# 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 | Six-junction IIIâ€“V solar cells with 47.1% conversion efficiency under 143â€‰Suns concentration. Nature Energy, 2020, 5, 326-335. | 39.5 | 408 |
| 2 | 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 |
| 3 | Sodium Accumulation at Potential-Induced Degradation Shunted Areas in Polycrystalline Silicon Modules. IEEE Journal of Photovoltaics, 2016, 6, 1440-1445. | 2.5 | 48 |
| 4 | High-efficiency inverted metamorphic 1.7/1.1 eV GaInAsP/GaInAs dual-junction solar cells. Applied Physics Letters, 2018, 112, . | 3.3 | 47 |
| 5 | Electrical characterization and comparison of CIGS solar cells made with different structures and fabrication techniques. Solar Energy Materials and Solar Cells, 2018, 174, 77-83. | 6.2 | 41 |
| 6 | Understanding the charge transport mechanisms through ultrathin SiOx layers in passivated contacts for high-efficiency silicon solar cells. Applied Physics Letters, 2019, 114, . | 3.3 | 41 |
| 7 | 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 |
| 8 | Identification and analysis of partial shading breakdown sites in CuInxGa(1-x)Se2 modules. Solar Energy, 2018, 161, 1-5. | 6.1 | 28 |
| 9 | A Review and Perspective on Cathodoluminescence Analysis of Halide Perovskites. Advanced Energy Materials, 2020, 10, 1903840. | 19.5 | 26 |
| 10 | Cathodoluminescence Analysis of Grain Boundaries and Grain Interiors in Thin-Film CdTe. IEEE Journal of Photovoltaics, 2014, 4, 1671-1679. | 2.5 | 25 |
| 11 | Luminescence methodology to determine grain-boundary, grain-interior, and surface recombination in thin-film solar cells. Journal of Applied Physics, 2018, 124, . | 2.5 | 25 |
| 12 | 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 |
| 13 | Synchronized electrospinning and electrospraying technique for manufacturing of all-solid-state lithium-ion batteries. Journal of Power Sources, 2019, 431, 17-24. | 7.8 | 23 |
| 14 | Nonuniform Ionic and Electronic Transport of Ceramic and Polymer/Ceramic Hybrid Electrolyte by Nanometerâ€Scale Operando Imaging for Solidâ€State Battery. Advanced Energy Materials, 2020, 10, 2000219. | 19.5 | 22 |
| 15 | 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 |
| 16 | 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 |
| 17 | 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 |
| 18 | Deposition pressure dependent structural and optoelectronic properties of ex-situ boron-doped poly-Si/SiOx passivating contacts based on sputtered silicon. Solar Energy Materials and Solar Cells, 2020, 215, 110602. | 6.2 | 17 |

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|---|---|---|---|
| 19 | Morphology, microstructure, and doping behaviour: A comparison between different deposition methods for polyâ€Si/SiO<sub>x</sub> passivating contacts. Progress in Photovoltaics: Research and Applications, 2021, 29, 857-868. | 8.1 | 16 |
| 20 | Latest developments in the x-ray based characterization of thin-film solar cells. , 2015, , . | | 15 |
| 21 | Charge-carrier dynamics in polycrystalline thin-film CuIn1â^'xGaxSe2 photovoltaic devices after pulsed laser excitation: Interface and space-charge region analysis. Journal of Applied Physics, 2015, 117, . | 2.5 | 15 |
| 22 | Effect of thermal annealing on the redistribution of alkali metals in Cu(In,Ga)Se2solar cells on glass substrate. Journal of Applied Physics, 2018, 123, 093101. | 2.5 | 14 |
| 23 | Multijunction Solar Cells With Graded Buffer Bragg Reflectors. IEEE Journal of Photovoltaics, 2018, 8, 1608-1615. | 2.5 | 14 |
| 24 | 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 |
| 25 | Increased Optoelectronic Quality and Uniformity of Hydrogenated p-InP Thin Films. Chemistry of Materials, 2016, 28, 4602-4607. | 6.7 | 12 |
| 26 | Spatially Resolved Recombination Analysis of CuIn<sub>x</sub>Ga<sub>1-x</sub>Se<sub>2</sub> Absorbers With Alkali Postdeposition Treatments. IEEE Journal of Photovoltaics, 2018, 8, 1833-1840. | 2.5 | 12 |
| 27 | Investigating PID Shunting in Polycrystalline CIGS Devices via Multi-Scale, Multi-Technique Characterization. IEEE Journal of Photovoltaics, 2019, 9, 559-564. | 2.5 | 12 |
| 28 | 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 |
