Alex Redinger

List of Publications by Year
in descending order

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76 papers	3,473 citations	172207 29 h-index	138251 58 g-index
78 all docs	78 docs citations	78 times ranked	3654 citing authors

#	Article	IF	Citations
1	The impact of energy alignment and interfacial recombination on the internal and external open-circuit voltage of perovskite solar cells. Energy and Environmental Science, 2019, 12, 2778-2788.	15.6	570
2	The Consequences of Kesterite Equilibria for Efficient Solar Cells. Journal of the American Chemical Society, 2011, 133, 3320-3323.	6.6	457
3	The band gap of Cu2ZnSnSe4: Effect of order-disorder. Applied Physics Letters, 2014, 105, 112106.	1.5	211
4	Detection of a ZnSe secondary phase in coevaporated Cu2ZnSnSe4 thin films. Applied Physics Letters, 2011, 98, .	1.5	195
5	Coevaporation of Cu2ZnSnSe4 thin films. Applied Physics Letters, 2010, 97, .	1.5	137
6	Single-crystalline TiO2 nanoparticles for stable and efficient perovskite modules. Nature Nanotechnology, 2022, 17, 598-605.	15.6	121
7	Identifying the Real Minority Carrier Lifetime in Nonideal Semiconductors: A Case Study of Kesterite Materials. Advanced Energy Materials, 2017, 7, 1700167.	10.2	106
8	Roadmap on organicâ€“inorganic hybrid perovskite semiconductors and devices. APL Materials, 2021, 9, .	2.2	102
9	Route Toward High-Efficiency Single-Phase Cu$_{f 2}$ZnSn(S,Se)$_{f 4}$ Thin-Film Solar Cells: Model Experiments and Literature Review. IEEE Journal of Photovoltaics, 2011, 1, 200-206.	1.5	91
10	Influence of S/Se ratio on series resistance and on dominant recombination pathway in Cu2ZnSn(SSe)4 thin film solar cells. Thin Solid Films, 2013, 535, 291-295.	0.8	80
11	Nanoscale interfacial engineering enables highly stable and efficient perovskite photovoltaics. Energy and Environmental Science, 2021, 14, 5552-5562.	15.6	69
12	Deep Defects in<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mrow><mml:mi>Cu</mml:mi></mml:mrow><mml:mn>2</mml:mn></mml:msub><mn stretchy="false">(</mml:mo><mml:mi) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 50 302 Td (mathvariant="normal">S</mml:mi><mml:mo>,</m	1.5	67
13	Cells with Varying Se Content. Physical Review Applied, 2016, 5, . HCl and Br2-MeOH etching of Cu2ZnSnSe4 polycrystalline absorbers. Thin Solid Films, 2013, 535, 83-87.	0.8	66
14	Molecular structure of the<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mtext>H</mml:mtext><mml:mn>2</mml:mn></mml:msub><mml:mte layer on Pt(111). Physical Review B, 2010, 82, .	1.1	64
15	Atom probe study of Cu2ZnSnSe4 thin-films prepared by co-evaporation and post-deposition annealing. Applied Physics Letters, 2013, 102, .	1.5	59
16	Chemistry and Dynamics of Ge in Kesterite: Toward Band-Gap-Graded Absorbers. Chemistry of Materials, 2017, 29, 9399-9406.	3.2	59
17	Cu₂ZnSnSe₄ thin film solar cells produced via coâ€evaporation and annealing including a SnSe₂ capping layer. Progress in Photovoltaics: Research and Applications, 2014, 22, 51-57.	4.4	56
18	Optical methodology for process monitoring of chalcopyrite photovoltaic technologies: Application to low cost Cu(In,Ga)(S,Se)2 electrodeposition based processes. Solar Energy Materials and Solar Cells, 2016, 158, 168-183.	3.0	51

