Hugh W Hillhouse

List of Publications by Year
in descending order

58 papers	7,572 citations	126708 33 h-index	197535 49 g-index
60 all docs	60 docs citations	60 times ranked	8140 citing authors

#	Article	IF	Citations
1	Fabrication of 7.2% Efficient CZTSSe Solar Cells Using CZTS Nanocrystals. Journal of the American Chemical Society, 2010, 132, 17384-17386.	6.6	903
2	Synthesis of Cu₂ZnSnS₄ Nanocrystal Ink and Its Use for Solar Cells. Journal of the American Chemical Society, 2009, 131, 11672-11673.	6.6	723
3	Dependence of Carrier Mobility on Nanocrystal Size and Ligand Length in PbSe Nanocrystal Solids. Nano Letters, 2010, 10, 1960-1969.	4.5	645
4	Development of CuInSe₂ Nanocrystal and Nanoring Inks for Low-Cost Solar Cells. Nano Letters, 2008, 8, 2982-2987.	4.5	545
5	Hybrid perovskite films approaching the radiative limit with over 90% photoluminescence quantum efficiency. Nature Photonics, 2018, 12, 355-361.	15.6	408
6	Sulfide Nanocrystal Inks for Dense Cu(In_{1âˆ’<i>x</i>}Ga_x)(S_{1âˆ’<i>y</i>}Se_{<i>y</i>})₂ Absorber Films and Their Photovoltaic Performance. Nano Letters, 2009, 9, 3060-3065.	4.5	378
7	Earthâ€Abundant Element Photovoltaics Directly from Soluble Precursors with High Yield Using a Nonâ€Toxic Solvent. Advanced Energy Materials, 2011, 1, 732-735.	10.2	317
8	Earth Abundant Element Cu₂Zn(Sn_{1âˆ’<i>x</i>}Ge_{<i>x</i>})S₄ Nanocrystals for Tunable Band Gap Solar Cells: 6.8% Efficient Device Fabrication. Chemistry of Materials, 2011, 23, 2626-2629.	3.2	316
9	Solar cells from colloidal nanocrystals: Fundamentals, materials, devices, and economics. Current Opinion in Colloid and Interface Science, 2009, 14, 245-259.	3.4	313
10	Highly Efficient Perovskiteâ€"Perovskite Tandem Solar Cells Reaching 80% of the Theoretical Limit in Photovoltage. Advanced Materials, 2017, 29, 1702140.	11.1	278
11	Ink formulation and lowâ€temperature incorporation of sodium to yield 12% efficient Cu(In,Ga)(S,Se)₂ solar cells from sulfide nanocrystal inks. Progress in Photovoltaics: Research and Applications, 2013, 21, 64-71.	4.4	206
12	Stabilized Wide Bandgap Perovskite Solar Cells by Tin Substitution. Nano Letters, 2016, 16, 7739-7747.	4.5	193
13	8% Efficient Cu₂ZnSn(S,Se)₄ Solar Cells from Redox Equilibrated Simple Precursors in DMSO. Advanced Energy Materials, 2014, 4, 1301823.	10.2	189
14	Enhancing the performance of CZTSSe solar cells with Ge alloying. Solar Energy Materials and Solar Cells, 2012, 105, 132-136.	3.0	188
15	Lithium-doping inverts the nanoscale electric field at the grain boundaries in Cu₂ZnSn(S,Se)₄ and increases photovoltaic efficiency. Physical Chemistry Chemical Physics, 2015, 17, 23859-23866.	1.3	185
16	Current-Induced Phase Segregation in Mixed Halide Hybrid Perovskites and its Impact on Two-Terminal Tandem Solar Cell Design. ACS Energy Letters, 2017, 2, 1841-1847.	8.8	161
17	Quasi-Fermi level splitting and sub-bandgap absorptivity from semiconductor photoluminescence. Journal of Applied Physics, 2014, 116, .	1.1	135
18	Fabrication of continuous mesoporous carbon films with face-centered orthorhombic symmetry through a soft templating pathway. Journal of Materials Chemistry, 2007, 17, 3639.	6.7	124

