Kaiwen Sun

List of Publications by Year
in descending order

89 papers	4,781 citations	101535 36 h-index	98792 67 g-index
90 all docs	90 docs citations	90 times ranked	3541 citing authors

#	Article	IF	Citations
1	Cu2ZnSnS4 solar cells with over 10% power conversion efficiency enabled by heterojunction heat treatment. Nature Energy, 2018, 3, 764-772.	39.5	623
2	Over 9% Efficient Kesterite Cu₂ZnSnS₄ Solar Cell Fabricated by Using Zn_{1â€“}<i>_x</i>Cd<i>_x</i>S Buffer Layer. Advanced Energy Materials, 2016, 6, 1600046.	19.5	322
3	Fabrication of Cu₂ZnSnS₄solar cells with 5.1% efficiency via thermal decomposition and reaction using a non-toxic solâ€“gel route. Journal of Materials Chemistry A, 2014, 2, 500-509.	10.3	249
4	Beyond 11% Efficient Sulfide Kesterite Cu₂Zn_{<i>x</i>}Cd_{1â€“<i>x</i>}SnS₄Solar Cell: Effects of Cadmium Alloying. ACS Energy Letters, 2017, 2, 930-936.	17.4	249
5	Exploring Inorganic Binary Alkaline Halide to Passivate Defects in Lowâ€Temperatureâ€Processed Planarâ€Structure Hybrid Perovskite Solar Cells. Advanced Energy Materials, 2018, 8, 1800138.	19.5	186
6	Fabrication of ternary Cuâ€“Snâ€“S sulfides by a modified successive ionic layer adsorption and reaction (SILAR) method. Journal of Materials Chemistry, 2012, 22, 16346.	6.7	141
7	Quasiepitaxy Strategy for Efficient Fullâ€Inorganic Sb₂S₃ Solar Cells. Advanced Functional Materials, 2019, 29, 1901720.	14.9	136
8	Defect Control for 12.5% Efficiency Cu₂ZnSnSe₄ Kesterite Thinâ€Film Solar Cells by Engineering of Local Chemical Environment. Advanced Materials, 2020, 32, e2005268.	21.0	133
9	Enhancing the Cu2ZnSnS4 solar cell efficiency by back contact modification: Inserting a thin TiB2 intermediate layer at Cu2ZnSnS4/Mo interface. Applied Physics Letters, 2014, 104, .	3.3	131
10	Beyond 8% ultrathin kesterite Cu2ZnSnS4 solar cells by interface reaction route controlling and self-organized nanopattern at the back contact. NPG Asia Materials, 2017, 9, e401-e401.	7.9	118
11	Nanoscale Microstructure and Chemistry of Cu₂ZnSnS₄/CdS Interface in Kesterite Cu₂ZnSnS₄ Solar Cells. Advanced Energy Materials, 2016, 6, 1600706.	19.5	113
12	Cd-Free Cu₂ZnSnS₄solar cell with an efficiency greater than 10% enabled by Al₂O₃passivation layers. Energy and Environmental Science, 2019, 12, 2751-2764.	30.8	112
13	Boosting the efficiency of pure sulfide CZTS solar cells using the In/Cd-based hybrid buffers. Solar Energy Materials and Solar Cells, 2016, 144, 700-706.	6.2	101
14	Ultra-thin Cu2ZnSnS4 solar cell by pulsed laser deposition. Solar Energy Materials and Solar Cells, 2017, 166, 91-99.	6.2	83
15	Improvement of <i>J</i>_{sc} in a Cu₂ZnSnS₄ Solar Cell by Using a Thin Carbon Intermediate Layer at the Cu₂ZnSnS₄/Mo Interface. ACS Applied Materials & Interfaces, 2015, 7, 22868-22873.	8.0	78
16	An alternative route towards low-cost Cu2ZnSnS4 thin film solar cells. Surface and Coatings Technology, 2013, 232, 53-59.	4.8	74
17	The Role of Hydrogen from ALDâ€Al₂O₃ in Kesterite Cu₂ZnSnS₄ Solar Cells: Grain Surface Passivation. Advanced Energy Materials, 2018, 8, 1701940.	19.5	68
18	Enhanced Heterojunction Interface Quality To Achieve 9.3% Efficient Cd-Free Cu₂ZnSnS₄ Solar Cells Using Atomic Layer Deposition ZnSnO Buffer Layer. Chemistry of Materials, 2018, 30, 7860-7871.	6.7	66

