Nicolas Barreau

List of Publications by Year
in descending order

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128	2,912	159525	206029
papers	citations	30 h-index	48 g-index

128	128	128	2601
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Buffer layers and transparent conducting oxides for chalcopyrite Cu(In,Ga)(S,Se)₂ based thin film photovoltaics: present status and current developments. Progress in Photovoltaics: Research and Applications, 2010, 18, 411-433.	4.4	323
2	Indium sulfide and relatives in the world of photovoltaics. Solar Energy, 2009, 83, 363-371.	2.9	158
3	Power and pressure effects upon magnetron sputtered aluminum doped ZnO films properties. Thin Solid Films, 2010, 519, 5-10.	0.8	80
4	Atom probe study of sodium distribution in polycrystalline Cu(In,Ga)Se2 thin film. Acta Materialia, 2010, 58, 2634-2637.	3.8	78
5	Optical Properties of Wide Band Gap Indium Sulphide Thin Films Obtained by Physical Vapor Deposition. Physica Status Solidi A, 2001, 184, 179-186.	1.7	62
6	Evolution of the band structure of Î²-In2S3â^'3xO3x buffer layer with its oxygen content. Journal of Applied Physics, 2003, 93, 5456-5459.	1.1	62
7	Study of low temperature elaborated tailored optical band gap Î²-In2S3â^'3xO3x thin films. Journal of Crystal Growth, 2002, 235, 439-449.	0.7	61
8	Study of the new Î²-In2S3 containing Na thin films. Part II: Optical and electrical characterization of thin films. Journal of Crystal Growth, 2002, 241, 51-56.	0.7	57
9	KF post deposition treatment in coâ€evaporated Cu(In,Ga)Se₂ thin film solar cells: Beneficial or detrimental effect induced by the absorber characteristics. Progress in Photovoltaics: Research and Applications, 2017, 25, 1068-1076.	4.4	57
10	Back and front contacts in kesterite solar cells: state-of-the-art and open questions. JPhys Energy, 2019, 1, 044005.	2.3	57
11	Recent studies on In2S3 containing oxygen thin films. Solid State Communications, 2002, 122, 445-450.	0.9	56
12	Photocathode functionalized with a molecular cobalt catalyst for selective carbon dioxide reduction in water. Nature Communications, 2020, 11, 3499.	5.8	56
13	Effects of thickness variation on properties of ZnO:Al thin films grown by RF magnetron sputtering deposition. Superlattices and Microstructures, 2015, 79, 148-155.	1.4	55
14	Reâ€investigation of preferential orientation of Cu(In,Ga)Se₂ thin films grown by the threeâ€stage process. Progress in Photovoltaics: Research and Applications, 2011, 19, 527-536.	4.4	52
15	Study of the new Î²-In2S3 containing Na thin films Part I: Synthesis and structural characterization of the material. Journal of Crystal Growth, 2002, 241, 4-14.	0.7	51
16	Bandgap properties of the indium sulfide thin-films grown by co-evaporation. Thin Solid Films, 2009, 517, 2316-2319.	0.8	50
17	The impact of alkali elements on the degradation of CIGS solar cells. Progress in Photovoltaics: Research and Applications, 2015, 23, 537-545.	4.4	49
18	Physico-chemical characterization of Î²-In2S3 thin films synthesized by solid-state reaction, induced by annealing, of the constituents sequentially deposited in thin layers. Vacuum, 2000, 56, 101-106.	1.6	48

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19	Optical properties of large band gap Î²-In2S3â^'3xO3x compounds obtained by physical vapour deposition. Optical Materials, 2005, 27, 647-653.	1.7	48
20	Coevaporated KInSe₂: A Fast Alternative to KF Postdeposition Treatment in High-Efficiency Cu(In,Ga)Se₂Thin Film Solar Cells. IEEE Journal of Photovoltaics, 2016, 6, 1316-1320.	1.5	46
