

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

41323

49
h-index

37183

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. <i>Science</i> , 2017, 355, 722-726.	6.0	2,019
2	Challenges for commercializing perovskite solar cells. <i>Science</i> , 2018, 361, .	6.0	1,327
3	Monolithic all-perovskite tandem solar cells with 24.8% efficiency exploiting comproportionation to suppress Sn(II) oxidation in precursor ink. <i>Nature Energy</i> , 2019, 4, 864-873.	19.8	736
4	Ultra-bright and highly efficient inorganic based perovskite light-emitting diodes. <i>Nature Communications</i> , 2017, 8, 15640.	5.8	669
5	Suppression of atomic vacancies via incorporation of isovalent small ions to increase the stability of halide perovskite solar cells in ambient air. <i>Nature Energy</i> , 2018, 3, 648-654.	19.8	552
6	All-perovskite tandem solar cells with improved grain surface passivation. <i>Nature</i> , 2022, 603, 73-78.	13.7	544
7	Color-stable highly luminescent sky-blue perovskite light-emitting diodes. <i>Nature Communications</i> , 2018, 9, 3541.	5.8	536
8	All-perovskite tandem solar cells with 24.2% certified efficiency and area over 1â€cm ² using surface-anchoring zwitterionic antioxidant. <i>Nature Energy</i> , 2020, 5, 870-880.	19.8	497
9	Thermal nonequilibrium of strained black CsPbI ₃ thin films. <i>Science</i> , 2019, 365, 679-684.	6.0	444
10	Tailoring the Energy Landscape in Quasi-2D Halide Perovskites Enables Efficient Green-Light Emission. <i>Nano Letters</i> , 2017, 17, 3701-3709.	4.5	409
11	Plasmonic Light Trapping in Thin-film Silicon Solar Cells with Improved Self-Assembled Silver Nanoparticles. <i>Nano Letters</i> , 2012, 12, 4070-4076.	4.5	395
12	Copper nanocavities confine intermediates for efficient electrosynthesis of C ₃ alcohol fuels from carbon monoxide. <i>Nature Catalysis</i> , 2018, 1, 946-951.	16.1	354
13	Plasmonic Polymer Tandem Solar Cell. <i>ACS Nano</i> , 2011, 5, 6210-6217.	7.3	326
14	Simultaneous Contact and Grainâ€Boundary Passivation in Planar Perovskite Solar Cells Using SnO ₂ â€KCl Composite Electron Transport Layer. <i>Advanced Energy Materials</i> , 2020, 10, 1903083.	10.2	323
15	10.6% Certified Colloidal Quantum Dot Solar Cells via Solvent-Polarity-Engineered Halide Passivation. <i>Nano Letters</i> , 2016, 16, 4630-4634.	4.5	312
16	Perovskite seeding growth of formamidinium-lead-iodide-based perovskites for efficient and stable solar cells. <i>Nature Communications</i> , 2018, 9, 1607.	5.8	309
17	Synthetic Control over Quantum Well Width Distribution and Carrier Migration in Low-Dimensional Perovskite Photovoltaics. <i>Journal of the American Chemical Society</i> , 2018, 140, 2890-2896.	6.6	288
18	Copper-on-nitride enhances the stable electrosynthesis of multi-carbon products from CO ₂ . <i>Nature Communications</i> , 2018, 9, 3828.	5.8	279