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19	Ionic liquid modified SnO₂ nanocrystals as a robust electron transporting layer for efficient planar perovskite solar cells. Journal of Materials Chemistry A, 2018, 6, 22086-22095.	10.3	66
20	Boost Voc of pure sulfide kesterite solar cell via a double CZTS layer stacks. Solar Energy Materials and Solar Cells, 2017, 160, 7-11.	6.2	65
21	Fabrication of Sb2S3 thin films by sputtering and post-annealing for solar cells. Ceramics International, 2019, 45, 3044-3051.	4.8	64
22	Preparation of Cu2ZnSnS4 thin films by sulfurizing stacked precursor thin films via successive ionic layer adsorption and reaction method. Applied Surface Science, 2012, 258, 7678-7682.	6.1	63
23	Kesterite Cu₂ZnSnS₄thin film solar cells by a facile DMF-based solution coating process. Journal of Materials Chemistry C, 2015, 3, 10783-10792.	5.5	61
24	Facile fabrication of highly efficient ETL-free perovskite solar cells with 20% efficiency by defect passivation and interface engineering. Chemical Communications, 2019, 55, 2777-2780.	4.1	61
25	Highly efficient copper-rich chalcopyrite solar cells from DMF molecular solution. Nano Energy, 2020, 69, 104438.	16.0	57
26	Modification of absorber quality and Mo-back contact by a thin Bi intermediate layer for kesterite Cu2ZnSnS4 solar cells. Solar Energy Materials and Solar Cells, 2016, 144, 537-543.	6.2	54
27	Solution-Processed Trigonal Cu₂BaSnS₄ Thin-Film Solar Cells. ACS Applied Energy Materials, 2018, 1, 3420-3427.	5.1	54
28	Efficiency Enhancement of Kesterite Cu₂ZnSnS₄ Solar Cells via Solution-Processed Ultrathin Tin Oxide Intermediate Layer at Absorber/Buffer Interface. ACS Applied Energy Materials, 2018, 1, 154-160.	5.1	53
29	Fabrication of Cu₂ZnSnS₄nanowires and nanotubes based on AAO templates. CrystEngComm, 2012, 14, 782-785.	2.6	50
30	Quasi-Vertically-Orientated Antimony Sulfide Inorganic Thin-Film Solar Cells Achieved by Vapor Transport Deposition. ACS Applied Materials & Interfaces, 2020, 12, 22825-22834.	8.0	50
31	Flexible kesterite Cu2ZnSnS4 solar cells with sodium-doped molybdenum back contacts on stainless steel substrates. Solar Energy Materials and Solar Cells, 2018, 182, 14-20.	6.2	49
32	Influence of sodium incorporation on kesterite Cu2ZnSnS4 solar cells fabricated on stainless steel substrates. Solar Energy Materials and Solar Cells, 2016, 157, 565-571.	6.2	48
33	Beyond 10% efficiency Cu₂ZnSnS₄ solar cells enabled by modifying the heterojunction interface chemistry. Journal of Materials Chemistry A, 2019, 7, 27289-27296.	10.3	46
34	Dimensional optimization enables high-performance capacitive deionization. Journal of Materials Chemistry A, 2022, 10, 6414-6441.	10.3	43
35	Elementâ€Doped Mxenes: Mechanism, Synthesis, and Applications. Small, 2022, 18, e2201740.	10.0	43
36	Accelerating Electronâ€Transfer and Tuning Product Selectivity Through Surficial Vacancy Engineering on CZTS/CdS for Photoelectrochemical CO₂ Reduction. Small, 2021, 17, e2100496.	10.0	40

