Mohammad Mahdi Tavakoli

List of Publications by Year
in descending order

109 papers	6,801 citations	61857 43 h-index	64668 79 g-index
111 all docs	111 docs citations	111 times ranked	7785 citing authors

#	Article	IF	Citations
1	Ultralow contact resistance between semimetal and monolayer semiconductors. Nature, 2021, 593, 211-217.	13.7	579
2	Highly Efficient Flexible Perovskite Solar Cells with Antireflection and Self-Cleaning Nanostructures. ACS Nano, 2015, 9, 10287-10295.	7.3	335
3	Surface Engineering of TiO₂ ETL for Highly Efficient and Hysteresisâ€Less Planar Perovskite Solar Cell (21.4%) with Enhanced Openâ€Circuit Voltage and Stability. Advanced Energy Materials, 2018, 8, 1800794.	10.2	255
4	Lead-Free Perovskite Nanowire Array Photodetectors with Drastically Improved Stability in Nanoengineering Templates. Nano Letters, 2017, 17, 523-530.	4.5	232
5	A review of aspects of additive engineering in perovskite solar cells. Journal of Materials Chemistry A, 2020, 8, 27-54.	5.2	232
6	3D Arrays of 1024â€Pixel Image Sensors based on Lead Halide Perovskite Nanowires. Advanced Materials, 2016, 28, 9713-9721.	11.1	228
7	Controllable Perovskite Crystallization via Antisolvent Technique Using Chloride Additives for Highly Efficient Planar Perovskite Solar Cells. Advanced Energy Materials, 2019, 9, 1803587.	10.2	221
8	All Inorganic Cesium Lead Iodide Perovskite Nanowires with Stabilized Cubic Phase at Room Temperature and Nanowire Array-Based Photodetectors. Nano Letters, 2017, 17, 4951-4957.	4.5	210
9	Fabrication of efficient planar perovskite solar cells using a one-step chemical vapor deposition method. Scientific Reports, 2015, 5, 14083.	1.6	200
10	Synergistic Crystal and Interface Engineering for Efficient and Stable Perovskite Photovoltaics. Advanced Energy Materials, 2019, 9, 1802646.	10.2	189
11	Efficient metal halide perovskite light-emitting diodes with significantly improved light extraction on nanophotonic substrates. Nature Communications, 2019, 10, 727.	5.8	179
12	Printable Fabrication of a Fully Integrated and Selfâ€Powered Sensor System on Plastic Substrates. Advanced Materials, 2019, 31, e1804285.	11.1	148
13	A graphene/ZnO electron transfer layer together with perovskite passivation enables highly efficient and stable perovskite solar cells. Journal of Materials Chemistry A, 2019, 7, 679-686.	5.2	145
14	High Efficiency and Stable Perovskite Solar Cell Using ZnO/rGO QDs as an Electron Transfer Layer. Advanced Materials Interfaces, 2016, 3, 1500790.	1.9	143
15	Addition of adamantylammonium iodide to hole transport layers enables highly efficient and electroluminescent perovskite solar cells. Energy and Environmental Science, 2018, 11, 3310-3320.	15.6	137
16	Largeâ€Grain Tinâ€Rich Perovskite Films for Efficient Solar Cells via Metal Alloying Technique. Advanced Materials, 2018, 30, 1705998.	11.1	116
17	Mesoscopic Oxide Double Layer as Electron Specific Contact for Highly Efficient and UV Stable Perovskite Photovoltaics. Nano Letters, 2018, 18, 2428-2434.	4.5	116
18	Adamantanes Enhance the Photovoltaic Performance and Operational Stability of Perovskite Solar Cells by Effective Mitigation of Interfacial Defect States. Advanced Energy Materials, 2018, 8, 1800275.	10.2	106

#	Article	IF	Citations
19	Greener, Nonhalogenated Solvent Systems for Highly Efficient Perovskite Solar Cells. Advanced Energy Materials, 2018, 8, 1800177.	10.2	106
