

Hiroki Sugimoto

List of Publications by Year in descending order

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67
papers

3,182
citations

279798

23
h-index

214800

47
g-index

67
all docs

67
docs citations

67
times ranked

2469
citing authors

#	ARTICLE	IF	CITATIONS
1	22% Efficient Cd-free Cu(In,Ga)(S,Se) ₂ solar cell by all-dry process using Zn _{0.8} Mg _{0.2} O and Zn _{0.9} Mg _{0.1} O:B as buffer and transparent conductive oxide layers. Progress in Photovoltaics: Research and Applications, 2020, 28, 79-89.	8.1	17
2	Perovskite/CIGS Spectral Splitting Double Junction Solar Cell with 28% Power Conversion Efficiency. IScience, 2020, 23, 101817.	4.1	26
3	Interfacial modification mechanism by aging effect for high-performance Cd-free and all-dry process Cu(In,Ga)(S,Se) ₂ solar cells. Applied Physics Letters, 2020, 117, .	3.3	8
4	Effect of Alkali Treatment on Photovoltaic Performances of Cu(In,Ga)(S,Se) ₂ Solar Cells and Their Absorber Quality Analyzed by Urbach Energy and Carrier Recombination Rates. ACS Applied Energy Materials, 2020, 3, 1292-1297.	5.1	12
5	Transparent Electrode and Buffer Layer Combination for Reducing Carrier Recombination and Optical Loss Realizing over a 22% Efficient Cd-Free Alkaline-Treated Cu(In,Ga)(S,Se) ₂ Solar Cell by the All-Dry Process. ACS Applied Materials & Interfaces, 2020, 12, 22298-22307.	8.0	17
6	Aging Effect of a Cu(In,Ga)(S,Se) ₂ Absorber on the Photovoltaic Performance of Its Cd-Free Solar Cell Fabricated by an All-Dry Process: Its Carrier Recombination Analysis. Advanced Energy Materials, 2019, 9, 1902869.	19.5	26
7	Cd-Free Cu(In,Ga)(S,Se) ₂ Thin-Film Solar Cell With Record Efficiency of 23.35%. IEEE Journal of Photovoltaics, 2019, 9, 1863-1867.	2.5	922
8	Characterization of Cd-Free Zn _{1-x} Mg _x O:Al/Zn _{1-x} Mg _x O/Cu(In,Ga)(S,Se) ₂ Solar Cells Fabricated by an All Dry Process Using Ultraviolet Light Excited Time-Resolved Photoluminescence. ACS Applied Materials & Interfaces, 2019, 11, 7539-7545.	8.0	18
9	Wavelength-dependent J-V characteristics of CuIn _{1-x} Ga _x (S,Se) ₂ solar cells and carrier recombination. Applied Physics Express, 2019, 12, 061001.	2.4	5
10	Characteristics of Zn _{1-x} Mg _x O:B and its application as transparent conductive oxide layer in Cu(In,Ga)(S,Se) ₂ solar cells with and without CdS buffer layer. Solar Energy, 2019, 184, 553-560.	6.1	24
11	Structures of Cu(In,Ga)(S,Se) ₂ solar cells for minimizing open-circuit voltage deficit: Investigation of carrier recombination rates. Progress in Photovoltaics: Research and Applications, 2019, 27, 630-639.	8.1	13
12	Record Efficiency for Thin-Film Polycrystalline Solar Cells Up to 22.9% Achieved by Cs-Treated Cu(In,Ga)(S,Se) ₂ . IEEE Journal of Photovoltaics, 2019, 9, 325-330.	2.5	265
13	Investigation of correlation between open-circuit voltage deficit and carrier recombination rates in Cu(In,Ga)(S,Se) ₂ -based thin-film solar cells. Applied Physics Letters, 2018, 112, 151601.	3.3	32
14	20% Efficient Zn _{0.9} Mg _{0.1} O:Al/Zn _{0.8} Mg _{0.2} O/Cu(In,Ga)(S,Se) ₂ Solar Cell Prepared by All-Dry Process through a Combination of Heat-Light-Soaking and Light-Soaking Processes. ACS Applied Materials & Interfaces, 2018, 10, 11361-11368.	8.0	38
15	Heterointerface recombination of Cu(In,Ga)(S,Se) ₂ -based solar cells with different buffer layers. Progress in Photovoltaics: Research and Applications, 2018, 26, 127-134.	8.1	31
16	Influence of potassium treatment on electronic properties of Cu(In _{1-x} Ga _x) ₂ Te. Japanese Journal of Applied Physics, 2018, 57, 08RC13.	1.5	6
17	Enhancement of photovoltaic performances of Cu(In,Ga)(S,Se) ₂ solar cell through combination of heat-light soaking and light soaking processes. Progress in Photovoltaics: Research and Applications, 2018, 26, 868-876.	8.1	26
18	Time-resolved photoluminescence of Cu(In,Ga)(S,Se) ₂ thin films and temperature dependent current density-voltage characteristics of their solar cells on surface treatment effect. Current Applied Physics, 2017, 17, 461-466.	2.4	14