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19	Nanofabrication of Double-Gyroid Thin Films. Chemistry of Materials, 2007, 19, 768-777.	3.2	120
20	Enhancing Defect Tolerance and Phase Stability of High-Bandgap Perovskites via Guanidinium Alloying. ACS Energy Letters, 2018, 3, 1261-1268.	8.8	105
21	Dilution effect for highly efficient multiple-component organic solar cells. Nature Nanotechnology, 2022, 17, 53-60.	15.6	99
22	Overcoming the Photovoltage Plateau in Large Bandgap Perovskite Photovoltaics. Nano Letters, 2018, 18, 3985-3993.	4.5	97
23	Sn4+ precursor enables 12.4% efficient kesterite solar cell from DMSO solution with open circuit voltage deficit below 0.30 V. Science China Materials, 2021, 64, 52-60.	3.5	85
24	Composition Control and Formation Pathway of CZTS and CZTGS Nanocrystal Inks for Kesterite Solar Cells. Chemistry of Materials, 2015, 27, 1855-1862.	3.2	70
25	Progress and challenges in perovskite photovoltaics from single- to multi-junction cells. Materials Today Energy, 2019, 12, 70-94.	2.5	67
26	Optoelectronic Quality and Stability of Hybrid Perovskites from MAPbI₃ to MAPbI₂Br Using Composition Spread Libraries. Journal of Physical Chemistry C, 2016, 120, 893-902.	1.5	65
27	On understanding bandgap bowing and optoelectronic quality in Pbâ€“Sn alloy hybrid perovskites. Journal of Materials Chemistry A, 2019, 7, 16285-16293.	5.2	64
28	Complexation Chemistry in <i>N,N</i>-Dimethylformamide-Based Molecular Inks for Chalcogenide Semiconductors and Photovoltaic Devices. Journal of the American Chemical Society, 2019, 141, 298-308.	6.6	57
29	Solutionâ€Processed Lowâ€Bandgap CuIn(S,Se)₂ Absorbers for Highâ€Efficiency Singleâ€Junction and Monolithic Chalcopyriteâ€Perovskite Tandem Solar Cells. Advanced Energy Materials, 2018, 8, 1801254.	10.2	56
30	Thin film solar cells from sintered nanocrystals. Current Opinion in Chemical Engineering, 2013, 2, 168-177.	3.8	41
31	Correlation between Photoluminescence and Carrier Transport and a Simple In Situ Passivation Method for High-Bandgap Hybrid Perovskites. Journal of Physical Chemistry Letters, 2017, 8, 3289-3298.	2.1	41
32	Water-Accelerated Photooxidation of CH₃NH₃PbI₃ Perovskite. Journal of the American Chemical Society, 2022, 144, 5552-5561.	6.6	40
33	Enhanced Carrier Lifetimes of Pure Iodide Hybrid Perovskite via Vapor-Equilibrated Re-Growth (VERG). Journal of Physical Chemistry Letters, 2015, 6, 2503-2508.	2.1	39
34	Evolution of Morphology and Composition during Annealing and Selenization in Solution-Processed Cu₂ZnSn(S,Se)₄. Chemistry of Materials, 2017, 29, 9328-9339.	3.2	36
35	Nanoparticle Ligands and Pyrolized Graphitic Carbon in CZTSSe Photovoltaic Devices. Chemistry of Materials, 2016, 28, 135-145.	3.2	30
36	General Method for Simulation of 2D GISAXS Intensities for Any Nanostructured Film Using Discrete Fourier Transforms. Journal of Physical Chemistry C, 2007, 111, 7645-7654.	1.5	29

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37	Nanoscale Surface Potential Variation Correlates with Local S/Se Ratio in Solution-Processed CZTSSe Solar Cells. Nano Letters, 2014, 14, 6926-6930.	4.5	26
38	CuIn(S,Se)2thin film solar cells from nanocrystal inks: Effect of nanocrystal precursors. Thin Solid Films, 2011, 520, 523-528.	0.8	25
39	Solution-processed chalcopyriteâ€“perovskite tandem solar cells in bandgap-matched two- and four-terminal architectures. Journal of Materials Chemistry A, 2017, 5, 3214-3220.	5.2	23
40	Selective oxidation of pharmaceuticals and suppression of perchlorate formation during electrolysis of fresh human urine. Water Research, 2021, 198, 117106.	5.3	23
41	Forecasting the Decay of Hybrid Perovskite Performance Using Optical Transmittance or Reflected Dark-Field Imaging. ACS Energy Letters, 2020, 5, 946-954.	8.8	22
42	Solution-Processed BiI3 Films with 1.1 eV Quasi-Fermi Level Splitting: The Role of Water, Temperature, and Solvent during Processing. ACS Omega, 2018, 3, 12713-12721.	1.6	18
43	Photoluminescence and Photoconductivity to Assess Maximum Open-Circuit Voltage and Carrier Transport in Hybrid Perovskites and Other Photovoltaic Materials. Journal of Physical Chemistry Letters, 2018, 9, 3779-3792.	2.1	17
44	Electrochemical oxidation of pharmaceuticals in synthetic fresh human urine: Using selective radical quenchers to reveal the dominant degradation pathways and the scavenging effects of individual urine constituents. Water Research, 2022, 221, 118722.	5.3	16
45	The effect of nanocrystal reaction time on Cu2ZnSn(S,Se)4 solar cells from nanocrystal inks. Solar Energy Materials and Solar Cells, 2015, 141, 383-390.	3.0	13
46	Chemical liquid deposition of CuInSe2 and CuIn(S,Se)2 films for solar cells. Thin Solid Films, 2012, 520, 5431-5437.	0.8	9
47	A generalized and robust method for efficient thin film photovoltaic devices from multinary sulfide nanocrystal inks. , 2011, , .		7
48	Selenization of copper indium gallium disulfide nanocrystal films for thin film solar cells. , 2009, , .		5
49	8.3% Efficient copper zinc tin sulfoselenide solar cells processed from environmentally benign solvent. , 2013, , .		5
50	On interface recombination, series resistance, and absorber diffusion length in BiI3 solar cells. Journal of Applied Physics, 2021, 129, 133101.	1.1	3
51	Mapping the composition dependence of Cu<inf>2</inf>ZnSn(S, Se)<inf>4</inf> absorber quality using composition-spread libraries, photoluminescence, and Raman. , 2013, , .		2
52	Screening of alkali elements in Cu2ZnSn(S,Se)4. , 2015, , .		2
53	V<inf>OC</inf> overestimation from photoluminescence quantum yield in disordered absorber layers. , 2016, , .		2
54	A general route to Earth abundant element absorber layers for thin film photovoltaics with high yield using molecular precursors and non-toxic solvents. , 2011, , .		1

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55	Solar cells via selenization of CuInS<inf>2</inf> nanocrystals: Effect of synthesis precursor. , 2010, , .		0
56	Determining the maximum open circuit voltage from absorber photoluminescence in the presence of tail states. , 2014, , .		0
57	Quasi-Fermi level splitting, stability, and healing of high bandgap hybrid perovskites using photoluminescence, composition spread libraries, and post-synthesis treatments. , 2016, , .		0
58	Synthesis of Ligand-free CdS Nanoparticles within a Sulfur Copolymer Matrix. Journal of Visualized Experiments, 2016, , .	0.2	0