#	ARTICLE	IF	CITATIONS
19	2D matrix engineering for homogeneous quantum dot coupling in photovoltaic solids. <i>Nature Nanotechnology</i> , 2018, 13, 456-462.	15.6	252
20	The Main Progress of Perovskite Solar Cells in 2020â€“2021. <i>Nano-Micro Letters</i> , 2021, 13, 152.	14.4	250
21	Dipolar cations confer defect tolerance in wide-bandgap metal halide perovskites. <i>Nature Communications</i> , 2018, 9, 3100.	5.8	237
22	Lattice anchoring stabilizes solution-processed semiconductors. <i>Nature</i> , 2019, 570, 96-101.	13.7	208
23	Tin and Mixed Leadâ€“Tin Halide Perovskite Solar Cells: Progress and their Application in Tandem Solar Cells. <i>Advanced Materials</i> , 2020, 32, e1907392.	11.1	203
24	Flexible all-perovskite tandem solar cells approaching 25% efficiency with molecule-bridged hole-selective contact. <i>Nature Energy</i> , 2022, 7, 708-717.	19.8	171
25	Ultrasensitive and stable X-ray detection using zero-dimensional lead-free perovskites. <i>Journal of Energy Chemistry</i> , 2020, 49, 299-306.	7.1	148
26	Combining Efficiency and Stability in Mixed Tinâ€“Lead Perovskite Solar Cells by Capping Grains with an Ultrathin 2D Layer. <i>Advanced Materials</i> , 2020, 32, e1907058.	11.1	148
27	Edge stabilization in reduced-dimensional perovskites. <i>Nature Communications</i> , 2020, 11, 170.	5.8	147
28	In Situ Backâ€“Contact Passivation Improves Photovoltage and Fill Factor in Perovskite Solar Cells. <i>Advanced Materials</i> , 2019, 31, e1807435.	11.1	143
29	Chemically Addressable Perovskite Nanocrystals for Lightâ€“Emitting Applications. <i>Advanced Materials</i> , 2017, 29, 1701153.	11.1	139
30	Suppressed Ion Migration in Reduced-Dimensional Perovskites Improves Operating Stability. <i>ACS Energy Letters</i> , 2019, 4, 1521-1527.	8.8	130
31	Scalable processing for realizing 21.7%-efficient all-perovskite tandem solar modules. <i>Science</i> , 2022, 376, 762-767.	6.0	127
32	Mobile-Ion-Induced Degradation of Organic Hole-Selective Layers in Perovskite Solar Cells. <i>Journal of Physical Chemistry C</i> , 2017, 121, 14517-14523.	1.5	117
33	CsPb(I Br _{1-x}) ₃ solar cells. <i>Science Bulletin</i> , 2019, 64, 1532-1539.	4.3	114
34	Photo-oxidative degradation of methylammonium lead iodide perovskite: mechanism and protection. <i>Journal of Materials Chemistry A</i> , 2019, 7, 2275-2282.	5.2	105
35	Synergistic Tandem Solar Electricity-Water Generators. <i>Joule</i> , 2020, 4, 347-358.	11.7	91
36	Perovskite-based tandem solar cells. <i>Science Bulletin</i> , 2021, 66, 621-636.	4.3	91

#	ARTICLE	IF	CITATIONS
37	Amide-Catalyzed Phase-Selective Crystallization Reduces Defect Density in Wide-Bandgap Perovskites. <i>Advanced Materials</i> , 2018, 30, e1706275.	11.1	80
38	Pseudohalide-Exchanged Quantum Dot Solids Achieve Record Quantum Efficiency in Infrared Photovoltaics. <i>Advanced Materials</i> , 2017, 29, 1700749.	11.1	79
39	Improved electroluminescence from n-ZnO/AlN/p-GaN heterojunction light-emitting diodes. <i>Applied Physics Letters</i> , 2010, 96, 201102.	1.5	77
40	A 2.16 eV bandgap polymer donor gives 16% power conversion efficiency. <i>Science Bulletin</i> , 2020, 65, 179-181.	4.3	75
41	Electroluminescence behavior of ZnO/Si heterojunctions: Energy band alignment and interfacial microstructure. <i>Journal of Applied Physics</i> , 2010, 107, .	1.1	73
42	Wide bandgap p-type nanocrystalline silicon oxide as window layer for high performance thin-film silicon multi-junction solar cells. <i>Solar Energy Materials and Solar Cells</i> , 2015, 132, 597-605.	3.0	71
43	Solution-Processed Monolithic All-Perovskite Triple-Junction Solar Cells with Efficiency Exceeding 20%. <i>ACS Energy Letters</i> , 2020, 5, 2819-2826.	8.8	69
44	Low-temperature processed inorganic hole transport layer for efficient and stable mixed Pb-Sn low-bandgap perovskite solar cells. <i>Science Bulletin</i> , 2019, 64, 1399-1401.	4.3	66
45	Efficient and Stable Thin-Film Luminescent Solar Concentrators Enabled by Near-Infrared Emission Perovskite Nanocrystals. <i>Angewandte Chemie - International Edition</i> , 2020, 59, 7738-7742.	7.2	64
46	Micro-textures for efficient light trapping and improved electrical performance in thin-film nanocrystalline silicon solar cells. <i>Applied Physics Letters</i> , 2013, 103, .	1.5	63
47	Improved light trapping in microcrystalline silicon solar cells by plasmonic back reflector with broad angular scattering and low parasitic absorption. <i>Applied Physics Letters</i> , 2013, 102, .	1.5	58
48	Multibandgap quantum dot ensembles for solar-matched infrared energy harvesting. <i>Nature Communications</i> , 2018, 9, 4003.	5.8	56
49	Anchored Ligands Facilitate Efficient B-Site Doping in Metal Halide Perovskites. <i>Journal of the American Chemical Society</i> , 2019, 141, 8296-8305.	6.6	53
50	Modeling and analyses of energy performances of photovoltaic greenhouses with sun-tracking functionality. <i>Applied Energy</i> , 2019, 233-234, 424-442.	5.1	53
51	Steric Engineering Enables Efficient and Photostable Wide-Bandgap Perovskites for All-Perovskite Tandem Solar Cells. <i>Advanced Materials</i> , 2022, 34, e2110356.	11.1	48
52	Highly transparent modulated surface textured front electrodes for high-efficiency multijunction thin-film silicon solar cells. <i>Progress in Photovoltaics: Research and Applications</i> , 2015, 23, 949-963.	4.4	46
53	Nanoimprint-Transfer-Patterned Solids Enhance Light Absorption in Colloidal Quantum Dot Solar Cells. <i>Nano Letters</i> , 2017, 17, 2349-2353.	4.5	46
54	Quadruple-junction thin-film silicon-based solar cells with high open-circuit voltage. <i>Applied Physics Letters</i> , 2014, 105, 063902.	1.5	44

