Hairen Tan

List of Publications by Year
in descending order

Source: https://exaly.com/author-pdf/7574213/publications.pdf

Version: 2024-02-01

103 papers	15,118 citations	41344 49 h-index	37204 96 g-index
104 all docs	104 docs citations	104 times ranked	14579 citing authors

#	Article	IF	Citations
1	Efficient and stable solution-processed planar perovskite solar cells via contact passivation. Science, 2017, 355, 722-726.	12.6	2,019
2	Challenges for commercializing perovskite solar cells. Science, 2018, 361, .	12.6	1,327
3	Monolithic all-perovskite tandem solar cells with 24.8% efficiency exploiting comproportionation to suppress Sn(ii) oxidation in precursor ink. Nature Energy, 2019, 4, 864-873.	39.5	736
4	Ultra-bright and highly efficient inorganic based perovskite light-emitting diodes. Nature Communications, 2017, 8, 15640.	12.8	669
5	Suppression of atomic vacancies via incorporation of isovalent small ions to increase the stability of halide perovskite solar cells in ambient air. Nature Energy, 2018, 3, 648-654.	39.5	552
6	All-perovskite tandem solar cells with improved grain surface passivation. Nature, 2022, 603, 73-78.	27.8	544
7	Color-stable highly luminescent sky-blue perovskite light-emitting diodes. Nature Communications, 2018, 9, 3541.	12.8	536
8	All-perovskite tandem solar cells with 24.2% certified efficiency and area over 1â€‰cm2 using surface-anchoring zwitterionic antioxidant. Nature Energy, 2020, 5, 870-880.	39.5	497
9	Thermal unequilibrium of strained black CsPbI ₃ thin films. Science, 2019, 365, 679-684.	12.6	444
10	Tailoring the Energy Landscape in Quasi-2D Halide Perovskites Enables Efficient Green-Light Emission. Nano Letters, 2017, 17, 3701-3709.	9.1	409
11	Plasmonic Light Trapping in Thin-film Silicon Solar Cells with Improved Self-Assembled Silver Nanoparticles. Nano Letters, 2012, 12, 4070-4076.	9.1	395
12	Copper nanocavities confine intermediates for efficient electrosynthesis of C3 alcohol fuels from carbon monoxide. Nature Catalysis, 2018, 1, 946-951.	34.4	354
13	Plasmonic Polymer Tandem Solar Cell. ACS Nano, 2011, 5, 6210-6217.	14.6	326
14	Simultaneous Contact and Grainâ€Boundary Passivation in Planar Perovskite Solar Cells Using SnO₂â€KCl Composite Electron Transport Layer. Advanced Energy Materials, 2020, 10, 1903083.	19.5	323
15	10.6% Certified Colloidal Quantum Dot Solar Cells via Solvent-Polarity-Engineered Halide Passivation. Nano Letters, 2016, 16, 4630-4634.	9.1	312
16	Perovskite seeding growth of formamidinium-lead-iodide-based perovskites for efficient and stable solar cells. Nature Communications, 2018, 9, 1607.	12.8	309
17	Synthetic Control over Quantum Well Width Distribution and Carrier Migration in Low-Dimensional Perovskite Photovoltaics. Journal of the American Chemical Society, 2018, 140, 2890-2896.	13.7	288
18	Copper-on-nitride enhances the stable electrosynthesis of multi-carbon products from CO2. Nature Communications, 2018, 9, 3828.	12.8	279