20	Efficient, flexible and mechanically robust perovskite solar cells on inverted nanocone plastic substrates. Nanoscale, 2016, 8, 4276-4283.	2.8	99
21	Engineering of Perovskite Materials Based on Formamidinium and Cesium Hybridization for High-Efficiency Solar Cells. Chemistry of Materials, 2019, 31, 1620-1627.	3.2	99
22	One-step mechanochemical incorporation of an insoluble cesium additive for high performance planar heterojunction solar cells. Nano Energy, 2018, 49, 523-528.	8.2	95
23	Understanding the effect of chlorobenzene and isopropanol anti-solvent treatments on the recombination and interfacial charge accumulation in efficient planar perovskite solar cells. Journal of Materials Chemistry A, 2018, 6, 14307-14314.	5.2	94
24	Interface Engineering of Perovskite Solar Cell Using a Reduced-Graphene Scaffold. Journal of Physical Chemistry C, 2016, 120, 19531-19536.	1.5	84
25	Fabrication of CuFe₂O₄/Î±-Fe₂O₃ Composite Thin Films on FTO Coated Glass and 3-D Nanospike Structures for Efficient Photoelectrochemical Water Splitting. ACS Applied Materials & Interfaces, 2016, 8, 35315-35322.	4.0	67
26	Highly efficient and stable inverted perovskite solar cells using down-shifting quantum dots as a light management layer and moisture-assisted film growth. Journal of Materials Chemistry A, 2019, 7, 14753-14760.	5.2	67
27	High performance thin film solar cells on plastic substrates with nanostructure-enhanced flexibility. Nano Energy, 2016, 22, 539-547.	8.2	66
28	Elucidation of Charge Recombination and Accumulation Mechanism in Mixed Perovskite Solar Cells. Journal of Physical Chemistry C, 2018, 122, 15149-15154.	1.5	59
29	Dual-Layer Nanostructured Flexible Thin-Film Amorphous Silicon Solar Cells with Enhanced Light Harvesting and Photoelectric Conversion Efficiency. ACS Applied Materials & Interfaces, 2016, 8, 10929-10936.	4.0	57
30	Tuning, optimization, and perovskite solar cell device integration of ultrathin poly(3,4-ethylene) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 50 30	4.7	56
31	Highly flexible and transferable supercapacitors with ordered three-dimensional MnO₂/Au/MnO₂ nanospike arrays. Journal of Materials Chemistry A, 2015, 3, 10199-10204.	5.2	53
32	A non-catalytic vapor growth regime for organohalide perovskite nanowires using anodic aluminum oxide templates. Nanoscale, 2017, 9, 5828-5834.	2.8	53
33	Suppressing recombination in perovskite solar cells via surface engineering of TiO2 ETL. Solar Energy, 2020, 197, 50-57.	2.9	53
34	Heavy Water Additive in Formamidinium: A Novel Approach to Enhance Perovskite Solar Cell Efficiency. Advanced Materials, 2020, 32, e1907864.	11.1	51
35	Quasi Core/Shell Lead Sulfide/Graphene Quantum Dots for Bulk Heterojunction Solar Cells. Journal of Physical Chemistry C, 2015, 119, 18886-18895.	1.5	50
36	Efficient Semitransparent CsPbI₃ Quantum Dots Photovoltaics Using a Graphene Electrode. Small Methods, 2019, 3, 1900449.	4.6	49

#	Article	IF	Citations
37	Spray Pyrolysis Deposition of ZnFe₂O₄/Fe₂O₃ Composite Thin Films on Hierarchical 3-D Nanospikes for Efficient Photoelectrochemical Oxidation of Water. Journal of Physical Chemistry C, 2017, 121, 18360-18368.	1.5	48
38	Biochemical mechanisms of dose-dependent cytotoxicity and ROS-mediated apoptosis induced by lead sulfide/graphene oxide quantum dots for potential bioimaging applications. Scientific Reports, 2017, 7, 12896.	1.6	47
