

Robert Birkmre

List of Publications by Year in descending order

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69
papers

1,285
citations

471371

17
h-index

377752

34
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70
all docs

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docs citations

70
times ranked

1675
citing authors

#	ARTICLE	IF	CITATIONS
1	Admittance spectroscopy on single-crystal Cu ₂ ZnSnSe ₄ solar cells: Back-contact effects and metastabilities. Journal of Applied Physics, 2020, 128, 143102.	1.1	2
2	Fabrication and characteristics of high-V _{OC} single-crystalline Cu ₂ ZnSnSe ₄ solar cells. Progress in Photovoltaics: Research and Applications, 2020, 28, 863-872.	4.4	3
3	Analysis of High-V _{OC} Single-Crystal CZTSe Solar Cells via Admittance Spectroscopy. , 2018, , .		2
4	Modification of defects and potential fluctuations in slow-cooled and quenched Cu ₂ ZnSnSe ₄ single crystals. Journal of Applied Physics, 2017, 121, .	1.1	15
5	Surface Defect Passivation and Reaction of c-Si in H ₂ S. Langmuir, 2017, 33, 14580-14585.	1.6	13
6	Design and Implementation of High Voltage Photovoltaic Electrolysis System for Solar Fuel Production from CO ₂ . MRS Advances, 2017, 2, 3359-3364.	0.5	1
7	Diffusion of sodium in single crystal CuInSe ₂ . Journal of Applied Physics, 2017, 121, .	1.1	16
8	A Novel Defect Passivation Method for Multicrystalline Si Wafer by H ₂ S Reaction. , 2017, , .		0
9	A stochastic model of solid state thin film deposition: Application to chalcopyrite growth. AIP Advances, 2016, 6, 045015.	0.6	1
10	A stochastic model for Cu(InGa)(SeS) ₂ absorber growth during selenization/sulfization. , 2015, , .		0
11	Bandgap gradients in (Ag,Cu)(In,Ga)Se ₂ thin film solar cells deposited by three-stage co-evaporation. , 2015, , .		31
12	Reversibility of (Ag,Cu)(In,Ga)Se ₂ electrical properties with the addition and removal of Na: Role of grain boundaries. Journal of Applied Physics, 2015, 117, .	1.1	26
13	Thermochemical and kinetic aspects of Cu ₂ ZnSn(S,Se) ₄ thin film growth by reacting Cu-Zn-Sn precursors in H ₂ S and H ₂ Se. Journal of Applied Physics, 2015, 118, .	1.1	12
14	Laser-fired contact for n-type crystalline Si solar cells. Progress in Photovoltaics: Research and Applications, 2015, 23, 1091-1099.	4.4	25
15	Experimental and simulated analysis of front versus all-back-contact silicon heterojunction solar cells: effect of interface and doped a-Si:H layer defects. Progress in Photovoltaics: Research and Applications, 2015, 23, 78-93.	4.4	60
16	Fabrication and Electronic Properties of CZTSe Single Crystals. IEEE Journal of Photovoltaics, 2015, 5, 390-394.	1.5	22
17	High-Performance, High-Index-Contrast Chalcogenide Glass Photonics on Silicon and Unconventional Nonplanar Substrates. Advanced Optical Materials, 2014, 2, 478-486.	3.6	54
18	CdTe solar cells with a PCBM back contact. , 2014, , .		2

