

Nicolas Barreau

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119
papers

2,319
citations

27
h-index

42
g-index

128
ext. papers

2,681
ext. citations

4.2
avg, IF

4.97
L-index

#	Paper	IF	Citations
119	Buffer layers and transparent conducting oxides for chalcopyrite Cu(In,Ga)(S,Se) ₂ based thin film photovoltaics: present status and current developments. <i>Progress in Photovoltaics: Research and Applications</i> , 2010 , 18, 411-433	6.8	284
118	Indium sulfide and relatives in the world of photovoltaics. <i>Solar Energy</i> , 2009 , 83, 363-371	6.8	149
117	Atom probe study of sodium distribution in polycrystalline Cu(In,Ga)Se ₂ thin film. <i>Acta Materialia</i> , 2010 , 58, 2634-2637	8.4	74
116	Power and pressure effects upon magnetron sputtered aluminum doped ZnO films properties. <i>Thin Solid Films</i> , 2010 , 519, 5-10	2.2	67
115	Optical Properties of Wide Band Gap Indium Sulphide Thin Films Obtained by Physical Vapor Deposition. <i>Physica Status Solidi A</i> , 2001 , 184, 179-186		59
114	Study of low temperature elaborated tailored optical band gap $\text{In}_2\text{S}_3\text{B}_x\text{O}_3$ thin films. <i>Journal of Crystal Growth</i> , 2002 , 235, 439-449	1.6	54
113	Recent studies on In ₂ S ₃ containing oxygen thin films. <i>Solid State Communications</i> , 2002 , 122, 445-450	1.6	50
112	Re-investigation of preferential orientation of Cu(In,Ga)Se ₂ thin films grown by the three-stage process. <i>Progress in Photovoltaics: Research and Applications</i> , 2011 , 19, 527-536	6.8	48
111	Bandgap properties of the indium sulfide thin-films grown by co-evaporation. <i>Thin Solid Films</i> , 2009 , 517, 2316-2319	2.2	48
110	KF post deposition treatment in co-evaporated Cu(In,Ga)Se ₂ thin film solar cells: Beneficial or detrimental effect induced by the absorber characteristics. <i>Progress in Photovoltaics: Research and Applications</i> , 2017 , 25, 1068-1076	6.8	45
109	The impact of alkali elements on the degradation of CIGS solar cells. <i>Progress in Photovoltaics: Research and Applications</i> , 2015 , 23, 537-545	6.8	43
108	Effects of thickness variation on properties of ZnO:Al thin films grown by RF magnetron sputtering deposition. <i>Superlattices and Microstructures</i> , 2015 , 79, 148-155	2.8	43
107	Study of the new In_2S_3 containing Na thin films Part I: Synthesis and structural characterization of the material. <i>Journal of Crystal Growth</i> , 2002 , 241, 4-14	1.6	43
106	Coevaporated KInSe ₂ : A Fast Alternative to KF Postdeposition Treatment in High-Efficiency Cu(In,Ga)Se ₂ Thin Film Solar Cells. <i>IEEE Journal of Photovoltaics</i> , 2016 , 6, 1316-1320	3.7	40
105	Back and front contacts in kesterite solar cells: state-of-the-art and open questions. <i>JPhys Energy</i> , 2019 , 1, 044005	4.9	40
104	Evolution of the band structure of $\text{In}_2\text{S}_3\text{B}_x\text{O}_3$ buffer layer with its oxygen content. <i>Journal of Applied Physics</i> , 2003 , 93, 5456-5459	2.5	40
103	Physical and chemical degradation behavior of sputtered aluminum doped zinc oxide layers for Cu(In,Ga)Se ₂ solar cells. <i>Thin Solid Films</i> , 2014 , 550, 530-540	2.2	36