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19	Thin-film Cu(In,Ga)(Se,S) ₂ -based solar cell with (Cd,Zn)S buffer layer and Zn _{1-x} Mg _x O window layer. Progress in Photovoltaics: Research and Applications, 2017, 25, 431-440.	8.1	41
20	Aluminum-doped Zn _{1-x} Mg _x O as transparent conductive oxide of Cu(In,Ga)(S,Se) ₂ -based solar cell for minimizing surface carrier recombination. Progress in Photovoltaics: Research and Applications, 2017, 25, 996-1004.	8.1	39
21	Enhanced Efficiency of Cd-Free Cu(In,Ga)(Se,S) ₂ Minimodule Via (Zn,Mg)O Second Buffer Layer and Alkali Metal Post-Treatment. IEEE Journal of Photovoltaics, 2017, 7, 1773-1780.	2.5	98
22	From 20.9 to 22.3% Cu(In,Ga)(S,Se) ₂ solar cell: Reduced recombination rate at the heterojunction and the depletion region due to K-treatment. Japanese Journal of Applied Physics, 2017, 56, 08MC03.	1.5	71
23	Notice of Removal Progress toward 1000mV open-circuit voltage on chalcopyrite solar cell. , 2017, , .		0
24	Electronic structure of Cu ₂ ZnSn(S _x Se _{1-x}) ₄ surface and CdS/Cu ₂ ZnSn(S _x Se _{1-x}) ₄ interface. Physica Status Solidi C: Current Topics in Solid State Physics, 2017, 14, .	0.8	9
25	A comparative study of Cd and Zn compound buffer layers on Cu(In _x Ga _{1-x})(S _y Se _{1-y}) ₂ thin film solar cells. Progress in Photovoltaics: Research and Applications, 2016, 24, 389-396.	8.1	42
26	A comparative study on charge carrier recombination across the junction region of Cu ₂ ZnSn(S,Se) ₄ and Cu(In,Ga)Se ₂ thin film solar cells. AIP Advances, 2016, 6, .	1.3	10
27	New World-Record Efficiency for Pure-Sulfide Cu(In,Ga)S ₂ Thin-Film Solar Cell With Cd-Free Buffer Layer via KCN-Free Process. IEEE Journal of Photovoltaics, 2016, 6, 760-763.	2.5	90
28	Progress Toward 1000-mV Open-Circuit Voltage on Chalcopyrite Solar Cells. IEEE Journal of Photovoltaics, 2016, 6, 1630-1634.	2.5	20
29	New world record Cu(In, Ga)(Se, S) ₂ thin film solar cell efficiency beyond 22%. , 2016, , .		132
30	960-mV Open-Circuit Voltage Chalcopyrite Solar Cell. IEEE Journal of Photovoltaics, 2016, 6, 309-312.	2.5	18
31	Evaluation of τ_{eff} in Cu(In,Ga)(Se,S) ₂ thin film solar cells using Suns-V _{oc} measurements. , 2015, , .		0
32	960mV open circuit voltage chalcopyrite solar cell. , 2015, , .		2
33	Improvement of Cu ₂ ZnSn(S,Se) ₄ solar cell efficiency by surface treatment. Physica Status Solidi C: Current Topics in Solid State Physics, 2015, 12, 704-707.	0.8	15
34	Annealing effect on Cu ₂ ZnSn(S,Se) ₄ solar cell with Zn _{1-x} Mg _x O buffer layer. Physica Status Solidi (A) Applications and Materials Science, 2015, 212, 2766-2771.	1.8	12
35	Current status at solar frontier: From fundamental research to industrial mass production of Cd-free Cu(In,Ga)(Se,S) ₂ solar cell. , 2015, , .		4
36	Study of time-resolved photoluminescence in Cu ₂ ZnSn(S,Se) ₄ thin films with different Cu/Sn ratio. Japanese Journal of Applied Physics, 2015, 54, 08KC15.	1.5	4