21	Recrystallization of Cu(In,Ga)Se2 thin films studied by X-ray diffraction. Acta Materialia, 2013, 61, 4347-4353.	3.8	43
22	Physical and chemical degradation behavior of sputtered aluminum doped zinc oxide layers for Cu(In,Ga)Se2 solar cells. Thin Solid Films, 2014, 550, 530-540.	0.8	43
23	Recrystallization of CIGSe layers grown by three-step processes: A model based on grain boundary migration. Acta Materialia, 2010, 58, 5572-5577.	3.8	41
24	Band alignment at Î²-In2S3/TCO interface. Applied Surface Science, 2002, 195, 222-228.	3.1	38
25	7.6% CZGSe Solar Cells Thanks to Optimized CdS Chemical Bath Deposition. Physica Status Solidi (A) Applications and Materials Science, 2018, 215, 1800043.	0.8	36
26	Fast chemical bath deposition of Zn(O,S) buffer layers for Cu(In,Ga)Se2 solar cells. Thin Solid Films, 2011, 519, 7575-7578.	0.8	35
27	Investigation of Î²-In2S3 growth on different transparent conductive oxides. Applied Surface Science, 2000, 161, 20-26.	3.1	34
28	Influence of Mo back contact porosity on coâ€evaporated Cu(In,Ga)Se₂ thin film properties and related solar cell. Progress in Photovoltaics: Research and Applications, 2013, 21, 332-343.	4.4	34
29	Sn Substitution by Ge: Strategies to Overcome the Open-Circuit Voltage Deficit of Kesterite Solar Cells. ACS Applied Energy Materials, 2020, 3, 5830-5839.	2.5	32
30	A study of bulk NaxCu1â^'xIn5S8 and its impact on the Cu(In,Ga)Se2/In2S3 interface of solar cells. Solar Energy Materials and Solar Cells, 2006, 90, 1840-1848.	3.0	31
31	Atom probe study of Cu-poor to Cu-rich transition during Cu(In,Ga)Se2 growth. Applied Physics Letters, 2011, 99, .	1.5	30
32	Evaluation of different buffer materials for solar cells with wide-gap Cu₂ZnGeS_xSe_{4â^'x} absorbers. RSC Advances, 2017, 7, 40105-40110.	1.7	28
33	Effects of KF and RbF post deposition treatments on the growth of the CdS buffer layer on CIGS thin films - a comparative study. Solar Energy Materials and Solar Cells, 2019, 200, 109997.	3.0	26
34	MoS2 textured films grown on glass substrates through sodium sulfide based compounds. Journal Physics D: Applied Physics, 2002, 35, 1197-1204.	1.3	25
35	Influence of Na on grain boundary and properties of Cu(In,Ga)Se₂ solar cells. Progress in Photovoltaics: Research and Applications, 2017, 25, 367-375.	4.4	25
36	Dependence of ZnO:Al properties on the substrate to target position in RF sputtering. Thin Solid Films, 2008, 516, 7094-7097.	0.8	24

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37	Nondestructive depth-resolved spectroscopic investigation of the heavily intermixed In2S3/Cu(In,Ga)Se2 interface. Applied Physics Letters, 2010, 96, 184101.	1.5	24
38	The impact of atmospheric species on the degradation of CIGS solar cells. Solar Energy Materials and Solar Cells, 2015, 141, 49-56.	3.0	24
39	Red-blue effect in Cu(In,Ga)Se2-based devices revisited. Thin Solid Films, 2013, 535, 302-306.	0.8	23
40	Impact of Annealing-Induced Intermixing on the Electronic Level Alignment at the In₂S₃/Cu(In,Ga)Se₂ Thin-Film Solar Cell Interface. ACS Applied Materials & Interfaces, 2016, 8, 2120-2124.	4.0	23
41	Influence of the atmospheric species water, oxygen, nitrogen and carbon dioxide on the degradation of aluminum doped zinc oxide layers. Thin Solid Films, 2014, 565, 149-154.	0.8	21
42	Minimizing metastabilities in Cu(In,Ga)Se₂/(CBD)Zn(S,O,OH)/iâ€ZnOâ€based solar cells. Progress in Photovoltaics: Research and Applications, 2015, 23, 462-469.	4.4	21