102	Recrystallization of Cu(In,Ga)Se ₂ thin films studied by X-ray diffraction. <i>Acta Materialia</i> , 2013 , 61, 4347-4853	4.3	36
101	Study of the new In ₂ S ₃ containing Na thin films. Part II: Optical and electrical characterization of thin films. <i>Journal of Crystal Growth</i> , 2002 , 241, 51-56	1.6	35
100	Recrystallization of CIGSe layers grown by three-step processes: A model based on grain boundary migration. <i>Acta Materialia</i> , 2010 , 58, 5572-5577	8.4	33
99	Physico-chemical characterization of In ₂ S ₃ thin films synthesized by solid-state reaction, induced by annealing, of the constituents sequentially deposited in thin layers. <i>Vacuum</i> , 2000 , 56, 101-106	3.7	31
98	Influence of Mo back contact porosity on co-evaporated Cu(In,Ga)Se ₂ thin film properties and related solar cell. <i>Progress in Photovoltaics: Research and Applications</i> , 2013 , 21, 332-343	6.8	30
97	7.6% CZGSe Solar Cells Thanks to Optimized CdS Chemical Bath Deposition. <i>Physica Status Solidi (A) Applications and Materials Science</i> , 2018 , 215, 1800043	1.6	29
96	Fast chemical bath deposition of Zn(O,S) buffer layers for Cu(In,Ga)Se ₂ solar cells. <i>Thin Solid Films</i> , 2011 , 519, 7575-7578	2.2	29
95	A study of bulk Na _x Cu _{1-x} In ₅ S ₈ and its impact on the Cu(In,Ga)Se ₂ /In ₂ S ₃ interface of solar cells. <i>Solar Energy Materials and Solar Cells</i> , 2006 , 90, 1840-1848	6.4	29
94	Optical properties of large band gap In ₂ S ₃ B _x O ₃ compounds obtained by physical vapour deposition. <i>Optical Materials</i> , 2005 , 27, 647-653	3.3	28
93	Atom probe study of Cu-poor to Cu-rich transition during Cu(In,Ga)Se ₂ growth. <i>Applied Physics Letters</i> , 2011 , 99, 232108	3.4	27
92	Band alignment at In ₂ S ₃ /TCO interface. <i>Applied Surface Science</i> , 2002 , 195, 222-228	6.7	25
91	Photocathode functionalized with a molecular cobalt catalyst for selective carbon dioxide reduction in water. <i>Nature Communications</i> , 2020 , 11, 3499	17.4	24
90	Evaluation of different buffer materials for solar cells with wide-gap Cu ₂ ZnGeS _x Se _{4-x} absorbers. <i>RSC Advances</i> , 2017 , 7, 40105-40110	3.7	23
89	Nondestructive depth-resolved spectroscopic investigation of the heavily intermixed In ₂ S ₃ /Cu(In,Ga)Se ₂ interface. <i>Applied Physics Letters</i> , 2010 , 96, 184101	3.4	23
88	Dependence of ZnO:Al properties on the substrate to target position in RF sputtering. <i>Thin Solid Films</i> , 2008 , 516, 7094-7097	2.2	23
87	Influence of Na on grain boundary and properties of Cu(In,Ga)Se ₂ solar cells. <i>Progress in Photovoltaics: Research and Applications</i> , 2017 , 25, 367-375	6.8	22
86	Red-blue effect in Cu(In,Ga)Se ₂ -based devices revisited. <i>Thin Solid Films</i> , 2013 , 535, 302-306	2.2	22
85	Effects of KF and RbF post deposition treatments on the growth of the CdS buffer layer on CIGS thin films - a comparative study. <i>Solar Energy Materials and Solar Cells</i> , 2019 , 200, 109997	6.4	19