#	Article	IF	Citations
19	2D matrix engineering for homogeneous quantum dot coupling in photovoltaic solids. Nature Nanotechnology, 2018, 13, 456-462.	31.5	252
20	The Main Progress of Perovskite Solar Cells in 2020â€“2021. Nano-Micro Letters, 2021, 13, 152.	27.0	250
21	Dipolar cations confer defect tolerance in wide-bandgap metal halide perovskites. Nature Communications, 2018, 9, 3100.	12.8	237
22	Lattice anchoring stabilizes solution-processed semiconductors. Nature, 2019, 570, 96-101.	27.8	208
23	Tin and Mixed Leadâ€“Tin Halide Perovskite Solar Cells: Progress and their Application in Tandem Solar Cells. Advanced Materials, 2020, 32, e1907392.	21.0	203
24	Flexible all-perovskite tandem solar cells approaching 25% efficiency with molecule-bridged hole-selective contact. Nature Energy, 2022, 7, 708-717.	39.5	171
25	Ultrasensitive and stable X-ray detection using zero-dimensional lead-free perovskites. Journal of Energy Chemistry, 2020, 49, 299-306.	12.9	148
26	Combining Efficiency and Stability in Mixed Tinâ€“Lead Perovskite Solar Cells by Capping Grains with an Ultrathin 2D Layer. Advanced Materials, 2020, 32, e1907058.	21.0	148
27	Edge stabilization in reduced-dimensional perovskites. Nature Communications, 2020, 11, 170.	12.8	147
28	In Situ Backâ€Contact Passivation Improves Photovoltage and Fill Factor in Perovskite Solar Cells. Advanced Materials, 2019, 31, e1807435.	21.0	143
29	Chemically Addressable Perovskite Nanocrystals for Lightâ€Emitting Applications. Advanced Materials, 2017, 29, 1701153.	21.0	139
30	Suppressed Ion Migration in Reduced-Dimensional Perovskites Improves Operating Stability. ACS Energy Letters, 2019, 4, 1521-1527.	17.4	130
31	Scalable processing for realizing 21.7%-efficient all-perovskite tandem solar modules. Science, 2022, 376, 762-767.	12.6	127
32	Mobile-Ion-Induced Degradation of Organic Hole-Selective Layers in Perovskite Solar Cells. Journal of Physical Chemistry C, 2017, 121, 14517-14523.	3.1	117
33	CsPb(I Br1â^')3 solar cells. Science Bulletin, 2019, 64, 1532-1539.	9.0	114
34	Photo-oxidative degradation of methylammonium lead iodide perovskite: mechanism and protection. Journal of Materials Chemistry A, 2019, 7, 2275-2282.	10.3	105
35	Synergistic Tandem Solar Electricity-Water Generators. Joule, 2020, 4, 347-358.	24.0	91
36	Perovskite-based tandem solar cells. Science Bulletin, 2021, 66, 621-636.	9.0	91

#	Article	IF	Citations
37	Amideâ€Catalyzed Phaseâ€Selective Crystallization Reduces Defect Density in Wideâ€Bandgap Perovskites. Advanced Materials, 2018, 30, e1706275.	21.0	80
38	Pseudohalideâ€Exchanged Quantum Dot Solids Achieve Record Quantum Efficiency in Infrared Photovoltaics. Advanced Materials, 2017, 29, 1700749.	21.0	79
39	Improved electroluminescence from n-ZnO/AlN/p-GaN heterojunction light-emitting diodes. Applied Physics Letters, 2010, 96, 201102.	3.3	77
40	A 2.16ÂeV bandgap polymer donor gives 16% power conversion efficiency. Science Bulletin, 2020, 65, 179-181.	9.0	75
41	Electroluminescence behavior of ZnO/Si heterojunctions: Energy band alignment and interfacial microstructure. Journal of Applied Physics, 2010, 107, .	2.5	73
42	Wide bandgap p-type nanocrystalline silicon oxide as window layer for high performance thin-film silicon multi-junction solar cells. Solar Energy Materials and Solar Cells, 2015, 132, 597-605.	6.2	71
43	Solution-Processed Monolithic All-Perovskite Triple-Junction Solar Cells with Efficiency Exceeding 20%. ACS Energy Letters, 2020, 5, 2819-2826.	17.4	69
44	Low-temperature processed inorganic hole transport layer for efficient and stable mixed Pb-Sn low-bandgap perovskite solar cells. Science Bulletin, 2019, 64, 1399-1401.	9.0	66
45	Efficient and Stable Thinâ€Film Luminescent Solar Concentrators Enabled by Nearâ€Infrared Emission Perovskite Nanocrystals. Angewandte Chemie - International Edition, 2020, 59, 7738-7742.	13.8	64
46	Micro-textures for efficient light trapping and improved electrical performance in thin-film nanocrystalline silicon solar cells. Applied Physics Letters, 2013, 103, .	3.3	63
47	Improved light trapping in microcrystalline silicon solar cells by plasmonic back reflector with broad angular scattering and low parasitic absorption. Applied Physics Letters, 2013, 102, .	3.3	58
48	Multibandgap quantum dot ensembles for solar-matched infrared energy harvesting. Nature Communications, 2018, 9, 4003.	12.8	56
49	Anchored Ligands Facilitate Efficient B-Site Doping in Metal Halide Perovskites. Journal of the American Chemical Society, 2019, 141, 8296-8305.	13.7	53
50	Modeling and analyses of energy performances of photovoltaic greenhouses with sun-tracking functionality. Applied Energy, 2019, 233-234, 424-442.	10.1	53
51	Steric Engineering Enables Efficient and Photostable Wideâ€Bandgap Perovskites for Allâ€Perovskite Tandem Solar Cells. Advanced Materials, 2022, 34, e2110356.	21.0	48
52	Highly transparent modulated surface textured front electrodes for highâ€efficiency multijunction thinâ€film silicon solar cells. Progress in Photovoltaics: Research and Applications, 2015, 23, 949-963.	8.1	46
53	Nanoimprint-Transfer-Patterned Solids Enhance Light Absorption in Colloidal Quantum Dot Solar Cells. Nano Letters, 2017, 17, 2349-2353.	9.1	46
54	Quadruple-junction thin-film silicon-based solar cells with high open-circuit voltage. Applied Physics Letters, 2014, 105, 063902.	3.3	44