#	ARTICLE	IF	CITATIONS
19	Understanding the role of oxygen in the segregation of sodium at the surface of molybdenum coated soda-lime glass. AICHE Journal, 2014, 60, 2365-2372.	1.8	29
20	Effect of Na on Cu(In,Ga)Se ₂ ; in-plane conductance and Seebeck coefficient. , 2014, , .		1
21	Solution Processing and Resist-Free Nanoimprint Fabrication of Thin Film Chalcogenide Glass Devices: Inorganic-Organic Hybrid Photonic Integration. Advanced Optical Materials, 2014, 2, 759-764.	3.6	47
22	Understanding the effect of Na in improving the performance of Cu(InGa)Se ₂ -based photovoltaics. , 2013, , .		2
23	In-situ resistance measurement during the growth of Cu(In, Ga)Se ₂ films by multi-source evaporation. , 2013, , .		3
24	Effects of Growth Conditions on Secondary Phases in CZTSe Thin Films Deposited by Co-evaporation. Materials Research Society Symposia Proceedings, 2013, 1538, 75-82.	0.1	7
25	Effect of RF or VHF Plasma on Nanocrystalline Silicon Thin Film Structure: Insight from OES and Langmuir Probe Measurements. Materials Research Society Symposia Proceedings, 2013, 1536, 161-166.	0.1	0
26	Optimizing emitter-buffer layer stack thickness for p-type silicon heterojunction solar cells. Journal of Renewable and Sustainable Energy, 2013, 5, 013117.	0.8	7
27	Sensitivity of surface passivation and interface quality in IBC-SHJ solar cells to patterning process. , 2013, , .		4
28	Photoelectrochemical reforming of glucose for hydrogen production using a WO ₃ -based tandem cell device. Energy and Environmental Science, 2012, 5, 9091.	15.6	63
29	Effect of annealing atmosphere and temperature on the properties of Cd ₂ SnO ₄ thin films. , 2012, , .		4
30	Impact of back surface patterning process on FF in IBC-SHJ. , 2012, , .		3
31	Cu-In-Ga metal precursors sputter deposited from a single ternary target for Cu(InGa)(SeS) ₂ film formation. , 2011, , .		2
32	Properties of amorphous silicon passivation layers for all back contact c-Si heterojunction solar cells. Materials Research Society Symposia Proceedings, 2011, 1321, 93.	0.1	2
33	Optimization of interdigitated back contact silicon heterojunction solar cells: tailoring hetero-interface band structures while maintaining surface passivation. Progress in Photovoltaics: Research and Applications, 2011, 19, 326-338.	4.4	79
34	Improved FF in P-Si heterojunction solar cells due to optimized ITO/emitter contact. , 2011, , .		0
35	Effect of junction interface modification of silicon heterojunction solar cells. , 2010, , .		6
36	Commercial-scale sources for the evaporation of elemental Cu, Ga, and In: Modeling, design, and validation. , 2010, , .		1

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37	Processing of Cu(In,Ga)Se ₂ solar cells from electrodeposited precursors. , 2009, , .		0
38	In-situ post-deposition thermal annealing of co-evaporated Cu(InGa)Se ₂ thin films deposited at low temperatures. , 2009, , .		1
39	Low temperature front surface passivation of interdigitated back contact silicon heterojunction solar cell. , 2009, , .		4
40	Roll-to-Roll Deposition of a Semiconductor Film on a Flexible Substrate for Photovoltaics: Conception to Reality. Industrial & Engineering Chemistry Research, 2009, 48, 5923-5933.	1.8	3
41	Optimization of interdigitated back contact silicon heterojunction solar cells by two-dimensional numerical simulation. , 2009, , .		14
42	Rear surface passivation of interdigitated back contact silicon heterojunction solar cell and 2D simulation study. , 2008, , .		7
43	Cu(In,Ga)Se ₂ film formation from selenization of mixed metal/metal-selenide precursors. Conference Record of the IEEE Photovoltaic Specialists Conference, 2008, , .	0.0	1
44	In-situ annealing of Cu(In,Ga)Se ₂ films grown by elemental co-evaporation. Conference Record of the IEEE Photovoltaic Specialists Conference, 2008, , .	0.0	3
45	Stability of amorphous/crystalline silicon heterojunctions. Conference Record of the IEEE Photovoltaic Specialists Conference, 2008, , .	0.0	10
46	Pathways to improved performance and processing of CdTe and CuInSe ₂ based modules. Conference Record of the IEEE Photovoltaic Specialists Conference, 2008, , .	0.0	3
47	Interdigitated Back Contact Silicon Heterojunction (IBC-SHJ) Solar Cell. Materials Research Society Symposia Proceedings, 2007, 989, 5.	0.1	3
48	Interdigitated back contact silicon heterojunction solar cell and the effect of front surface passivation. Applied Physics Letters, 2007, 91, .	1.5	102
49	Design Strategy for Scale-Up of Physical Vapor Deposition of Cu(InGa) Se ₂ on Flexible Substrates. , 2006, , .		0
50	Effect of Process Parameter Variation in Deposited Emitter and Buffer Layers on the Performance of Silicon Heterojunction Solar Cells. , 2006, , .		8
51	Mass and heat transfer modeling of a physical vapor deposition effusion source. AICHE Journal, 2005, 51, 878-894.	1.8	9
52	Cu(InGa)Se ₂ solar cells on a flexible polymer web. Progress in Photovoltaics: Research and Applications, 2005, 13, 141-148.	4.4	36
53	Growth Mechanisms of Electrodeposited CuInSe ₂ and Cu(In,Ga)Se ₂ Determined by Cyclic Voltammetry. Materials Research Society Symposia Proceedings, 2005, 865, 14171.	0.1	20
54	Understanding Aniline Surface Treatment of CdTe. Materials Research Society Symposia Proceedings, 2005, 865, 821.	0.1	2