39	Impedance Spectroscopy for Metal Halide Perovskite Single Crystals: Recent Advances, Challenges, and Solutions. ACS Energy Letters, 2021, 6, 3275-3286.	8.8	47
40	Progress and Design Concerns of Nanostructured Solar Energy Harvesting Devices. Small, 2016, 12, 2536-2548.	5.2	46
41	Reducing ion migration in methylammonium lead tri-bromide single crystal via lead sulfate passivation. Journal of Applied Physics, 2020, 127, .	1.1	46
42	Hybrid zinc oxide/graphene electrodes for depleted heterojunction colloidal quantum-dot solar cells. Physical Chemistry Chemical Physics, 2015, 17, 24412-24419.	1.3	45
43	Synergistic Rollâ€toâ€Roll Transfer and Doping of CVDâ€Graphene Using Parylene for Ambientâ€Stable and Ultraâ€Lightweight Photovoltaics. Advanced Functional Materials, 2020, 30, 2001924.	7.8	45
44	Ambient Stable and Efficient Monolithic Tandem Perovskite/PbS Quantum Dots Solar Cells via Surface Passivation and Light Management Strategies. Advanced Functional Materials, 2021, 31, 2010623.	7.8	44
45	Influence of A-site cations on the open-circuit voltage of efficient perovskite solar cells: a case of rubidium and guanidinium additives. Journal of Materials Chemistry A, 2019, 7, 8218-8225.	5.2	43
46	Chemical processing of three-dimensional graphene networks on transparent conducting electrodes for depleted-heterojunction quantum dot solar cells. Chemical Communications, 2016, 52, 323-326.	2.2	40
47	Surface Treatment of Perovskite Layer with Guanidinium Iodide Leads to Enhanced Moisture Stability and Improved Efficiency of Perovskite Solar Cells. Advanced Materials Interfaces, 2020, 7, 2000105.	1.9	39
48	Supercritical Synthesis and Characterization of Grapheneâ€"PbS Quantum Dots Composite with Enhanced Photovoltaic Properties. Industrial & Engineering Chemistry Research, 2015, 54, 7382-7392.	1.8	38
49	Reducing Surface Recombination by a Poly(4-vinylpyridine) Interlayer in Perovskite Solar Cells with High Open-Circuit Voltage and Efficiency. ACS Omega, 2018, 3, 5038-5043.	1.6	38
50	Synergistic interface and compositional engineering of inverted perovskite solar cells enables highly efficient and stable photovoltaic devices. Chemical Communications, 2019, 55, 9196-9199.	2.2	37
51	Elucidation of the role of guanidinium incorporation in single-crystalline MAPbI₃ perovskite on ion migration and activation energy. Physical Chemistry Chemical Physics, 2020, 22, 11467-11473.	1.3	36
52	Physicochemical properties of hybrid grapheneâ€"lead sulfide quantum dots prepared by supercritical ethanol. Journal of Nanoparticle Research, 2015, 17, 1.	0.8	35
53	Recent Progress in Growth of Single-Crystal Perovskites for Photovoltaic Applications. ACS Omega, 2021, 6, 1030-1042.	1.6	35
54	Stability of perovskite materials and devices. Materials Today, 2022, 58, 275-296.	8.3	35

#	Article	IF	Citations
55	High-quality organohalide lead perovskite films fabricated by layer-by-layer alternating vacuum deposition for high efficiency photovoltaics. Materials Chemistry Frontiers, 2017, 1, 1520-1525.	3.2	33
56	Oxygen Plasma-Induced p-Type Doping Improves Performance and Stability of PbS Quantum Dot Solar Cells. ACS Applied Materials & Interfaces, 2019, 11, 26047-26052.	4.0	33
57	Interpretation of Resistance, Capacitance, Defect Density, and Activation Energy Levels in Single-Crystalline MAPbI₃. Journal of Physical Chemistry C, 2020, 124, 3496-3502.	1.5	33
