Kai Yao

List of Publications by Year
in descending order

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58 papers	3,040 citations	186209 28 h-index	161767 54 g-index
59 all docs	59 docs citations	59 times ranked	4782 citing authors

#	Article	IF	Citations
1	Toward Perovskite Solar Cell Commercialization: A Perspective and Research Roadmap Based on Interfacial Engineering. Advanced Materials, 2018, 30, e1800455.	11.1	332
2	Multilayered Perovskite Materials Based on Polymeric-Ammonium Cations for Stable Large-Area Solar Cell. Chemistry of Materials, 2016, 28, 3131-3138.	3.2	174
3	Room-Temperature and Solution-Processable Cu-Doped Nickel Oxide Nanoparticles for Efficient Hole-Transport Layers of Flexible Large-Area Perovskite Solar Cells. ACS Applied Materials & Interfaces, 2017, 9, 41887-41897.	4.0	171
4	Non-halogenated solvents for environmentally friendly processing of high-performance bulk-heterojunction polymer solar cells. Energy and Environmental Science, 2013, 6, 3241.	15.6	168
5	Molecular Weight Effect on the Absorption, Charge Carrier Mobility, and Photovoltaic Performance of an Indacenodiselenophene-Based Ladder-Type Polymer. Chemistry of Materials, 2013, 25, 3188-3195.	3.2	155
6	A copper-doped nickel oxide bilayer for enhancing efficiency and stability of hysteresis-free inverted mesoporous perovskite solar cells. Nano Energy, 2017, 40, 155-162.	8.2	147
7	Synergistic strain engineering of perovskite single crystals for highly stable and sensitive X-ray detectors with low-bias imaging and monitoring. Nature Photonics, 2022, 16, 575-581.	15.6	138
8	Highly Efficient Inverted Organic Solar Cells Through Material and Interfacial Engineering of Indacenodithieno[3,2â€b]thiopheneâ€Based Polymers and Devices. Advanced Functional Materials, 2014, 24, 1465-1473.	7.8	132
9	A General Route to Enhance Polymer Solar Cell Performance using Plasmonic Nanoprisms. Advanced Energy Materials, 2014, 4, 1400206.	10.2	118
10	Elevenâ€Membered Fusedâ€Ring Low Bandâ€Gap Polymer with Enhanced Charge Carrier Mobility and Photovoltaic Performance. Advanced Functional Materials, 2014, 24, 3631-3638.	7.8	99
11	Improving the efficiency and environmental stability of inverted planar perovskite solar cells via silver-doped nickel oxide hole-transporting layer. Applied Surface Science, 2018, 427, 782-790.	3.1	93
12	Plasmonic Metal Nanoparticles with Coreâ€“Bishell Structure for High-Performance Organic and Perovskite Solar Cells. ACS Nano, 2019, 13, 5397-5409.	7.3	93
13	A general fabrication procedure for efficient and stable planar perovskite solar cells: Morphological and interfacial control by in-situ-generated layered perovskite. Nano Energy, 2015, 18, 165-175.	8.2	92
14	Mixed perovskite based on methyl-ammonium and polymeric-ammonium for stable and reproducible solar cells. Chemical Communications, 2015, 51, 15430-15433.	2.2	91
15	Enhanced Performance of Organic Solar Cells with Increased End Group Dipole Moment in Indacenodithieno[3,2â€b]thiopheneâ€Based Molecules. Advanced Functional Materials, 2015, 25, 4889-4897.	7.8	61
16	Fullerene-Anchored Core-Shell ZnO Nanoparticles for Efficient and Stable Dual-Sensitized Perovskite Solar Cells. Joule, 2019, 3, 417-431.	11.7	61
17	Self-Organized Hole Transport Layers Based on Polythiophene Diblock Copolymers for Inverted Organic Solar Cells with High Efficiency. Chemistry of Materials, 2013, 25, 897-904.	3.2	57
18	Coordination Engineering of Singleâ€Crystal Precursor for Phase Control in Ruddlesdenâ€“Popper Perovskite Solar Cells. Advanced Energy Materials, 2020, 10, 1904050.	10.2	56