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19	Detecting ZnSe secondary phase in Cu2ZnSnSe4 by room temperature photoluminescence. Applied Physics Letters, 2013, 102, .	1.5	49
20	Cuâ€Rich Precursors Improve Kesterite Solar Cells. Advanced Energy Materials, 2014, 4, 1300543.	10.2	49
21	Mechanisms of pattern formation in grazing-incidence ion bombardment of Pt(111). Physical Review B, 2006, 73, .	1.1	47
22	The three A symmetry Raman modes of kesterite in Cu_2ZnSnSe_4. Optics Express, 2013, 21, A695.	1.7	45
23	Admittance spectroscopy in kesterite solar cells: Defect signal or circuit response. Applied Physics Letters, 2013, 102, .	1.5	40
24	Investigation of the SnS/Cu₂ZnSnS₄ Interfaces in Kesterite Thin-Film Solar Cells. ACS Energy Letters, 2017, 2, 976-981.	8.8	40
25	Fermi-level pinning in methylammonium lead iodide perovskites. Nanoscale, 2019, 11, 16828-16836.	2.8	38
26	Desorption of H₂O from Flat and Stepped Pt(111). Journal of Physical Chemistry C, 2009, 113, 691-697.	1.5	35
27	Intragrain charge transport in kesterite thin filmsâ€”Limits arising from carrier localization. Journal of Applied Physics, 2016, 120, .	1.1	33
28	Time resolved photoluminescence on Cu(In, Ga)Se2 absorbers: Distinguishing degradation and trap states. Applied Physics Letters, 2017, 110, .	1.5	32
29	Superior Regularity in Erosion Patterns by Planar Subsurface Channeling. Physical Review Letters, 2006, 96, 106103.	2.9	31
30	Feedback mechanism for the stability of the band gap of CuInSe<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mrow /><mml:mn>2</mml:mn></mml:msub></mml:math>. Physical Review B, 2012, 86, .	1.1	29
31	Direct Evaluation of Defect Distributions From Admittance Spectroscopy. IEEE Journal of Photovoltaics, 2014, 4, 1665-1670.	1.5	29
32	Step-edge sputtering through grazing incidence ions investigated by scanning tunneling microscopy and molecular dynamics simulations. Physical Review B, 2008, 77, .	1.1	26
33	Atom probe tomography study of internal interfaces in Cu2ZnSnSe4 thin-films. Journal of Applied Physics, 2015, 118, .	1.1	25
34	The impact of Kelvin probe force microscopy operation modes and environment on grain boundary band bending in perovskite and Cu(In,Ga)Se<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline" id="d1e210" altimg="si5.svg"><mml:msub><mml:mrow /><mml:mrow><mml:mn>2</mml:mn></mml:mrow></mml:msub></mml:math> solar cells. Nano Energy, 2021, 88, 106270.	8.2	24
35	Different Bandgaps in Cu$_2$ ZnSnSe$_4$: A High Temperature Coevaporation Study. IEEE Journal of Photovoltaics, 2015, 5, 641-648.	1.5	22
36	Highly conductive ZnO films with high near infrared transparency. Progress in Photovoltaics: Research and Applications, 2015, 23, 1630-1641.	4.4	21

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37	Spiral Growth and Step Edge Barriers. Physical Review Letters, 2008, 100, 035506.	2.9	19
38	Lone conduction band in Cu2ZnSnSe4. Applied Physics Letters, 2012, 100, .	1.5	19
39	Diffuse electroreflectance of thin-film solar cells: Suppression of interference-related lineshape distortions. Applied Physics Letters, 2015, 107, .	1.5	19
40	High surface recombination velocity limits Quasi-Fermi level splitting in kesterite absorbers. Scientific Reports, 2018, 8, 1874.	1.6	19
41	Silver-Doped Cu₂SnS₃Absorber Layers for Solar Cells Application. IEEE Journal of Photovoltaics, 2018, 8, 299-304.	1.5	17
42	Trails of Kilovolt Ions Created by Subsurface Channeling. Physical Review Letters, 2010, 104, 075501.	2.9	15
43	Rapid Coarsening of Ion Beam Ripple Patterns by Defect Annihilation. Physical Review Letters, 2009, 102, 146103.	2.9	14
44	Co-evaporation of CH₃NH₃PbI₃: How Growth Conditions Impact Phase Purity, Photostriction, and Intrinsic Stability. ACS Applied Materials & Interfaces, 2021, 13, 2642-2653.	4.0	14
45	Optical properties of Cu_2ZnSnSe_4 thin films and identification of secondary phases by spectroscopic ellipsometry. Optics Express, 2017, 25, 5327.	1.7	13
46	Multiple phases of Cu2ZnSnSe4 detected by room temperature photoluminescence. Journal of Applied Physics, 2014, 116, .	1.1	12
47	Making channeling visible: keV noble gas ion trails on Pt(111). New Journal of Physics, 2011, 13, 013002.	1.2	11
48	Advanced characterization and in-situ growth monitoring of Cu(In,Ga)Se2 thin films and solar cells. Solar Energy, 2018, 170, 102-112.	2.9	11
49	Influence of a single adatom on sputtering at grazing incidence â€“ A molecular-dynamics case study of 5keV Ar impact on Pt (111). Surface Science, 2009, 603, 320-325.	0.8	8
50	Detection of a MoSe2 secondary phase layer in CZTSe by spectroscopic ellipsometry. Journal of Applied Physics, 2015, 118, 185302.	1.1	8
51	Impact of annealing on electrical properties of Cu2ZnSnSe4 absorber layers. Journal of Applied Physics, 2016, 120, 045703.	1.1	8
52	Quantitative PL imaging of thin film solar cells â€” Potential and pitfalls. , 2016, , .		8
53	Role of high series resistance in admittance spectroscopy of kesterite solar cells. , 2013, , .		7
54	Competition of terrace and step-edge sputtering under oblique-incidence ion impact on a stepped Pt(111) surface. Nuclear Instruments & Methods in Physics Research B, 2009, 267, 2769-2773.	0.6	6