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37	Flexible Cu₂ZnSnS₄ solar cells based on successive ionic layer adsorption and reaction method. RSC Advances, 2014, 4, 17703-17708.	3.6	39
38	Self-assembled Nanometer-Scale ZnS Structure at the CZTS/ZnCdS Heterointerface for High-Efficiency Wide Band Gap Cu₂ZnSnS₄ Solar Cells. Chemistry of Materials, 2018, 30, 4008-4016.	6.7	37
39	The effect of thermal evaporated MoO3 intermediate layer as primary back contact for kesterite Cu2ZnSnS4 solar cells. Thin Solid Films, 2018, 648, 39-45.	1.8	34
40	Exploring the application of metastable wurtzite nanocrystals in pure-sulfide Cu₂ZnSnS₄ solar cells by forming nearly micron-sized large grains. Journal of Materials Chemistry A, 2015, 3, 23185-23193.	10.3	32
41	Understanding the Key Factors of Enhancing Phase and Compositional Controllability for 6% Efficient Pure-Sulfide Cu₂ZnSnS₄ Solar Cells Prepared from Quaternary Wurtzite Nanocrystals. Chemistry of Materials, 2016, 28, 3649-3658.	6.7	32
42	Systematic Efficiency Improvement for Cu₂ZnSn(S,Se)₄ Solar Cells By Double Cation Incorporation with Cd and Ge. Advanced Functional Materials, 2021, 31, 2104528.	14.9	32
43	Minority lifetime and efficiency improvement for CZTS solar cells via Cd ion soaking and post treatment. Journal of Alloys and Compounds, 2018, 750, 328-332.	5.5	31
44	Interface engineering of p-n heterojunction for kesterite photovoltaics: A progress review. Journal of Energy Chemistry, 2021, 60, 1-8.	12.9	31
45	Interface Recombination of Cu₂ZnSnS₄ Solar Cells Leveraged by High Carrier Density and Interface Defects. Solar Rrl, 2021, 5, 2100418.	5.8	30
46	Boosting the kesterite Cu2ZnSnS4 solar cells performance by diode laser annealing. Solar Energy Materials and Solar Cells, 2018, 175, 71-76.	6.2	27
47	Fabrication of pyrite FeS2 thin films by sulfurizing oxide precursor films deposited via successive ionic layer adsorption and reaction method. Thin Solid Films, 2013, 542, 123-128.	1.8	26
48	High openâ€circuit voltage CuSbS₂ solar cells achieved through the formation of epitaxial growth of CdS/CuSbS₂ heteroâ€interface by postâ€annealing treatment. Progress in Photovoltaics: Research and Applications, 2019, 27, 37-43.	8.1	26
49	Analysis of manufacturing cost and market niches for Cu₂ZnSnS₄ (CZTS) solar cells. Sustainable Energy and Fuels, 2021, 5, 1044-1058.	4.9	26
50	Sentaurus modelling of 6.9% Cu2ZnSnS4 device based on comprehensive electrical & optical characterization. Solar Energy Materials and Solar Cells, 2017, 160, 372-381.	6.2	25
51	Ternary blend organic solar cells with a non-fullerene acceptor as a third component to synergistically improve the efficiency. Organic Electronics, 2018, 62, 261-268.	2.6	25
52	Largeâ€Grain Spanning Monolayer Cu₂ZnSnSe₄Thinâ€Film Solar Cells Grown from Metal Precursor. Small, 2022, 18, e2105044.	10.0	25
53	Thermal-evaporated selenium as a hole-transporting material for planar perovskite solar cells. Solar Energy Materials and Solar Cells, 2018, 185, 130-135.	6.2	22
54	Defectâ€Resolved Effective Majority Carrier Mobility in Highly Anisotropic Antimony Chalcogenide Thinâ€Film Solar Cells. Solar Rrl, 2021, 5, 2000693.	5.8	22

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55	Improvement of Csâ€(FAPbI₃)_{0.85}(MAPbBr₃)_{0.15} Quality Via DMSOâ€Moleculeâ€Control to Increase the Efficiency and Boost the Longâ€Term Stability of 1â€‰cm² Sized Planar Perovskite Solar Cells. Solar Rrl, 2019, 3, 1800338.	5.8	21
56	Atomic surface modification strategy of<scp>MXene</scp>materials for<scp>highâ€performance</scp>metal sulfur batteries. International Journal of Energy Research, 2022, 46, 11659-11675.	4.5	21
57	Back contact-absorber interface modification by inserting carbon intermediate layer and conversion efficiency improvement in Cu₂ZnSn(S,Se)₄solar cell. Physica Status Solidi - Rapid Research Letters, 2015, 9, 687-691.	2.4	20
58	Light-Bias-Dependent External Quantum Efficiency of Kesterite Cu2ZnSnS4 Solar Cells. ACS Photonics, 2017, 4, 1684-1690.	6.6	20
59	Famatinite Cu₃SbS₄ nanocrystals as hole transporting material for efficient perovskite solar cells. Journal of Materials Chemistry C, 2018, 6, 7989-7993.	5.5	20
60	9.6%-Efficient all-inorganic Sb₂(S,Se)₃ solar cells with a MnS hole-transporting layer. Journal of Materials Chemistry A, 2022, 10, 2835-2841.	10.3	19
61	Engineering a Kesteriteâ€Based Photocathode for Photoelectrochemical Ammonia Synthesis from NO<i>_x</i> Reduction. Advanced Materials, 2022, 34, .	21.0	17
62	Integrated Photovoltaic Charging and Energy Storage Systems: Mechanism, Optimization, and Future. Small, 2022, 18, .	10.0	16
63	Dual-functional iodine photoelectrode enabling high performance photo-assisted rechargeable lithium iodine batteries. Journal of Materials Chemistry A, 2022, 10, 7326-7332.	10.3	15
64	Integrating a redox-coupled FeSe₂/Nâ€“C photoelectrode into potassium ion hybrid capacitors for photoassisted charging. Journal of Materials Chemistry A, 2022, 10, 11504-11513.	10.3	15
65	Hybrid Ag Nanowireâ€“ITO as Transparent Conductive Electrode for Pure Sulfide Kesterite Cu₂ZnSnS₄ Solar Cells. Journal of Physical Chemistry C, 2017, 121, 20597-20604.	3.1	14
66	Sol-gel solution-processed Cu2SrSnS4 thin films for solar energy harvesting. Thin Solid Films, 2020, 697, 137828.	1.8	14
67	In situ growth of CuSbS2 thin films by reactive co-sputtering for solar cells. Materials Science in Semiconductor Processing, 2018, 84, 101-106.	4.0	13
68	Nanoscale interface engineering of inorganic Solid-State electrolytes for High-Performance alkali metal batteries. Journal of Colloid and Interface Science, 2022, 621, 41-66.	9.4	12
69	Lowâ€Cost Fabrication of Sb₂S₃ Solar Cells: Direct Evaporation from Raw Stibnite Ore. Solar Rrl, 2022, 6, .	5.8	11
70	Recent advance on machine learning of <scp>MXenes</scp> for energy storage and conversion. International Journal of Energy Research, 2022, 46, 21511-21522.	4.5	10
71	11.6% Efficient Pure Sulfide Cu(In,Ga)S₂ Solar Cell through a Cu-Deficient and KCN-Free Process. ACS Applied Energy Materials, 2020, 3, 11974-11980.	5.1	8
72	Enhancing the performance of Cu2ZnSnS4 solar cell fabricated via successive ionic layer adsorption and reaction method by optimizing the annealing process. Solar Energy, 2021, 220, 204-210.	6.1	7