| 29 | Highâ€Efficiency Solar Cells Grown on Spalled Germanium for Substrate Reuse without Polishing. Advanced Energy Materials, 2022, 12, . | 19.5 | 12 |
| 30 | 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 |
| 31 | Self-Aligned Selective Area Front Contacts on Poly-Si/SiO <sub>x</sub>  Passivating Contact c-Si Solar Cells. IEEE Journal of Photovoltaics, 2022, 12, 678-689. | 2.5 | 10 |
| 32 | Correlation between grain composition and charge carrier collection in Cu(In,Ga)Se2 solar cells. , 2015, , . | | 9 |
| 33 | Thin-Film Module Reverse-Bias Breakdown Sites Identified by Thermal Imaging. , 2018, , . | | 9 |
| 34 | Measurement of poly-Si film thickness on textured surfaces by X-ray diffraction in poly-Si/SiO passivating contacts for monocrystalline Si solar cells. Solar Energy Materials and Solar Cells, 2022, 236, 111510. | 6.2 | 9 |
| 35 | Device Physics of Heteroepitaxial Film c-Si Heterojunction Solar Cells. IEEE Journal of Photovoltaics, 2013, 3, 230-235. | 2.5 | 8 |
| 36 | Characterization and modeling of reverseâ€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 |

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|---|---|---|---|
| 37 | Mitigation of rapid capacity decay in silicon- LiNi0.6Mn0.2Co0.2O2 full batteries. Energy Storage Materials, 2022, 49, 111-121. | 18.0 | 8 |
| 38 | Module degradation mechanisms studied by a multi-scale approach. , 2016, , . | | 7 |
| 39 | Tunneling or Pinholes: Understanding the Transport Mechanisms in SiO<inf>x</inf> Based Passivated Contacts for High-Efficiency Silicon Solar Cells. , 2018, , . | | 7 |
| 40 | Guided Optimization of Phase-Unstable IIIâ€“V Compositionally Graded Buffers by Cathodoluminescence Spectrum Imaging. IEEE Journal of Photovoltaics, 2020, 10, 109-116. | 2.5 | 7 |
| 41 | Dislocation-limited open circuit voltage in film crystal silicon solar cells. Applied Physics Letters, 2012, 101, 123510. | 3.3 | 6 |
| 42 | Phosphorus doping of polycrystalline CdTe by diffusion. , 2015, , . | | 6 |
| 43 | Single crystal growth and phase stability of photovoltaic grade ZnSiP2 by flux technique. , 2015, , . | | 5 |
| 44 | Conduction and rectification in NbOx- and NiO-based metal-insulator-metal diodes. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2016, 34, . | 2.1 | 5 |
| 45 | Identifying Reverse-Bias Breakdown Sites in CuInxGa(1-x)Se2. , 2017, , . | | 5 |
| 46 | Solid State Electrolytes: Nonuniform Ionic and Electronic Transport of Ceramic and Polymer/Ceramic Hybrid Electrolyte by Nanometerâ€Scale Operando Imaging for Solidâ€State Battery (Adv. Energy Mater.) Tj ETQq0 0 0 rgBT /Overlock 1 | 10.0 | 5 |
| 47 | Local electrical degradations of solid-state electrolyte by nm-scale operando imaging of ionic and electronic transports. Journal of Power Sources, 2021, 481, 229138. | 7.8 | 5 |
| 48 | Improvement of front-junction GaInP by point-defect injection and annealing. , 2021, , . | | 5 |
| 49 | Synchrotron x-ray characterization of alkali elements at grain boundaries in Cu(In, Ga)Se<inf>2</inf> solar cells. , 2016, , . | | 4 |
| 50 | Strategies for Thinning Graded Buffer Regions in Metamorphic Solar Cells and Performance Tradeoffs. IEEE Journal of Photovoltaics, 2018, 8, 1349-1354. | 2.5 | 4 |
| 51 | 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 |
| 52 | Compositionally graded Ga1â^'xInxP buffers grown by static and dynamic hydride vapor phase epitaxy at rates up to 1 Î¼m/min. Applied Physics Letters, 2021, 118, . | 3.3 | 4 |
| 53 | Inverted metamorphic GaInAs solar cell grown by dynamic hydride vapor phase epitaxy. Applied Physics Letters, 2021, 119, . | 3.3 | 4 |
| 54 | Light- and Elevated-Temperature-Induced Degradation-Affected Silicon Cells From a Utility-Scale Photovoltaic System Characterized by Deep-Level Transient Spectroscopy. IEEE Journal of Photovoltaics, 2022, 12, 703-710. | 2.5 | 4 |

| # | Article | IF | Citations |
|---|---|---|---|
| 55 | Atomic scale characterization of compound semiconductors using atom probe tomography. , 2011, , . | | 3 |
| 56 | Imaging the Thickness of Passivation Layers for Crystalline Silicon with Micronâ€Scale Spatial Resolution Using Spectral Photoluminescence. Solar Rrl, 2017, 1, 1700157. | 5.8 | 3 |
| 57 | Quantification of atomic scale defects in poly Si PV devices using atom probe tomography. , 2012, , . | | 2 |