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55	Sputtering at grazing ion incidence: Influence of adatom islands. Physical Review B, 2010, 82, .	1.1	6
56	Detection of Cu2Zn5SnSe8 and Cu2Zn6SnSe9 phases in co-evaporated Cu2ZnSnSe4 thin-films. Applied Physics Letters, 2015, 107, .	1.5	6
57	Nano-scale Characterization of Thin-Film Solar Cells. Microscopy and Microanalysis, 2014, 20, 394-395.	0.2	5
58	Photoluminescence studies in epitaxial CZTSe thin films. Journal of Applied Physics, 2016, 120, 125701.	1.1	5
59	Variable chemical decoration of extended defects in Cu poor <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:mi mathvariant="normal">C</mml:mi><mml:msub><mml:mi mathvariant="normal">u</mml:mi><mml:mn>2</mml:mn></mml:msub><mml:mi>ZnSnS</mml:mi><mml:msub><mml:mi mathvariant="normal">e</mml:mi><mml:mn>4</mml:mn></mml:msub></mml:mrow></mml:math> thin films. Physical Review Materials, 2019, 3, .	0.9	5
60	Grazing incidence ion erosion in the presence of adsorbates. New Journal of Physics, 2009, 11, 063011.	1.2	4
61	Molecular beam epitaxy of Cu<inf>2</inf>ZnSnSe<inf>4</inf> thin films grown on GaAs(001). , 2013, , .		3
62	Epitaxial Cu 2 ZnSnSe 4 thin films and devices. Thin Solid Films, 2015, 582, 193-197.	0.8	3
63	Formation of nanometer-sized Cu-Sn-Se particles in Cu2ZnSnSe4 thin-films and their effect on solar cell efficiency. Acta Materialia, 2017, 132, 276-284.	3.8	3
64	How much gallium do we need for a p-type Cu(In,Ga)Se2?. APL Materials, 2022, 10, .	2.2	3
65	Surface Passivation and Detrimental Heat-Induced Diffusion Effects in RbF-Treated Cu(In,Ga)Se₂ Solar Cell Absorbers. ACS Applied Materials & Interfaces, 2022, 14, 34101-34112.	4.0	3
66	Assessment of crystal quality and unit cell orientation in epitaxial Cu_2ZnSnSe_4 layers using polarized Raman scattering. Optics Express, 2014, 22, 28240.	1.7	2
67	Electronic and compositional properties of the rearâ€side of stoichiometric CuInSe 2 absorbers. Progress in Photovoltaics: Research and Applications, 2020, 29, 775.	4.4	2
68	Passivation of the <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:msub><mml:mi mathvariant="normal">CuInSe</mml:mi><mml:mn>2</mml:mn></mml:msub></mml:math> surface via cadmium pre-electrolyte treatment. Physical Review Materials, 2020, 4, .	0.9	2
69	Impact of metallic potassium post-deposition treatment on epitaxial Cu(In,Ga)Se2. Thin Solid Films, 2022, 741, 139002.	0.8	2
70	Radiative recombination from localized states in CZT(S, Se) investigated by combined PL and TRPL at low temperatures. , 2016, , .		1
71	Effects of Annealing and Light on Co-evaporated Methylammonium Lead Iodide Perovskites using Kelvin Probe Force Microscopy in Ultra-High Vacuum. , 2019, , .		1
72	Quantitative PL imaging of thin film solar cells â€" potential and pitfalls. , 2017, , .		1

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73	Surface characterization of epitaxial Cu-rich CuInSe2 absorbers. , 2019, , .		0
74	Nanoscale interfacial engineering enables highly stable and efficient perovskite photovoltaics. , 0, , .		0
75	Inhomogeneities in lead halide perovskite absorbers revealed by quantitative Photoluminescence Imaging. , 0, , .		0
76	The impact of strain on growth mode in chemical vapor deposited mono- and few-layer MoS₂. AIP Advances, 2022, 12, 065010.	0.6	0