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55	In-Situ Aluminum-Induced Crystallization of Si Thin-Films on Glass Substrates above the Eutectic Temperature using HW-CVD. Materials Research Society Symposia Proceedings, 2004, 808, 179.	0.1	1
56	Manufacture of Thin-Film Solar Cells: Modeling and Control of Cu(InGa)Se ₂ Physical Vapor Deposition onto a Moving Substrate. Industrial & Engineering Chemistry Research, 2004, 43, 566-576.	1.8	8
57	Phase behavior in the CdTe-CdS pseudobinary system. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2002, 20, 1462-1467.	0.9	40
58	Post-Deposition Sulfur Incorporation into CuInSe ₂ Thin Films. Materials Research Society Symposia Proceedings, 2001, 668, 1.	0.1	10
59	Optically Assisted Metal-Induced Crystallization of Thin Si Films for Low-Cost Solar Cells. Materials Research Society Symposia Proceedings, 2001, 685, 1.	0.1	6
60	Interdiffusion of CdS/CdTe thin films: Modeling x-ray diffraction line profiles. Journal of Applied Physics, 2001, 89, 988-994.	1.1	72
61	Copper-Indium Alloy Transformations. Journal of Phase Equilibria and Diffusion, 2000, 21, 509-513.	0.3	23
62	Influence of processing conditions on performance and stability in polycrystalline thin-film CdTe-based solar cells. , 1999, , .		3
63	Manufacturable Large Area CdS Thin Films for Solar Cell Applications Monitored with Optical Emission Spectroscopy. Materials Research Society Symposia Proceedings, 1999, 569, 127.	0.1	4
64	Chemical kinetics and equilibrium analysis of I-III-VI films. , 1999, , .		6
65	POLYCRYSTALLINE THIN FILM SOLAR CELLS: Present Status and Future Potential. Annual Review of Materials Research, 1997, 27, 625-653.	5.5	293
66	Introduction to the Thin Film Photovoltaic Symposium commemorating the 25th Anniversary of the Institute of Energy Conversion at the University of Delaware, USA. Progress in Photovoltaics: Research and Applications, 1997, 5, 305-307.	4.4	0
67	Chemical reaction analysis of copper indium selenization. Progress in Photovoltaics: Research and Applications, 1996, 4, 341-353.	4.4	44
68	Chemical process and device analysis of CuInSe ₂ -based solar cell materials. AIP Conference Proceedings, 1994, , .	0.3	0
69	Effects of composition and thermal treatment on V OC limiting defects in single-crystalline Cu ₂ ZnSnSe ₄ solar cells. Progress in Photovoltaics: Research and Applications, 0, , .	4.4	2