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37	Photocarrier recombination dynamics in $\text{Cu}_2\text{ZnSn}(\text{S},\text{Se})_4$ and $\text{Cu}(\text{In},\text{Ga})\text{Se}_2$ studied by temperature-dependent time resolved Photoluminescence (TR-PL). , 2015, , .		0
38	Impact of buffer layer on kesterite solar cells. , 2015, , .		6
39	Application of multi-buffer layer of $(\text{Zn},\text{Mg})\text{O}/\text{CdS}$ in $\text{Cu}_2\text{ZnSn}(\text{S},\text{Se})_4$ solar cells. Current Applied Physics, 2015, 15, 383-388.	2.4	18
40	Effect of ammonia etching on structural and electrical properties of $\text{Cu}_2\text{ZnSn}(\text{S},\text{Se})_4$ absorbers. Applied Surface Science, 2015, 353, 209-213.	6.1	1
41	Evaluation of sputtering damage in $\text{Cu}_{2-x}\text{ZnSn}(\text{S},\text{Se})_4$ solar cells with CdS and $(\text{Cd},\text{Zn})\text{S}$ buffer layers by photoluminescence measurement. Japanese Journal of Applied Physics, 2015, 54, 042302.	1.5	7
42	Determination of deep-level defects in $\text{Cu}_2\text{ZnSn}(\text{S},\text{Se})_4$ thin-films using photocapacitance method. Applied Physics Letters, 2015, 106, .	3.3	20
43	Study of $\text{Cu}_2\text{ZnSn}(\text{S},\text{Se})_4$ Thin Films for Solar Cell Application. Journal of Physics: Conference Series, 2015, 596, 012019.	0.4	2
44	Impacts of surface sulfurization on $\text{Cu}(\text{In}_{1-x}\text{Ga}_x)\text{Se}_2$ thin-film solar cells. Progress in Photovoltaics: Research and Applications, 2015, 23, 1367-1374.	8.1	53
45	Impact of annealing treatment before buffer layer deposition on $\text{Cu}_2\text{ZnSn}(\text{S},\text{Se})_4$ solar cells. Thin Solid Films, 2015, 582, 151-153.	1.8	33
46	Characterization of electronic structure of $\text{Cu}_2\text{ZnSn}(\text{S},\text{Se})_4$ absorber layer and $\text{CdS}/\text{Cu}_2\text{ZnSn}(\text{S},\text{Se})_4$ heterostructure. Applied Physics Letters, 2015, 106, 166-170.	1.8	31
47	Sputtered $(\text{Zn},\text{Mg})\text{O}$ buffer layer for band offset control in $\text{Cu}_{2-x}\text{ZnSn}(\text{S},\text{Se})_4$ solar cells. Japanese Journal of Applied Physics, 2014, 53, 106502.	1.5	24
48	High efficiency and large volume production of CIS-based modules. , 2014, , .		41
49	Study of recombination process in $\text{Cu}_{2-x}\text{ZnSn}(\text{S},\text{Se})_4$ thin film using two-wavelength excited photoluminescence. , 2014, , .		2
50	Recent R&D progress in solar frontier's small-sized $\text{Cu}(\text{InGa})(\text{SeS})_2$ solar cells. , 2014, , .		34
51	Defect study of $\text{Cu}_{2-x}\text{ZnSn}(\text{S},\text{Se})_4$ thin film with different Cu/Sn ratio by admittance spectroscopy. , 2014, , .		1
52	High-Efficiency Devices With Pure Solution-Processed $\text{Cu}_{2-x}\text{ZnSn}(\text{S},\text{Se})_4$ Absorbers. IEEE Journal of Photovoltaics, 2014, 4, 483-485.	2.5	29
53	Over 12% efficiency $\text{Cu}_{2-x}\text{ZnSn}(\text{SeS})_4$ solar cell via hybrid buffer layer. , 2014, , .		8
54	Efficiency improvement of $\text{Cu}_{2-x}\text{ZnSn}(\text{S},\text{Se})_4$ submodule with graded bandgap and reduced backside ZnS segregation. , 2014, , .		14