84	Impact of Annealing-Induced Intermixing on the Electronic Level Alignment at the In ₂ S ₃ /Cu(In,Ga)Se ₂ Thin-Film Solar Cell Interface. <i>ACS Applied Materials & Interfaces</i> , 2016 , 8, 2120-4	9.5	19
83	Structural and photoluminescence characterization of vertically aligned multiwalled carbon nanotubes coated with ZnO by magnetron sputtering. <i>Thin Solid Films</i> , 2012 , 520, 4816-4819	2.2	19
82	Influence of the atmospheric species water, oxygen, nitrogen and carbon dioxide on the degradation of aluminum doped zinc oxide layers. <i>Thin Solid Films</i> , 2014 , 565, 149-154	2.2	19
81	MoS ₂ textured films grown on glass substrates through sodium sulfide based compounds. <i>Journal Physics D: Applied Physics</i> , 2002 , 35, 1197-1204	3	19
80	Sn Substitution by Ge: Strategies to Overcome the Open-Circuit Voltage Deficit of Kesterite Solar Cells. <i>ACS Applied Energy Materials</i> , 2020 , 3, 5830-5839	6.1	18
79	Minimizing metastabilities in Cu(In,Ga)Se ₂ /(CBD)Zn(S,O,OH)/i-ZnO-based solar cells. <i>Progress in Photovoltaics: Research and Applications</i> , 2015 , 23, 462-469	6.8	17
78	Microstructural characterization of chemical bath deposited and sputtered Zn(O,S) buffer layers. <i>Thin Solid Films</i> , 2013 , 535, 175-179	2.2	17
77	Optical properties of PZT thin films deposited on a ZnO buffer layer. <i>Optical Materials</i> , 2007 , 29, 1871-1877	3.7	16
76	Investigation of In ₂ S ₃ growth on different transparent conductive oxides. <i>Applied Surface Science</i> , 2000 , 161, 20-26	6.7	16
75	Influence of deposition pressure and selenisation on damp heat degradation of the Cu(In,Ga)Se ₂ back contact molybdenum. <i>Surface and Coatings Technology</i> , 2014 , 252, 157-167	4.4	15
74	The impact of atmospheric species on the degradation of CIGS solar cells. <i>Solar Energy Materials and Solar Cells</i> , 2015 , 141, 49-56	6.4	15
73	Influence of sodium compounds at the Cu(In,Ga)Se ₂ /(PVD)In ₂ S ₃ interface on solar cell properties. <i>Thin Solid Films</i> , 2007 , 515, 6076-6079	2.2	15
72	High Efficiency Solar Cell Based on Full PVD Processed Cu(In,Ga)Se ₂ /CdIn ₂ S ₄ Heterojunction. <i>Solar Rrl</i> , 2017 , 1, 1700140	7.1	14
71	Persistent Photoconductivity in Polycrystalline Cu(In,Ga)Se ₂ Thin Films: Experiment Versus Theoretical Predictions. <i>IEEE Journal of Photovoltaics</i> , 2015 , 5, 1206-1211	3.7	14
70	Investigation of Cu(In,Ga)Se ₂ /In ₂ S ₃ diffuse interface by Raman scattering. <i>Thin Solid Films</i> , 2011 , 519, 7553-7555	2.2	14
69	Stability of CIGS solar cells under illumination with damp heat and dry heat: A comparison. <i>Solar Energy Materials and Solar Cells</i> , 2017 , 166, 262-268	6.4	13
68	Nanostructuring and band gap emission enhancement of ZnO film via electrochemical anodization. <i>Thin Solid Films</i> , 2014 , 571, 168-174	2.2	13
67	Structural properties of In ₂ Se ₃ precursor layers deposited by spray pyrolysis and physical vapor deposition for CuInSe ₂ thin-film solar cell applications. <i>Thin Solid Films</i> , 2015 , 587, 112-116	2.2	13