43	Structural and photoluminescence characterization of vertically aligned multiwalled carbon nanotubes coated with ZnO by magnetron sputtering. Thin Solid Films, 2012, 520, 4816-4819.	0.8	20
44	Nanostructuration and band gap emission enhancement of ZnO film via electrochemical anodization. Thin Solid Films, 2014, 571, 168-174.	0.8	20
45	Influence of deposition pressure and selenisation on damp heat degradation of the Cu(In,Ga)Se2 back contact molybdenum. Surface and Coatings Technology, 2014, 252, 157-167.	2.2	20
46	Microstructural characterization of chemical bath deposited and sputtered Zn(O,S) buffer layers. Thin Solid Films, 2013, 535, 175-179.	0.8	19
47	Structural properties of In2Se3 precursor layers deposited by spray pyrolysis and physical vapor deposition for CuInSe2 thin-film solar cell applications. Thin Solid Films, 2015, 587, 112-116.	0.8	19
48	Stability of CIGS solar cells under illumination with damp heat and dry heat: A comparison. Solar Energy Materials and Solar Cells, 2017, 166, 262-268.	3.0	19
49	Chemical crystallographic investigation on Cu2S-In2S3-Ga2S3 ternary system. Thin Solid Films, 2018, 665, 46-50.	0.8	19
50	Wide band gap kesterite absorbers for thin film solar cells: potential and challenges for their deployment in tandem devices. Sustainable Energy and Fuels, 2019, 3, 2246-2259.	2.5	19
51	Evidence of the Ambipolar Behavior of Mo₆ Cluster Iodides in All-Inorganic Solar Cells: A New Example of Nanoarchitectonic Concept. ACS Applied Materials & Interfaces, 2022, 14, 1347-1354.	4.0	19
52	Optical properties of PZT thin films deposited on a ZnO buffer layer. Optical Materials, 2007, 29, 1871-1877.	1.7	18
53	Persistent Photoconductivity in Polycrystalline Cu(In,Ga)Se₂ Thin Films: Experiment Versus Theoretical Predictions. IEEE Journal of Photovoltaics, 2015, 5, 1206-1211.	1.5	18
54	Defects characterization in thin films photovoltaics materials by correlated high-frequency modulated and time resolved photoluminescence: An application to Cu(In,Ga)Se2. Thin Solid Films, 2019, 669, 520-524.	0.8	18

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55	The path towards efficient wide band gap thin-film kesterite solar cells with transparent back contact for viable tandem application. Solar Energy Materials and Solar Cells, 2021, 219, 110824.	3.0	17
56	The effect of damp heat-illumination exposure on CIGS solar cells: A combined XRD and electrical characterization study. Solar Energy Materials and Solar Cells, 2016, 157, 943-952.	3.0	16
57	High Efficiency Solar Cell Based on Full PVD Processed Cu(In,Ga)Se₂/CdIn₂S₄ Heterojunction. Solar Rrl, 2017, 1, 1700140.	3.1	16
58	Influence of sodium compounds at the Cu(In,Ga)Se2/(PVD)In2S3 interface on solar cell properties. Thin Solid Films, 2007, 515, 6076-6079.	0.8	15
59	Investigation of Cu(In,Ga)Se2/In2S3 diffuse interface by Raman scattering. Thin Solid Films, 2011, 519, 7553-7555.	0.8	14
60	Influence of Cu off-stoichiometry on wide band gap CIGSe solar cells. Thin Solid Films, 2011, 519, 7228-7231.	0.8	14
61	Photoluminescence as a tool for investigations of the junction region in Cu(In,Ga)Se2-based solar cells. Thin Solid Films, 2011, 519, 7328-7331.	0.8	14
62	Characteristics of Photoconductive MoS2 Films Grown on NaCl Substrates by a Sequential Process. Physica Status Solidi A, 2001, 187, 427-437.	1.7	13