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55	High Efficiency Cu ₂ ZnSn(S,Se) ₄ Solar Cells by Applying a Double In ₂ S ₃ /CdS Emitter. <i>Advanced Materials</i> , 2014, 26, 7427-7431.	21.0	400
56	CdS and Cd-Free Buffer Layers on Solution Phase Grown Cu ₂ ZnSn(S _x Se _{1-x}) ₄ : Band Alignments and Electronic Structure Determined with Femtosecond Ultraviolet Photoelectron Spectroscopy. <i>Materials Research Society Symposia Proceedings</i> , 2014, 1638, 1.	0.1	3
57	High voltage Cu ₂ ZnSnS ₄ submodules by hybrid buffer layer. , 2013, , .		38
58	Lifetime improvement for high efficiency Cu ₂ ZnSnS ₄ submodules. , 2013, , .		24
59	Cd-free buffer layer materials on Cu ₂ ZnSn(S _x Se _{1-x}) ₄ : Band alignments with ZnO, ZnS, and In ₂ S ₃ . <i>Applied Physics Letters</i> , 2012, 100, .	3.3	178
60	Development of high efficiency Cu ₂ ZnSnS ₄ submodule with Cd-free buffer layer. , 2012, , .		8
61	Over 8% efficiency Cu ₂ ZnSnS ₄ submodules with ultra-thin absorber. , 2012, , .		10
62	Development of Cd-free buffer layer for Cu ₂ ZnSnS ₄ thin-film solar cells. , 2011, , .		12
63	Cd-free 5×5cm ² -sized Cu ₂ ZnSnS ₄ submodules. , 2011, , .		2
64	Defect Analysis in Solar Cell Silicon by Photoluminescence Spectroscopy and Topography. <i>ECS Transactions</i> , 2009, 25, 3-10.	0.5	5
65	Photoluminescence Imaging of Multicrystalline Si Wafers during HF Etching. <i>Japanese Journal of Applied Physics</i> , 2007, 46, L339-L341.	1.5	28
66	Analysis of Intra-Grain Defects in Multicrystalline Silicon Wafers by Photoluminescence Mapping and Spectroscopy. <i>Japanese Journal of Applied Physics</i> , 2006, 45, L641-L643.	1.5	43
67	Change of the Characterization Techniques as Progress of CuInSe ₂ -Based Thin-Film PV Technology. <i>Materials Science Forum</i> , 0, 725, 165-170.	0.3	0