66	The effect of damp heat-illumination exposure on CIGS solar cells: A combined XRD and electrical characterization study. <i>Solar Energy Materials and Solar Cells</i> , 2016 , 157, 943-952	6.4	13
65	Investigation of intergrain compounds in sputtered Mo films applied in CuIn _{1-x} Ga _x Se ₂ -based solar cell. <i>Surface and Coatings Technology</i> , 2012 , 211, 29-32	4.4	12
64	Influence of absorber copper concentration on the Cu(In,Ga)Se ₂ /(PVD)In ₂ S ₃ and Cu(In,Ga)Se ₂ /(CBD)CdS based solar cells performance. <i>Thin Solid Films</i> , 2009 , 517, 2407-2410	2.2	12
63	Characteristics of Photoconductive MoS ₂ Films Grown on NaCl Substrates by a Sequential Process. <i>Physica Status Solidi A</i> , 2001 , 187, 427-437		12
62	Wide band gap kesterite absorbers for thin film solar cells: potential and challenges for their deployment in tandem devices. <i>Sustainable Energy and Fuels</i> , 2019 , 3, 2246-2259	5.8	11
61	Influence of post-deposition selenium supply on Cu(In,Ga)Se ₂ -based solar cell properties. <i>Thin Solid Films</i> , 2015 , 582, 43-46	2.2	11
60	Impact of DC-power during Mo back contact sputtering on the alkali distribution in Cu(In,Ga)Se ₂ -based thin film solar cells. <i>Thin Solid Films</i> , 2015 , 582, 304-307	2.2	11
59	Systematic study of the complex structure of N1 Deep Level Transient Spectroscopy signal in Cu(In,Ga)Se ₂ based heterojunctions. <i>Thin Solid Films</i> , 2011 , 519, 7485-7488	2.2	11
58	Influence of Cu off-stoichiometry on wide band gap CIGSe solar cells. <i>Thin Solid Films</i> , 2011 , 519, 7228-7231		11
57	Photoluminescence as a tool for investigations of the junction region in Cu(In,Ga)Se ₂ -based solar cells. <i>Thin Solid Films</i> , 2011 , 519, 7328-7331	2.2	11
56	Characterization of (In _{1-x} Al _x) ₂ S ₃ thin films grown by co-evaporation. <i>Journal of Crystal Growth</i> , 2010 , 312, 502-506	1.6	11
55	Influence of Mo/MoSe ₂ microstructure on the damp heat stability of the Cu(In,Ga)Se ₂ back contact molybdenum. <i>Thin Solid Films</i> , 2016 , 612, 381-392	2.2	11
54	Structural study and electronic band structure investigations of the solid solution Na _x Cu _{1-x} In ₅ S ₈ and its impact on the Cu(In,Ga)Se ₂ /In ₂ S ₃ interface of solar cells. <i>Thin Solid Films</i> , 2007 , 515, 6020-6023	2.2	10
53	Performance of CuIn _{1-x} Ga _x Se ₂ /(PVD)In ₂ S ₃ solar cells versus gallium content. <i>Thin Solid Films</i> , 2007 , 515, 6028-6031	2.2	10
52	Oxygen effect in radio frequency magnetron sputtered aluminium doped zinc oxide films. <i>Thin Solid Films</i> , 2014 , 562, 70-74	2.2	9
51	Composition and structural study of solution-processed Zn(S,O,OH) thin films grown using H ₂ O ₂ based deposition route. <i>Thin Solid Films</i> , 2013 , 535, 171-174	2.2	9
50	Degradation of CIGS solar cells due to the migration of alkali-elements 2015 ,		9
49	Chemical crystallographic investigation on Cu ₂ S-In ₂ S ₃ -Ga ₂ S ₃ ternary system. <i>Thin Solid Films</i> , 2018 , 665, 46-50	2.2	9