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19	Influence of water-soluble polythiophene as an interfacial layer on the P3HT/PCBM bulk heterojunction organic photovoltaics. Journal of Materials Chemistry, 2011, 21, 13780.	6.7	53
20	Enhanced Lightâ€Harvesting by Integrating Synergetic Microcavity and Plasmonic Effects for Highâ€Performance ITOâ€Free Flexible Polymer Solar Cells. Advanced Functional Materials, 2015, 25, 567-574.	7.8	44
21	Open-Circuit Voltage Losses in Selenium-Substituted Organic Photovoltaic Devices from Increased Density of Charge-Transfer States. Chemistry of Materials, 2015, 27, 6583-6591.	3.2	42
22	Unravelling the Mechanism of Ionic Fullerene Passivation for Efficient and Stable Methylammonium-Free Perovskite Solar Cells. ACS Energy Letters, 2020, 5, 2015-2022.	8.8	38
23	Efficient all polymer solar cells from layer-evolved processing of a bilayer inverted structure. Journal of Materials Chemistry C, 2014, 2, 416-420.	2.7	37
24	Interfacial engineering of front-contact with finely tuned polymer interlayers for high-performance large-area flexible perovskite solar cells. Nano Energy, 2019, 62, 734-744.	8.2	36
25	Mesogens Mediated Self-Assembly in Applications of Bulk Heterojunction Solar Cells Based on a Conjugated Polymer with Narrow Band Gap. Macromolecules, 2011, 44, 2698-2706.	2.2	34
26	Cooperative Assembly Donorâ€“Acceptor System Induced by Intermolecular Hydrogen Bonds Leading to Oriented Nanomorphology for Optimized Photovoltaic Performance. Journal of Physical Chemistry C, 2012, 116, 714-721.	1.5	33
27	Ordered microstructure induced by orientation behavior of liquid-crystal polythiophene for performance improvement of hybrid solar cells. Solar Energy Materials and Solar Cells, 2012, 96, 266-275.	3.0	33
28	Plasmon-induced trap filling at grain boundaries in perovskite solar cells. Light: Science and Applications, 2021, 10, 219.	7.7	30
29	A Simple and Universal Method to Increase Light Absorption in Ternary Blend Polymer Solar Cells Based on Ladderâ€Type Polymers. Advanced Optical Materials, 2015, 3, 321-327.	3.6	27
30	Self-Assembly of Diblock Polythiophenes with Discotic Liquid Crystals on Side Chains for the Formation of a Highly Ordered Nanowire Morphology. ACS Applied Materials & Interfaces, 2013, 5, 8321-8328.	4.0	26
31	Synthesis and Helical Conformation of Novel Optically Active Liquid Crystalline Poly(p-phenylene)s Containing Cyanoterphenyl Mesogen as Pendant. Macromolecules, 2009, 42, 5053-5061.	2.2	24
32	Nano-bio hybrids of plasmonic metals/photosynthetic proteins for broad-band light absorption enhancement in organic solar cells. Journal of Materials Chemistry A, 2016, 4, 13400-13406.	5.2	24
33	Searching for High-Quality Halide Perovskite Single Crystals toward X-ray Detection. Journal of Physical Chemistry Letters, 2022, 13, 2851-2861.	2.1	24
34	Tailoring Phase Purity in the 2D/3D Perovskite Heterostructures Using Lattice Mismatch. ACS Energy Letters, 2022, 7, 550-559.	8.8	23
35	Interfacial Nanostructuring of ZnO Nanoparticles by Fullerene Surface Functionalization for â€œAnnealing-Freeâ€•Hybrid Bulk Heterojunction Solar Cells. Journal of Physical Chemistry C, 2012, 116, 3486-3491.	1.5	22
36	Photocrosslinkable liquidâ€“crystalline polymers for stable photovoltaics by adjusting side-chains spacing and fullerene size to control intercalation. Organic Electronics, 2012, 13, 1443-1455.	1.4	20

