin Films. Chemistry of Materials, 2016, 28, 4602-4607.	6.7	12
66	Single crystal growth and phase stability of photovoltaic grade $\text{ZnSiP}_2$ by flux technique. , 2015, , .		5
67	Phosphorus doping of polycrystalline $\text{CdTe}$ by diffusion. , 2015, , .		6
68	Cross-sectional transport imaging in a multijunction solar cell. , 2015, , .		1
69	Correlation between grain composition and charge carrier collection in $\text{Cu}(\text{In}, \text{Ga})\text{Se}_2$ solar cells. , 2015, , .		9
70	Latest developments in the x-ray based characterization of thin-film solar cells. , 2015, , .		15
71	Opto-electronic characterization of $\text{CdTe}$ solar cells from TCO to back contact with nano-scale CL probe. , 2015, , .		1
72	Mechanisms of Electron-Beam-Induced Damage in Perovskite Thin Films Revealed by Cathodoluminescence Spectroscopy. Journal of Physical Chemistry C, 2015, 119, 26904-26911.	3.1	153

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73	Charge-carrier dynamics in polycrystalline thin-film $\text{CuIn}_{1-x}\text{Ga}_x\text{Se}_2$ photovoltaic devices after pulsed laser excitation: Interface and space-charge region analysis. <i>Journal of Applied Physics</i> , 2015, 117, .	2.5	15
74	Cathodoluminescence Analysis of Grain Boundaries and Grain Interiors in Thin-Film CdTe. <i>IEEE Journal of Photovoltaics</i> , 2014, 4, 1671-1679.	2.5	25
75	Electrical and compositional characterization of gallium grading in $\text{Cu}(\text{In,Ga})\text{Se}_2$ solar cells. , 2014, , .		1
76	Minority carrier lifetimes in 1.0-eV $\text{p-In}_{0.27}\text{Ga}_{0.73}\text{As}$ layers grown on GaAs substrates. , 2014, , .		0
77	Cathodoluminescence study of carrier transport across grain boundaries in CdTe. , 2014, , .		0
78	The Effect of Ga Content on the Recombination Behavior of Grain Boundaries in $\text{Cu}(\text{In,Ga})\text{Se}_2$ Solar Cells. <i>Materials Research Society Symposia Proceedings</i> , 2014, 1670, 19.	0.1	1
79	Characterization of Photovoltaics: From Cells Properties to Atoms. <i>Microscopy and Microanalysis</i> , 2014, 20, 952-953.	0.4	0
80	Device Physics of Heteroepitaxial Film c-Si Heterojunction Solar Cells. <i>IEEE Journal of Photovoltaics</i> , 2013, 3, 230-235.	2.5	8
81	Device physics of heteroepitaxial film c-Si heterojunction solar cells. , 2013, , .		0
82	Dislocation-limited open circuit voltage in film crystal silicon solar cells. <i>Applied Physics Letters</i> , 2012, 101, 123510.	3.3	6
83	Device physics of heteroepitaxial film c-Si heterojunction solar cells. , 2012, , .		1
84	A model for electron-beam-induced current analysis of mc-Si addressing defect contrast behavior in heavily contaminated PV material. , 2012, , .		0
85	Quantification of atomic scale defects in poly Si PV devices using atom probe tomography. , 2012, , .		2
86	Defect band luminescence intensity reversal as related to application of anti-reflection coating on mc-Si PV Cells. , 2012, , .		0
87	Identification and characterization of performance limiting regions in poly-Si wafers for PV cells. , 2011, , .		0
88	Atomic scale characterization of compound semiconductors using atom probe tomography. , 2011, , .		3