48	Impact of KF Post-Deposition Treatment on Aging of the Cu(In,Ga)Se ₂ Surface and Its Interface with CdS. <i>ACS Applied Energy Materials</i> , 2018 , 1, 2681-2688	6.1	9
47	Enhancement of near-band edge photoluminescence of ZnO film buffered with TiN. <i>Thin Solid Films</i> , 2013 , 538, 71-77	2.2	8
46	Comparative study of Cu(In,Ga)Se ₂ /(PVD)In ₂ S ₃ and Cu(In,Ga)Se ₂ /(CBD)CdS heterojunction based solar cells by admittance spectroscopy, current-voltage and spectral response measurements. <i>Thin Solid Films</i> , 2009 , 517, 2423-2426	2.2	8
45	Improvement of the properties of commercial SnO ₂ by Cd treatment. <i>Thin Solid Films</i> , 2003 , 427, 386-390.	2.2	8
44	Propagation mechanism of reverse bias induced defects in Cu(In,Ga)Se ₂ solar cells. <i>Solar Energy Materials and Solar Cells</i> , 2020 , 205, 110249	6.4	8
43	Crystal Chemistry, Optical-Electronic Properties, and Electronic Structure of CdInS Compounds (0 $\leq x \leq 1$), Potential Buffer in CIGS-Based Thin-Film Solar Cells. <i>Inorganic Chemistry</i> , 2018 , 57, 12624-12631	5.1	8
42	In ₂ S ₃ for photovoltaic devices: investigation of the native point defects with ab initio first-principle calculations. <i>Theoretical Chemistry Accounts</i> , 2018 , 137, 1	1.9	8
41	Effect of ammonium sulfide treatments on the surface properties of Cu ₂ ZnSnSe ₄ thin films. <i>Thin Solid Films</i> , 2017 , 633, 135-140	2.2	7
40	Influence of Ga content on defects in CuIn _x Ga _{1-x} Se ₂ based solar cell absorbers investigated by sub gap modulated photocurrent and admittance spectroscopy. <i>Thin Solid Films</i> , 2011 , 519, 7312-7316	2.2	7
39	Layered Quaternary Compounds in the CuS-InS-GaS system. <i>Inorganic Chemistry</i> , 2020 , 59, 4546-4553	5.1	7
38	The path towards efficient wide band gap thin-film kesterite solar cells with transparent back contact for viable tandem application. <i>Solar Energy Materials and Solar Cells</i> , 2021 , 219, 110824	6.4	7
37	Electrostatic potential fluctuations and light-soaking effects in Cu(In,Ga)Se ₂ solar cells. <i>Progress in Photovoltaics: Research and Applications</i> , 2020 , 28, 919-934	6.8	6
36	Positron Annihilation Studies on the Damp Heat Degradation of ZnO:Al Transparent Conductive Oxide Layers for CIGS Solar Cells. <i>IEEE Journal of Photovoltaics</i> , 2018 , 8, 1847-1851	3.7	6
35	Accelerated performance degradation of CIGS solar cell determined by in-situ monitoring 2014 ,		6
34	Electronic structure of Na _x Cu _{1-x} In ₅ S ₈ compounds: X-ray photoemission spectroscopy study and band structure calculations. <i>Physical Review B</i> , 2008 , 78,	3.3	6
33	Theoretical investigation of CdIn ₂ S ₄ : A possible substitute for CdS in CuIn _{1-x} Ga _x Se ₂ -based photovoltaic devices. <i>Physical Review Materials</i> , 2017 , 1,	3.2	6
32	Improved CuGaSe ₂ absorber properties through a modified co-evaporation process. <i>Thin Solid Films</i> , 2020 , 709, 138224	2.2	6
31	Finding Relevant Parameters for the Thin-film Photovoltaic Cells Production Process with the Application of Data Mining Methods. <i>Molecular Informatics</i> , 2017 , 36, 1600161	3.8	5