58	Efficient, Hysteresisâ€Free, and Flexible Inverted Perovskite Solar Cells Using Allâ€Vacuum Processing. Solar Rrl, 2021, 5, .	3.1	33
59	Nanotextured Spikes of Î±-Fe₂O₃/NiFe₂O₄Composite for Efficient Photoelectrochemical Oxidation of Water. Langmuir, 2018, 34, 3555-3564.	1.6	31
60	Surface modification of a hole transporting layer for an efficient perovskite solar cell with an enhanced fill factor and stability. Molecular Systems Design and Engineering, 2018, 3, 717-722.	1.7	31
61	Light Management in Organic Photovoltaics Processed in Ambient Conditions Using ZnO Nanowire and Antireflection Layer with Nanocone Array. Small, 2019, 15, e1900508.	5.2	31
62	Changes in the Electrical Characteristics of Perovskite Solar Cells with Aging Time. Molecules, 2020, 25, 2299.	1.7	31
63	Effect of CsCl Additive on the Morphological and Optoelectronic Properties of Formamidinium Lead Iodide Perovskite. Solar Rrl, 2019, 3, 1900294.	3.1	30
64	Atomic Layer Deposition of an Effective Interface Layer of TiN for Efficient and Hysteresis-Free Mesoscopic Perovskite Solar Cells. ACS Applied Materials & Interfaces, 2020, 12, 8098-8106.	4.0	30
65	Efficient and Stable Mesoscopic Perovskite Solar Cells Using PDTITT as a New Hole Transporting Layer. Advanced Functional Materials, 2019, 29, 1905887.	7.8	29
66	Metal Halide Perovskites for Energy Storage Applications. European Journal of Inorganic Chemistry, 2021, 2021, 1201-1212.	1.0	29
67	Is machine learning redefining the perovskite solar cells?. Journal of Energy Chemistry, 2022, 66, 74-90.	7.1	27
68	Charge Accumulation, Recombination, and Their Associated Time Scale in Efficient (GUA)<i>_x</i>(MA)_{1â€“<i>x</i>}PbI₃-Based Perovskite Solar Cells. ACS Omega, 2019, 4, 16840-16846.	1.6	25
69	Zinc Stannate Nanorod as an Electron Transporting Layer for Highly Efficient and Hysteresis-less Perovskite Solar Cells. Engineered Science, 2018, , .	1.2	25
70	A relatively wide-bandgap and air-stable donor polymer for fabrication of efficient semitransparent and tandem organic photovoltaics. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 22037-22043.	3.3	24
71	Efficient, Flexible, and Ultraâ€Lightweight Inverted PbS Quantum Dots Solar Cells on Allâ€CVDâ€Growth of Parylene/Graphene/oCVD PEDOT Substrate with High Powerâ€perâ€Weight. Advanced Materials Interfaces, 2020, 7, 2000498.	1.9	24
72	Cost-Effective and Semi-Transparent PbS Quantum Dot Solar Cells Using Copper Electrodes. ACS Applied Materials & Interfaces, 2020, 12, 818-825.	4.0	23

#	Article	IF	Citations
73	Graphdiyne Coupled with gâ€C₃N₄/NiFeâ€Layered Double Hydroxide, a Layered Nanohybrid for Highly Efficient Photoelectrochemical Water Oxidation. Advanced Materials Interfaces, 2020, 7, 1902083.	1.9	23
74	Effect of bromine doping on the charge transfer, ion migration and stability of the single crystalline MAPb(Br_{<i>x</i>}I_{1âˆ’<i>x</i>})₃ photodetector. Journal of Materials Chemistry C, 2021, 9, 15189-15200.	2.7	23
75	A quantitative approach to study solid state phase coarsening in solder alloys using combined phase-field modeling and experimental observation. Journal of Computational Electronics, 2014, 13, 425-431.	1.3	22
76	Organic Halides and Nanocone Plastic Structures Enhance the Energy Conversion Efficiency and Self-Cleaning Ability of Colloidal Quantum Dot Photovoltaic Devices. Journal of Physical Chemistry C, 2017, 121, 9757-9765.	1.5	22