#	ARTICLE	IF	CITATIONS
55	Controllable Growth of Highly Ordered ZnO Nanorod Arrays via Inverted Self-Assembled Monolayer Template. <i>ACS Applied Materials & Interfaces</i> , 2011, 3, 4388-4395.	4.0	43
56	Electrical transport properties of the Si-doped cubic boron nitride thin films prepared by in situ cosputtering. <i>Journal of Applied Physics</i> , 2011, 109, 023716.	1.1	43
57	Precise Control of Thermal and Redox Properties of Organic Hole-Transport Materials. <i>Angewandte Chemie - International Edition</i> , 2018, 57, 15529-15533.	7.2	41
58	A thin-film silicon based photocathode with a hydrogen doped TiO ₂ protection layer for solar hydrogen evolution. <i>Journal of Materials Chemistry A</i> , 2016, 4, 16841-16848.	5.2	38
59	An Ultra-Low Concentration of Gold Nanoparticles Embedded in the NiO Hole Transport Layer Boosts the Performance of Perovskite Solar Cells. <i>Solar Rrl</i> , 2019, 3, 1800278.	3.1	38
60	Highly Efficient Hybrid Polymer and Amorphous Silicon Multijunction Solar Cells with Effective Optical Management. <i>Advanced Materials</i> , 2016, 28, 2170-2177.	11.1	36
61	A photovoltaic window with sun-tracking shading elements towards maximum power generation and non-glare daylighting. <i>Applied Energy</i> , 2018, 228, 1454-1472.	5.1	34
62	Dual Coordination of Ti and Pb Using Bilinkable Ligands Improves Perovskite Solar Cell Performance and Stability. <i>Advanced Functional Materials</i> , 2020, 30, 2005155.	7.8	33
63	Decarboxylative tandem C-N coupling with nitroarenes via SH2 mechanism. <i>Nature Communications</i> , 2022, 13, 2432.	5.8	32
64	Simultaneously enhanced moisture tolerance and defect passivation of perovskite solar cells with cross-linked grain encapsulation. <i>Journal of Energy Chemistry</i> , 2021, 56, 455-462.	7.1	31
65	Plasmonic Nanoparticle Films for Solar Cell Applications Fabricated by Size-selective Aerosol Deposition. <i>Energy Procedia</i> , 2014, 60, 3-12.	1.8	29
66	Compound Homojunction:Heterojunction Reduces Bulk and Interface Recombination in ZnO Photoanodes for Water Splitting. <i>Small</i> , 2017, 13, 1603527.	5.2	29
67	Plasmon enhanced polymer solar cells by spin-coating Au nanoparticles on indium-tin-oxide substrate. <i>Applied Physics Letters</i> , 2012, 101, 133903.	1.5	27
68	Optical Resonance Engineering for Infrared Colloidal Quantum Dot Photovoltaics. <i>ACS Energy Letters</i> , 2016, 1, 852-857.	8.8	27
69	Combined Optical and Electrical Design of Plasmonic Back Reflector for High-Efficiency Thin-Film Silicon Solar Cells. <i>IEEE Journal of Photovoltaics</i> , 2013, 3, 53-58.	1.5	25
70	Enhancing the driving field for plasmonic nanoparticles in thin-film solar cells. <i>Optics Express</i> , 2014, 22, A1023.	1.7	24
71	Thermally Stable All-Perovskite Tandem Solar Cells Fully Using Metal Oxide Charge Transport Layers and Tunnel Junction. <i>Solar Rrl</i> , 2021, 5, 2100814.	3.1	24
72	Modulated surface textured glass as substrate for high efficiency microcrystalline silicon solar cells. <i>Solar Energy Materials and Solar Cells</i> , 2015, 133, 156-162.	3.0	23