30	Influence of indium/gallium gradients on the Cu(In,Ga)Se ₂ devices deposited by the co-evaporation without recrystallisation. <i>Thin Solid Films</i> , 2015 , 582, 47-50	2.2	5
29	Defects characterization in thin films photovoltaics materials by correlated high-frequency modulated and time resolved photoluminescence: An application to Cu(In,Ga)Se ₂ . <i>Thin Solid Films</i> , 2019 , 669, 520-524	2.2	5
28	Material Property Changes in Defects Caused by Reverse Bias Exposure of CIGS Solar Cells. <i>IEEE Journal of Photovoltaics</i> , 2019 , 9, 1868-1872	3.7	4
27	Study of the electronic properties of wide band gap CIGSe solar cells: Influence of copper off-stoichiometry. <i>Journal of Non-Crystalline Solids</i> , 2012 , 358, 2428-2430	3.9	4
26	Direct Synthesis of ZnO Nanowires on Nanopatterned Surface by Magnetron Sputtering. <i>Chemical Vapor Deposition</i> , 2011 , 17, 337-341		4
25	Numerical modelling of the performance-limiting factors in CZGSe solar cells. <i>Journal Physics D: Applied Physics</i> , 2020 , 53, 385102	3	3
24	Composition-Dependent Passivation Efficiency at the CdS/CuIn Ga Se Interface. <i>Advanced Materials</i> , 2020 , 32, e1907763	24	3
23	Notice of Removal: Co-evaporated KInSe ₂ : A fast alternative to KF post deposition treatment in high efficiency Cu(In,Ga)Se ₂ thin film solar cells 2017 ,		3
22	Analysis and optimization of thin film photovoltaic materials and device fabrication by real time spectroscopic ellipsometry 2007 , 6651, 89		3
21	Evolution and role of vacancy clusters at grain boundaries of ZnO:Al during accelerated degradation of Cu(In,Ga)Se ₂ solar cells revealed by positron annihilation. <i>Physical Review Materials</i> , 2018 , 2,	3.2	3
20	Surface Off-Stoichiometry of CuInS ₂ Thin-Film Solar Cell Absorbers. <i>IEEE Journal of Photovoltaics</i> , 2013 , 3, 828-832	3.7	2
19	High excitation photoluminescence effects as a probing tool for the growth of Cu(In,Ga)Se ₂ 2015 ,		2
18	In-situ monitoring of the accelerated performance degradation of thin film solar cells 2015 ,		2
17	2015 ,		2
16	Characterization of indium sulfide thin films containing copper. <i>Materials Research Society Symposia Proceedings</i> , 2009 , 1165, 1		2
15	Damp heat related degradation mechanisms within CIGS solar cells 2016 ,		2
14	Electronic Structure of the CdS/Cu(In,Ga)Se Interface of KF- and RbF-Treated Samples by Kelvin Probe and Photoelectron Yield Spectroscopy. <i>ACS Applied Materials & Interfaces</i> , 2021 , 13, 7745-7755	9.5	2
13	In Situ Monitoring of the Accelerated Performance Degradation of Solar Cells and Modules: A Case Study for Cu(In,Ga)Se ₂ Solar Cells. <i>Journal of Visualized Experiments</i> , 2018 ,	1.6	2

12	The influence of atmospheric species on the degradation of aluminum doped zinc oxide and Cu(In,Ga)Se ₂ solar cells 2014 ,		1
11	In-situ analysis of the degradation of Cu(In, Ga)Se ₂ solar cells 2013 ,		1
10	Stability of unpackaged CIGS solar cells under illumination with damp heat, dry heat and dry cold followed by cycling 2017 ,		1
9	Detrimental copper-selenide bulk precipitation in CuIn _{1-x} Ga _x Se ₂ thin-film solar cells. A possible reason for the limited performance at large x?. <i>Thin Solid Films</i> , 2020 , 712, 138297	2.2	1
8	The exposure of CIGS solar cells to different electrical biases in a damp-heat illumination environment 2016 ,		1
7	Temperature Dependence of the Internal Quantum Efficiency of Cu(In,Ga)Se ₂ -Based Solar Cells. <i>IEEE Journal of Photovoltaics</i> , 2018 , 8, 1868-1874	3.7	1
6	Epitaxial growth of CIGSe layers on GaP/Si(001) pseudo-substrate for tandem CIGSe/Si solar cells. <i>Solar Energy Materials and Solar Cells</i> , 2021 , 233, 111385	6.4	1
5	Influence of Sulfur Evaporation during or after KF-Post Deposition Treatment On Cu(In,Ga)Se/CdS Interface Formation. <i>ACS Applied Materials & Interfaces</i> , 2020 , 12, 46953-46962	9.5	0
4	Carbon Dioxide Reduction to Methanol with a Molecular Cobalt-Catalyst-Loaded Porous Carbon Electrode Assisted by a CIGS Photovoltaic Cell**. <i>ChemPhotoChem</i> , 2021 , 5, 705-710	3.3	0
3	17.2% efficiency CuIn _{1-x} Ga _x Se ₂ thin-film based mini-module thanks to alternative architecture yielding 81% fill factor. <i>EPJ Photovoltaics</i> , 2019 , 10, 4	0.7	
2	Impact of maximum copper content during the 3-stage process on CdS thickness tolerance in Cu(In,Ga)Se ₂ -based solar cell. <i>Materials Research Society Symposia Proceedings</i> , 2013 , 1538, 33-38		
1	Innovative approaches in thin-film photovoltaic cells 2018 , 595-632		