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37	Integration of light-harvesting complexes into the polymer bulk heterojunction P3HT/PCBM device for efficient photovoltaic cells. Journal of Materials Chemistry, 2012, 22, 7342.	6.7	18
38	Performance limits of plasmon-enhanced organic photovoltaics. Applied Physics Letters, 2014, 105, 033304.	1.5	18
39	Orientation Behavior of Bulk Heterojunction Solar Cells Based on Liquid-Crystalline Polyfluorene and Fullerene. Journal of Physical Chemistry C, 2010, 114, 18001-18011.	1.5	17
40	A novel type of optically active helical liquid crystalline polymers: Synthesis and characterization of poly(pâ€phenylene)s containing terphenyl mesogen with different terminal groups. Journal of Polymer Science Part A, 2009, 47, 4723-4735.	2.5	16
41	Can morphology tailoring based on functionalized fullerene nanostructures improve the performance of organic solar cells?. Journal of Materials Chemistry, 2012, 22, 18768.	6.7	16
42	Origin of the efficiency improvement in pre-annealed P3HT/PCBM solar cells with LiF/Al electrodes. Chemical Physics Letters, 2012, 553, 36-40.	1.2	16
43	Self-assembled mesogens modified fullerene for efficiently stable bulk heterojunction solar cells. Solar Energy Materials and Solar Cells, 2012, 97, 34-42.	3.0	14
44	Photocrosslinkable liquid-crystalline polythiophenes with oriented nanostructure and stabilization for photovoltaics. Organic Electronics, 2012, 13, 104-113.	1.4	13
45	The critical role of additives in binary halogen-free solvent systems for the general processing of highly efficient organic solar cells. RSC Advances, 2015, 5, 93689-93696.	1.7	13
46	Enhanced Photoluminescence, Mesomorphism and Conformation of Liquidâ€Crystalline Conjugated Polymers with Terphenyl Mesogen Pendants. Macromolecular Chemistry and Physics, 2011, 212, 24-41.	1.1	12
47	Photoluminescent, liquidâ€crystalline, and electrochemical properties of paraâ€phenyleneâ€based alternating conjugated copolymers. Journal of Polymer Science Part A, 2010, 48, 434-442.	2.5	9
48	Tuning the photovoltaic parameters of thiophene-linked donorâ€“acceptor liquid crystalline copolymers for organic photovoltaics. Polymer Chemistry, 2012, 3, 710.	1.9	9
49	Self-assembly of all-conjugated block copolymer nanoparticles with tailoring size and fluorescence for live cell imaging. Journal of Materials Chemistry B, 2016, 4, 7882-7887.	2.9	9
50	Tailoring carrier dynamics in inverted mesoporous perovskite solar cells with interface-engineered plasmonics. Journal of Materials Chemistry A, 2021, 9, 2394-2403.	5.2	9
51	Improvement of morphology and performance of P3HT/ZnO hybrid solar cells induced by liquid crystal molecules. Chemical Physics Letters, 2016, 661, 119-124.	1.2	8
52	Effects of substitution and terminal groups for liquid-crystallinity enhanced luminescence of disubstituted polyacetylenes carrying chromophoric terphenyl pendants. Science China Chemistry, 2010, 53, 1302-1315.	4.2	7
53	Synergistic Effects of Selenophene and Extended Ladderâ€Type Donor Units for Efficient Polymer Solar Cells. Macromolecular Rapid Communications, 2018, 39, 1700483.	2.0	7
54	The Influence of Oxygen Atoms on Conformation and Ïâ€“Ï€ Stacking of Ladderâ€Type Donorâ€Based Polymers and Their Photovoltaic Properties. Macromolecular Rapid Communications, 2017, 38, 1700156.	2.0	6

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55	Plasmonâ€Enhanced Photocatalytic Activity of Organic Heterostructure for Indoorâ€Light Antibacterial Therapy. Advanced Therapeutics, 2022, 5, .	1.6	6
56	Liquid crystallinity and enhanced photoluminescence of terphenyl-containing poly(1-alkynes) with tuning spacers and tails. Synthetic Metals, 2010, 160, 892-905.	2.1	3
57	Improved microstructure and performance of PbS thin films via in-situ thermal decomposition of lead xanthate precursors using self-assembling monolayer. Superlattices and Microstructures, 2016, 97, 378-385.	1.4	3
58	2D Perovskites: Coordination Engineering of Singleâ€Crystal Precursor for Phase Control in Ruddlesdenâ€“Popper Perovskite Solar Cells (Adv. Energy Mater. 16/2020). Advanced Energy Materials, 2020, 10, 2070072.	10.2	1