#	ARTICLE	IF	CITATIONS
73	Cross-linked hole transport layers for high-efficiency perovskite tandem solar cells. <i>Science China Chemistry</i> , 2021, 64, 2025-2034.	4.2	23
74	High pressure processing of hydrogenated amorphous silicon solar cells: Relation between nanostructure and high open-circuit voltage. <i>Applied Physics Letters</i> , 2015, 106, .	1.5	21
75	Toward stable and efficient Sn-containing perovskite solar cells. <i>Science Bulletin</i> , 2020, 65, 786-790.	4.3	21
76	Recent progress in developing efficient monolithic all-perovskite tandem solar cells. <i>Journal of Semiconductors</i> , 2020, 41, 051201.	2.0	19
77	A thin-film silicon/silicon hetero-junction hybrid solar cell for photoelectrochemical water-reduction applications. <i>Solar Energy Materials and Solar Cells</i> , 2016, 150, 82-87.	3.0	17
78	Record Photocurrent Density over $26 \mu\text{m}^2$ in Planar Perovskite Solar Cells Enabled by Antireflective Cascaded Electron Transport Layer. <i>Solar Rrl</i> , 2020, 4, 2000169.	3.1	17
79	Highly conductive Al-doped tetra-needle-like ZnO whiskers prepared by a solid state method. <i>Materials Science and Engineering B: Solid-State Materials for Advanced Technology</i> , 2008, 150, 203-207.	1.7	15
80	Precise Control of Thermal and Redox Properties of Organic Hole-Transport Materials. <i>Angewandte Chemie</i> , 2018, 130, 15755-15759.	1.6	15
81	Electrical bistability and negative differential resistance in diodes based on silver nanoparticle-poly(N-vinylcarbazole) composites. <i>Journal of Applied Physics</i> , 2010, 108, 094320.	1.1	13
82	Comparison and combination of several stress relief methods for cubic boron nitride films deposited by ion beam assisted deposition. <i>Surface and Coatings Technology</i> , 2009, 203, 1452-1456.	2.2	12
83	Effects of silicon incorporation on composition, structure and electric conductivity of cubic boron nitride thin films. <i>Diamond and Related Materials</i> , 2010, 19, 1371-1376.	1.8	12
84	Efficient and Stable Wide-Bandgap Perovskite Solar Cells Derived from a Thermodynamic Phase-Pure Intermediate. <i>Solar Rrl</i> , 2022, 6, .	3.1	11
85	Identification of the physical origin behind disorder, heterogeneity, and reconstruction and their correlation with the photoluminescence lifetime in hybrid perovskite thin films. <i>Journal of Materials Chemistry A</i> , 2017, 5, 21002-21015.	5.2	10
86	Performance improvement of conjugated polymer and ZnO hybrid solar cells using nickel oxide as anode buffer layer. <i>Physica Status Solidi (A) Applications and Materials Science</i> , 2011, 208, 2865-2870.	0.8	9
87	Polymer-Supported Liquid Layer Electrolyzer Enabled Electrochemical CO_2 Reduction to CO with High Energy Efficiency. <i>ChemistryOpen</i> , 2021, 10, 639-644.	0.9	9
88	Chemical Stability and Performance of Doped Silicon Oxide Layers for Use in Thin-Film Silicon Solar Cells. <i>IEEE Journal of Photovoltaics</i> , 2019, 9, 3-11.	1.5	8
89	Conductive layer protected and oxide catalyst-coated thin-film silicon solar cell as an efficient photoanode. <i>Catalysis Science and Technology</i> , 2017, 7, 5608-5613.	2.1	7
90	Cesium acetate-assisted crystallization for high-performance inverted CsPbI_3 perovskite solar cells. <i>Nanotechnology</i> , 2022, 33, 375205.	1.3	7

#	ARTICLE	IF	CITATIONS
91	Quadruple-junction Thin-Film Silicon Solar Cells Using Four Different Absorber Materials. Solar Rrl, 2017, 1, 1700036.	3.1	6
92	Efficient and Stable Thin-Film Luminescent Solar Concentrators Enabled by Near-Infrared Emission Perovskite Nanocrystals. Angewandte Chemie, 2020, 132, 7812-7816.	1.6	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 FAPbI ₃ perovskite solar cells. Science China Chemistry, 2021, 64, 5-6.	4.2	3
98	Photonics for enhanced perovskite optoelectronics. Nanophotonics, 2021, 10, 1941-1942.	2.9	3
99	Enhancement of ZnO ultraviolet emission by surface plasmon coupling using a rough NiSi ₂ layer synthesized by ion implantation. Journal of Semiconductors, 2011, 32, 102002.	2.0	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