63	Structural study and electronic band structure investigations of the solid solution NaxCu1â^'xIn5S8 and its impact on the Cu(In,Ga)Se2/In2S3 interface of solar cells. Thin Solid Films, 2007, 515, 6020-6023.	0.8	13
64	Systematic study of the complex structure of N1 Deep Level Transient Spectroscopy signal in Cu(In,Ga)Se2 based heterojunctions. Thin Solid Films, 2011, 519, 7485-7488.	0.8	13
65	Influence of Mo/MoSe2 microstructure on the damp heat stability of the Cu(In,Ga)Se2 back contact molybdenum. Thin Solid Films, 2016, 612, 381-392.	0.8	13
66	Influence of absorber copper concentration on the Cu(In,Ga)Se2/(PVD)In2S3 and Cu(In,Ga)Se2/(CBD)CdS based solar cells performance. Thin Solid Films, 2009, 517, 2407-2410.	0.8	12
67	Investigation of intergrain compounds in sputtered Mo films applied in CuIn1â^'xGaxSe2-based solar cell. Surface and Coatings Technology, 2012, 211, 29-32.	2.2	12
68	Degradation of CIGS solar cells due to the migration of alkali-elements. , 2015, , .		12
69	Impact of KF Post-Deposition Treatment on Aging of the Cu(In,Ga)Se₂ Surface and Its Interface with CdS. ACS Applied Energy Materials, 2018, 1, 2681-2688.	2.5	12
70	Propagation mechanism of reverse bias induced defects in Cu(In,Ga)Se2 solar cells. Solar Energy Materials and Solar Cells, 2020, 205, 110249.	3.0	12
71	Electronic Structure of the CdS/Cu(In,Ga)Se₂ Interface of KF- and RbF-Treated Samples by Kelvin Probe and Photoelectron Yield Spectroscopy. ACS Applied Materials & Interfaces, 2021, 13, 7745-7755.	4.0	12
72	Performance of CuIn1â^'xGaxSe2/(PVD)In2S3 solar cells versus gallium content. Thin Solid Films, 2007, 515, 6028-6031.	0.8	11

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73	Characterization of (In1â^'xAlx)2S3 thin films grown by co-evaporation. Journal of Crystal Growth, 2010, 312, 502-506.	0.7	11
74	Oxygen effect in radio frequency magnetron sputtered aluminium doped zinc oxide films. Thin Solid Films, 2014, 562, 70-74.	0.8	11
75	Influence of post-deposition selenium supply on Cu(In,Ga)Se 2 -based solar cell properties. Thin Solid Films, 2015, 582, 43-46.	0.8	11
76	Impact of DC-power during Mo back contact sputtering on the alkali distribution in Cu(In,Ga)Se 2 -based thin film solar cells. Thin Solid Films, 2015, 582, 304-307.	0.8	11
77	Î²-In2S3 for photovoltaic devices: investigation of the native point defects with ab initio first-principle calculations. Theoretical Chemistry Accounts, 2018, 137, 1.	0.5	11
78	Electrostatic potential fluctuations and lightâ€soaking effects in Cu(In,Ga)Se₂ solar cells. Progress in Photovoltaics: Research and Applications, 2020, 28, 919-934.	4.4	11
79	Enhancement of near-band edge photoluminescence of ZnO film buffered with TiN. Thin Solid Films, 2013, 538, 71-77.	0.8	10
80	Accelerated performance degradation of CIGS solar cell determined by in-situ monitoring. Proceedings of SPIE, 2014, , .	0.8	10
81	Positron Annihilation Studies on the Damp Heat Degradation of ZnO:Al Transparent Conductive Oxide Layers for CIGS Solar Cells. IEEE Journal of Photovoltaics, 2018, 8, 1847-1851.	1.5	10
82	Improved CuGaSe2 absorber properties through a modified co-evaporation process. Thin Solid Films, 2020, 709, 138224.	0.8	10
83	Comparative study of Cu(In,Ga)Se2/(PVD)In2S3 and Cu(In,Ga)Se2/(CBD)CdS heterojunction based solar cells by admittance spectroscopy, currentâ€"voltage and spectral response measurements. Thin Solid Films, 2009, 517, 2423-2426.	0.8	9