| 58 | Cross-Sectional Transport Imaging in a Multijunction Solar Cell. IEEE Journal of Photovoltaics, 2017, 7, 354-358. | 2.5 | 2 |
| 59 | Development of Lattice-Mismatched GaInAsP for Radiation Hardness. IEEE Journal of Photovoltaics, 2020, 10, 103-108. | 2.5 | 2 |
| 60 | LeTID-affected Cells from a Utility-scale Photovoltaic System Characterized by Deep Level Transient Spectroscopy. , 2021, , . | | 2 |
| 61 | Linking Transient Voltage to Spatially-Resolved Luminescence Imaging to Understand Reliability of Perovskite Photovoltaics. , 2021, , . | | 2 |
| 62 | Understanding SiO<sub>x</sub> Layer Breakup in poly-Si/SiO<sub>x</sub> Passivating Contacts for Si Solar Cells Using Precisely Engineered Surface Textures. ACS Applied Energy Materials, 2022, 5, 3043-3051. | 5.1 | 2 |
| 63 | Nondestructive microstructural investigation of defects in 4H-SiC epilayers using a multiscale luminescence analysis approach. Journal of Applied Physics, 2022, 131, 185705. | 2.5 | 2 |
| 64 | Device physics of heteroepitaxial film c-Si heterojunction solar cells. , 2012, , . | | 1 |
| 65 | Electrical and compositional characterization of gallium grading in Cu(In,Ga)Se<inf>2</inf> solar cells. , 2014, , . | | 1 |
| 66 | The Effect of Ga Content on the Recombination Behavior of Grain Boundaries in Cu(In,Ga)Se2 Solar Cells. Materials Research Society Symposia Proceedings, 2014, 1670, 19. | 0.1 | 1 |
| 67 | Cross-sectional transport imaging in a multijunction solar cell. , 2015, , . | | 1 |
| 68 | Opto-electronic characterization of CdTe solar cells from TCO to back contact with nano-scale CL probe. , 2015, , . | | 1 |
| 69 | Spectrum-per-pixel cathodoluminescence imaging of CdTe thin-film bevels. , 2016, , . | | 1 |
| 70 | Analytical (S)TEM Studies of Defects Associated with PID in Stressed Si PV Modules. , 2017, , . | | 1 |
| 71 | Nonuniform Charge Collection in SiO<sub>x</sub>-Based Passivated-Contact Silicon Solar Cells. , 2019, , . | | 1 |
| 72 | Identification and characterization of performance limiting regions in poly-Si wafers for PV cells. , 2011, , . | | 0 |

| # | Article | IF | Citations |
|---|---|---|---|
| 73 | A model for electron-beam-induced current analysis of mc-Si addressing defect contrast behavior in heavily contaminated PV material. , 2012, , . | | 0 |
| 74 | Defect band luminescence intensity reversal as related to application of anti-reflection coating on mc-Si PV Cells. , 2012, , . | | 0 |
| 75 | Device physics of heteroepitaxial film c-Si heterojunction solar cells. , 2013, , . | | 0 |
| 76 | Minority carrier lifetimes in 1.0-eV p-In<inf>0.27</inf>Ga<inf>0.73</inf>As layers grown on GaAs substrates. , 2014, , . | | 0 |
| 77 | Cathodoluminescence study of carrier transport across grain boundaries in CdTe. , 2014, , . | | 0 |
| 78 | Characterization of Photovoltaics: From Cells Properties to Atoms. Microscopy and Microanalysis, 2014, 20, 952-953. | 0.4 | 0 |
| 79 | Spatial distribution of dopant incorporation in CdTe. , 2016, , . | | 0 |
| 80 | Nanoscale investigation of grain boundary characteristics of single-crystalline-like GaAs films and solar cells on flexible metal substrates. , 2018, , . | | 0 |
| 81 | Transmission Electron Microscopy Study on Microstructure of Degraded CdTe Mini-Modules. IEEE Journal of Photovoltaics, 2019, 9, 893-897. | 2.5 | 0 |
| 82 | Evidence of reversible oxidation at CuInSe2 grain boundaries. , 2019, , . | | 0 |
| 83 | Comparative studies of optoelectronic properties, structures, and surface morphologies for phosphorus-doped poly-Si/SiOx passivating contacts. , 2021, , . | | 0 |
| 84 | Fabrication of Poly-Si on Locally Etched SiOx as Passivating Contacts for c-Si Solar Cells. , 2021, , . | | 0 |
| 85 | Temperature and excitation dependence of recombination in CIGS thin films with high spatial resolution. , 2019, , . | | 0 |
| 86 | Evidence of Buried Junction in CdSeTe Absorbers. , 2020, , . | | 0 |
| 87 | Submicron Thickness Characterization of poly-Si thin films on Textured Surfaces by X-ray Diffraction for Minimizing Parasitic Absorption in Poly-Si/SiO2 Passivating Contact Cells. , 2020, , . | | 0 |
| 88 | Pinhole formation in poly-Si/SiOx passivating contacts on Si(111)-oriented textures. , 2020, , . | | 0 |