#	Article	IF	Citations
55	Controllable Growth of Highly Ordered ZnO Nanorod Arrays via Inverted Self-Assembled Monolayer Template. ACS Applied Materials & Interfaces, 2011, 3, 4388-4395.	8.0	43
56	Electrical transport properties of the Si-doped cubic boron nitride thin films prepared by in situ cosputtering. Journal of Applied Physics, 2011, 109, 023716.	2.5	43
57	Precise Control of Thermal and Redox Properties of Organic Holeâ€Transport Materials. Angewandte Chemie - International Edition, 2018, 57, 15529-15533.	13.8	41
58	A thin-film silicon based photocathode with a hydrogen doped TiO₂ protection layer for solar hydrogen evolution. Journal of Materials Chemistry A, 2016, 4, 16841-16848.	10.3	38
59	An Ultraâ€low Concentration of Gold Nanoparticles Embedded in the NiO Hole Transport Layer Boosts the Performance of pâ€iâ€n Perovskite Solar Cells. Solar Rrl, 2019, 3, 1800278.	5.8	38
60	Highly Efficient Hybrid Polymer and Amorphous Silicon Multijunction Solar Cells with Effective Optical Management. Advanced Materials, 2016, 28, 2170-2177.	21.0	36
61	A photovoltaic window with sun-tracking shading elements towards maximum power generation and non-glare daylighting. Applied Energy, 2018, 228, 1454-1472.	10.1	34
62	Dual Coordination of Ti and Pb Using Bilinkable Ligands Improves Perovskite Solar Cell Performance and Stability. Advanced Functional Materials, 2020, 30, 2005155.	14.9	33
63	Decarboxylative tandem C-N coupling with nitroarenes via SH2 mechanism. Nature Communications, 2022, 13, 2432.	12.8	32
64	Simultaneously enhanced moisture tolerance and defect passivation of perovskite solar cells with cross-linked grain encapsulation. Journal of Energy Chemistry, 2021, 56, 455-462.	12.9	31
65	Plasmonic Nanoparticle Films for Solar Cell Applications Fabricated by Size-selective Aerosol Deposition. Energy Procedia, 2014, 60, 3-12.	1.8	29
66	Compound Homojunction:Heterojunction Reduces Bulk and Interface Recombination in ZnO Photoanodes for Water Splitting. Small, 2017, 13, 1603527.	10.0	29
67	Plasmon enhanced polymer solar cells by spin-coating Au nanoparticles on indium-tin-oxide substrate. Applied Physics Letters, 2012, 101, 133903.	3.3	27
68	Optical Resonance Engineering for Infrared Colloidal Quantum Dot Photovoltaics. ACS Energy Letters, 2016, 1, 852-857.	17.4	27
69	Combined Optical and Electrical Design of Plasmonic Back Reflector for High-Efficiency Thin-Film Silicon Solar Cells. IEEE Journal of Photovoltaics, 2013, 3, 53-58.	2.5	25
70	Enhancing the driving field for plasmonic nanoparticles in thin-film solar cells. Optics Express, 2014, 22, A1023.	3.4	24
71	Thermally Stable Allâ€Perovskite Tandem Solar Cells Fully Using Metal Oxide Charge Transport Layers and Tunnel Junction. Solar Rrl, 2021, 5, 2100814.	5.8	24
72	Modulated surface textured glass as substrate for high efficiency microcrystalline silicon solar cells. Solar Energy Materials and Solar Cells, 2015, 133, 156-162.	6.2	23