84	Influence of Ga content on defects in CuInxGa1â^'xSe2 based solar cell absorbers investigated by sub gap modulated photocurrent and admittance spectroscopy. Thin Solid Films, 2011, 519, 7312-7316.	0.8	9
85	Composition and structural study of solution-processed Zn(S,O,OH) thin films grown using H2O2 based deposition route. Thin Solid Films, 2013, 535, 171-174.	0.8	9
86	Crystal Chemistry, Opticalâ€"Electronic Properties, and Electronic Structure of Cd_{1â€"x}In_{2+2x/3}S₄ Compounds (0 â‰¤ x â‰¤ 1), Potential Buffer in CIGS-Based Thin-Film Solar Cells. Inorganic Chemistry, 2018, 57, 12624-12631.	1.9	9
87	Improvement of the properties of commercial SnO2 by Cd treatment. Thin Solid Films, 2003, 427, 386-390.	0.8	8
88	Electronic structure of<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mrow><mml:mtext>Na</mml:mtext></mml:mrow><mml:mi>x</mml:mi></mml:msub> Physical Review B, 2008, 78, .	1.1	8
89	Layered Quaternary Compounds in the Cu₂Sâ€"In₂S₃â€"Ga₂S₃ system. Inorganic Chemistry, 2020, 59, 4546-4553.	1.9	8
90	Effect of ammonium sulfide treatments on the surface properties of Cu2ZnSnSe4 thin films. Thin Solid Films, 2017, 633, 135-140.	0.8	7

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91	Material Property Changes in Defects Caused by Reverse Bias Exposure of CIGS Solar Cells. IEEE Journal of Photovoltaics, 2019, 9, 1868-1872.	1.5	7
92	Numerical modelling of the performance-limiting factors in CZGSe solar cells. Journal Physics D: Applied Physics, 2020, 53, 385102.	1.3	7
93	Compositionâ€Dependent Passivation Efficiency at the CdS/CuIn 1- x Ga x Se 2 Interface. Advanced Materials, 2020, 32, 1907763.	11.1	7
94	Evolution and role of vacancy clusters at grain boundaries of ZnO:Al during accelerated degradation of Cu(In,Ga)Se2 solar cells revealed by positron annihilation. Physical Review Materials, 2018, 2, .	0.9	7
95	Finding Relevant Parameters for the Thin-film Photovoltaic Cells Production Process with the Application of Data Mining Methods. Molecular Informatics, 2017, 36, 1600161.	1.4	6
96	Influence of Sulfur Evaporation during or after KF-Post Deposition Treatment On Cu(In,Ga)Se₂/CdS Interface Formation. ACS Applied Materials & Interfaces, 2020, 12, 46953-46962.	4.0	6
97	Investigation of <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:mi>CdI</mml:mi><mml:msub><mml:mi mathvariant="normal">n</mml:mi><mml:mn>2</mml:mn></mml:msub><mml:msub><mml:mi mathvariant="normal">S</mml:mi><mml:mn>4</mml:mn></mml:msub></mml:mrow></mml:math> : A possible substitute for CdS in <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:mi>Cu</mml:mi><mml:msub><mml:mi	0.9	6
98	Influence of indium/gallium gradients on the Cu(In,Ga)Se 2 devices deposited by the co-evaporation without recrystallisation. Thin Solid Films, 2015, 582, 47-50.	0.8	5
99	Detrimental copper-selenide bulk precipitation in CuIn1-xGaxSe2 thin-film solar cells. A possible reason for the limited performance at large x?. Thin Solid Films, 2020, 712, 138297.	0.8	5
100	Direct Synthesis of ZnO Nanowires on Nanopatterned Surface by Magnetron Sputtering. Chemical Vapor Deposition, 2011, 17, 337-341.	1.4	4
101	Study of the electronic properties of wide band gap CIGSe solar cells: Influence of copper off-stoichiometry. Journal of Non-Crystalline Solids, 2012, 358, 2428-2430.	1.5	4
102	In-situ monitoring of the accelerated performance degradation of thin film solar cells. , 2015, , .		4
103	In Situ Monitoring of the Accelerated Performance Degradation of Solar Cells and Modules: A Case Study for Cu(In,Ga)Se₂ Solar Cells. Journal of Visualized Experiments, 2018, , .	0.2	4