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73	Defect Engineering for Efficient Cu ₂ ZnSnS ₄ Solar Cells via Moistureâ€Assisted Postâ€Deposition Annealing. Advanced Optical Materials, 0, , 2200607.	7.3	7
74	Epitaxial growth of Cu2ZnSnS4 thin film on Si by radio frequency magnetron sputtering. Applied Physics Letters, 2020, 116, 123901.	3.3	6
75	Fabrication of flexible Cu2ZnSnS4 (CZTS) solar cells by sulfurizing precursor films deposited via successive ionic layer absorption and reaction method. Wuli Xuebao/Acta Physica Sinica, 2014, 63, 018801.	0.5	6
76	Large Voc improvement and 9.2% efficient pure sulfide Cu<inf>2</inf>ZnSnS<inf>4</inf> solar cells by heterojunction interface engineering. , 2016, , .		3
77	Understanding the effect of Cadmium alloying in high-efficiency sulphide kesterite Cu2ZnxCd1-xSnS4 solar cell by PDS and HRSTEM. , 2018, , .		3
78	Efficiency Improvement of High Band Gap Cu2ZnSnS4 Solar Cell Achieved by Silver Incorporation. , 2018, , .		3
79	Photoluminescence-Based Method for Imaging Buffer Layer Thickness in CIGS Solar Cells. IEEE Journal of Photovoltaics, 2020, 10, 181-187.	2.5	2
80	Revealing Nanoscale Domains in Cu₂ZnSnS₄ Thin Films by Catalyzed Chemical Etching. Physica Status Solidi - Rapid Research Letters, 2020, 14, 2000283.	2.4	2
81	11.39% efficiency Cu₂ZnSn(S,Se)₄ solar cells from scrap brass. SusMat, 2022, 2, 206-211.	14.9	2
82	Defect Control for 12.5% Efficiency Cu ₂ZnSnSe ₄ Kesterite Thin-Film Solar Cells by Engineering of Local Chemical Environment. SSRN Electronic Journal, 0, , .	0.4	1
83	Cu2ZnSnS4 solar cells prepared with sulphurized sol-gel precursor thin films. , 2013, , .		0
84	Towards 10% State-of-the-Art Pure Sulfide Cu2ZnSnS4 Solar Cell by modifying the Interface Chemistry. , 2017, , .		0
85	ALD ZnSnO buffer layer for enhancing heterojunction interface quality of CZTS solar cells. , 2018, , .		0
86	Boosting the efficiency of kesterite Cu2ZnSnS4 solar cells by optimizing the heterojunction interface quality. , 2018, , .		0
87	Solution-processed ultrathin SnO2 passivation of Absorber/Buffer Heterointerface and Grain Boundaries for High Efficiency Kesterite Cu2ZnSnS4 Solar Cells. , 2019, , .		0
88	High-efficient Cd-free CZTS solar cells achieved by nanoscale atomic layer deposited aluminium oxide. , 2019, , .		0
89	Kesterite Cu₂ZnSnS_{4-x}Se_x Thin Film Solar Cells. , 0, , .		0