#	Article	IF	Citations
73	Cross-linked hole transport layers for high-efficiency perovskite tandem solar cells. Science China Chemistry, 2021, 64, 2025-2034.	8.2	23
74	High pressure processing of hydrogenated amorphous silicon solar cells: Relation between nanostructure and high open-circuit voltage. Applied Physics Letters, 2015, 106, .	3.3	21
75	Toward stable and efficient Sn-containing perovskite solar cells. Science Bulletin, 2020, 65, 786-790.	9.0	21
76	Recent progress in developing efficient monolithic all-perovskite tandem solar cells. Journal of Semiconductors, 2020, 41, 051201.	3.7	19
77	A thin-film silicon/silicon hetero-junction hybrid solar cell for photoelectrochemical water-reduction applications. Solar Energy Materials and Solar Cells, 2016, 150, 82-87.	6.2	17
78	Record Photocurrent Density over 26â€‰mAâ€‰cm â^'2 in Planar Perovskite Solar Cells Enabled by Antireflective Cascaded Electron Transport Layer. Solar Rrl, 2020, 4, 2000169.	5.8	17
79	Highly conductive Al-doped tetra-needle-like ZnO whiskers prepared by a solid state method. Materials Science and Engineering B: Solid-State Materials for Advanced Technology, 2008, 150, 203-207.	3.5	15
80	Precise Control of Thermal and Redox Properties of Organic Holeâ€Transport Materials. Angewandte Chemie, 2018, 130, 15755-15759.	2.0	15
81	Electrical bistability and negative differential resistance in diodes based on silver nanoparticle-poly(N-vinylcarbazole) composites. Journal of Applied Physics, 2010, 108, 094320.	2.5	13
82	Comparison and combination of several stress relief methods for cubic boron nitride films deposited by ion beam assisted deposition. Surface and Coatings Technology, 2009, 203, 1452-1456.	4.8	12
83	Effects of silicon incorporation on composition, structure and electric conductivity of cubic boron nitride thin films. Diamond and Related Materials, 2010, 19, 1371-1376.	3.9	12
84	Efficient and Stable Wideâ€Bandgap Perovskite Solar Cells Derived from a Thermodynamic Phaseâ€Pure Intermediate. Solar Rrl, 2022, 6, .	5.8	11
85	Identification of the physical origin behind disorder, heterogeneity, and reconstruction and their correlation with the photoluminescence lifetime in hybrid perovskite thin films. Journal of Materials Chemistry A, 2017, 5, 21002-21015.	10.3	10
86	Performance improvement of conjugated polymer and ZnO hybrid solar cells using nickel oxide as anode buffer layer. Physica Status Solidi (A) Applications and Materials Science, 2011, 208, 2865-2870.	1.8	9
87	Polymerâ€Supported Liquid Layer Electrolyzer Enabled Electrochemical CO₂ Reduction to CO with High Energy Efficiency. ChemistryOpen, 2021, 10, 639-644.	1.9	9
88	Chemical Stability and Performance of Doped Silicon Oxide Layers for Use in Thin-Film Silicon Solar Cells. IEEE Journal of Photovoltaics, 2019, 9, 3-11.	2.5	8
89	Conductive layer protected and oxide catalyst-coated thin-film silicon solar cell as an efficient photoanode. Catalysis Science and Technology, 2017, 7, 5608-5613.	4.1	7
90	Cesium acetate-assisted crystallization for high-performance inverted CsPbI₃ perovskite solar cells. Nanotechnology, 2022, 33, 375205.	2.6	7

#	Article	IF	Citations
91	Quadrupleâ€Junction Thinâ€Film Silicon Solar Cells Using Four Different Absorber Materials. Solar Rrl, 2017, 1, 1700036.	5.8	6
92	Efficient and Stable Thinâ€Film Luminescent Solar Concentrators Enabled by Nearâ€Infrared Emission Perovskite Nanocrystals. Angewandte Chemie, 2020, 132, 7812-7816.	2.0	6
93	Plasmonic Solar Cells with Embedded Silver Nanoparticles from Vapor Condensation. Materials Research Society Symposia Proceedings, 2012, 1391, 52.	0.1	4
94	Polystyrene-Microsphere-Assisted Patterning of ZnO Nanostructures: Growth and Characterization. Journal of Nanoscience and Nanotechnology, 2013, 13, 1101-1105.	0.9	4
95	Combining Efficiency and Stability in Mixed Tin-Lead Perovskite Solar Cells by Capping Grains with an Ultra-thin 2D layer. , 2020, , .		4
96	Towards Lambertian internal light scattering in solar cells using coupled plasmonic and dielectric nanoparticles as back reflector. , 2013, , .		3
97	Vapor treatment enables efficient and stable FAPbI3 perovskite solar cells. Science China Chemistry, 2021, 64, 5-6.	8.2	3
98	Photonics for enhanced perovskite optoelectronics. Nanophotonics, 2021, 10, 1941-1942.	6.0	3
99	Enhancement of ZnO ultraviolet emission by surface plasmon coupling using a rough NiSi2layer synthesized by ion implantation. Journal of Semiconductors, 2011, 32, 102002.	3.7	0
100	Combined optical and electrical design of plasmonic back reflector for high-efficiency thin-film silicon solar cells. , 2012, , .		0
101	Combined optical and electrical design of plasmonic back reflector for high-efficiency thin-film silicon solar cells. , 2013, , .		0
102	Chemical stability and performance of doped silicon oxide layers for use in thin film silicon solar cells. , 2018, , .		0
103	Efficient, stable and scalable all-perovskite tandem solar cells. , 0, , .		0