104	Carbon Dioxide Reduction to Methanol with a Molecular Cobaltâ€Catalystâ€Loaded Porous Carbon Electrode Assisted by a CIGS Photovoltaic Cell**. ChemPhotoChem, 2021, 5, 705-710.	1.5	4
105	Analysis and optimization of thin film photovoltaic materials and device fabrication by real time spectroscopic ellipsometry. Proceedings of SPIE, 2007, 6651, 89.	0.8	3
106	Characterization of Indium Sulfide Thin Films Containing Copper. Materials Research Society Symposia Proceedings, 2009, 1165, 1.	0.1	3
107	High excitation photoluminescence effects as a probing tool for the growth of Cu(In,Ga)Se2. , 2015, , .		3
108	Notice of Removal Co-evaporated KInSe2: A fast alternative to KF post deposition treatment in high efficiency Cu(In,Ga)Se2 thin film solar cells. , 2017, , .		3

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109	Epitaxial growth of CIGSe layers on GaP/Si(001) pseudo-substrate for tandem CIGSe/Si solar cells. Solar Energy Materials and Solar Cells, 2021, 233, 111385.	3.0	3
110	Surface Off-Stoichiometry of CuInS$_{2}$ Thin-Film Solar Cell Absorbers. IEEE Journal of Photovoltaics, 2013, 3, 828-832.	1.5	2
111	In-situ analysis of the degradation of Cu(In, Ga)Se<inf>2</inf> solar cells. , 2013, , .		2
112	Development of co-evaporated In2S3 buffer layer for Cu2ZnSnSe4 thin film solar cells. , 2015, , .		2
113	Damp heat related degradation mechanisms within CIGS solar cells. , 2016, , .		2
114	The influence of atmospheric species on the degradation of aluminum doped zinc oxide and Cu(In,Ga)Se₂solar cells. Proceedings of SPIE, 2014, , .	0.8	1
115	The exposure of CIGS solar cells to different electrical biases in a damp-heat illumination environment. , 2016, , .		1
116	Temperature Dependence of the Internal Quantum Efficiency of Cu(In,Ga)Se₂-Based Solar Cells. IEEE Journal of Photovoltaics, 2018, 8, 1868-1874.	1.5	1
117	Stability of unpackaged CIGS solar cells under illumination with damp heat, dry heat and dry cold followed by cycling. , 2017, , .		1
118	Modeling of photoluminescence of graded band-gap Cu(In, Ga)Se<inf>2</inf>-Based solar cells. , 2013, , .		0
119	Impact of maximum copper content during the 3-stage process on CdS thickness tolerance in Cu(In,Ga)Se2-based solar cell. Materials Research Society Symposia Proceedings, 2013, 1538, 33-38.	0.1	0
120	Impact of the Cu-poor to Cu-rich transition speed and Mo back contact porosity on the electrical and structural properties of CIGS-based solar cells. , 2013, , .		0
121	Surface off-stoichiometry of CuInS<inf>2</inf> thin-film solar cell absorbers. , 2013, , .		0
122	The impact of selenisation on damp heat degradation of the CIGS back contact molybdenum. , 2013, , .		0
123	Depth resolved preferential orientation of Cu(In,Ga)Se2 thin films based on the 112 peak model. , 2015, , .		0
124	Dependence of defect signature on conductivity of polycrystalline Cu(In,Ga)Se2 layers by photocurrent spectroscopy. , 2015, , .		0
125	The impact of atmospheric species on the degradation of CIGS solar cells and molybdenum films. , 2015, , .		0
126	Oxygen annealing and Zn/HCl etching effects on CZTS devices. , 2018, , .		0

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127	Innovative approaches in thin-film photovoltaic cells. , 2018, , 595-632.		0
128	17.2% efficiency CuIn1âˆ'xGaxSe2 thin-film based mini-module thanks to alternative architecture yielding 81% fill factor. EPJ Photovoltaics, 2019, 10, 4.	0.8	0