77	Correlation of recombination and open circuit voltage in planar heterojunction perovskite solar cells. Journal of Materials Chemistry C, 2019, 7, 1273-1279.	2.7	22
78	Tuning Areal Density and Surface Passivation of ZnO Nanowire Array Enable Efficient PbS QDs Solar Cells with Enhanced Current Density. Advanced Materials Interfaces, 2020, 7, 1901551.	1.9	22
79	Double layer mesoscopic electron contact for efficient perovskite solar cells. Sustainable Energy and Fuels, 2020, 4, 843-851.	2.5	22
80	Thiocyanate-Passivated Diaminonaphthalene-Incorporated Dionâ€“Jacobson Perovskite for Highly Efficient and Stable Solar Cells. ACS Applied Materials & Interfaces, 2022, 14, 850-860.	4.0	22
81	Allâ€Vacuumâ€Processing for Fabrication of Efficient, Largeâ€Scale, and Flexible Inverted Perovskite Solar Cells. Physica Status Solidi - Rapid Research Letters, 2021, 15, 2000449.	1.2	20
82	Mesoscopic TiO₂/Nb₂O₅ Electron Transfer Layer for Efficient and Stable Perovskite Solar Cells. Advanced Materials Interfaces, 2021, 8, 2100177.	1.9	20
83	Multilayer evaporation of MAFAPbI_{3âˆ’<i>x</i>}Cl_{<i>x</i>} for the fabrication of efficient and large-scale device perovskite solar cells. Journal Physics D: Applied Physics, 2019, 52, 034005.	1.3	19
84	Surface passivation of lead sulfide nanocrystals with low electron affinity metals: photoluminescence and photovoltaic performance. Physical Chemistry Chemical Physics, 2016, 18, 12086-12092.	1.3	18
85	Blue and red wavelength resolved impedance response of efficient perovskite solar cells. Sustainable Energy and Fuels, 2018, 2, 2407-2411.	2.5	18
86	Luminescence down-shifting enables UV-stable and efficient ZnO nanowire-based PbS quantum dot solar cells with <i>J</i>_{SC} exceeding 33 mA cm^{âˆ’2}. Sustainable Energy and Fuels, 2019, 3, 3128-3134.	2.5	18
87	Performance improvement of solution-processed CdS/CdTe solar cells with a thin compact TiO 2 buffer layer. Science Bulletin, 2016, 61, 86-91.	4.3	17
88	In the Quest of Lowâ€Frequency Impedance Spectra of Efficient Perovskite Solar Cells. Energy Technology, 2021, 9, 2100229.	1.8	16
89	Atomic Layer Engineering of Aluminumâ€Doped Zinc Oxide Films for Efficient and Stable Perovskite Solar Cells. Advanced Materials Interfaces, 2022, 9, .	1.9	16
90	Gold Nanoparticles Functionalized with Fullerene Derivative as an Effective Interface Layer for Improving the Efficiency and Stability of Planar Perovskite Solar Cells. Advanced Materials Interfaces, 2020, 7, 2001144.	1.9	14

#	Article	IF	Citations
91	Role of the spacer cation in the growth and crystal orientation of two-dimensional perovskites. Sustainable Energy and Fuels, 2021, 5, 1255-1279.	2.5	14
92	Two-dimensional halide perovskite single crystals: principles and promises. Emergent Materials, 2021, 4, 865-880.	3.2	14
93	Azahomofullerenes as New n-Type Acceptor Materials for Efficient and Stable Inverted Planar Perovskite Solar Cells. ACS Applied Materials & Interfaces, 2021, 13, 20296-20304.	4.0	13
94	Transient absorption of transition metal dichalcogenide monolayers studied by a photodope-pump-probe technique. Physical Review B, 2020, 102, .	1.1	12
95	Surface Engineering of Pbs Colloidal Quantum Dots Using Atomic Passivation for Photovoltaic Applications. Procedia Engineering, 2016, 139, 117-122.	1.2	11
96	Efficient Perovskite Solar Cells Based on CdSe/ZnS Quantum Dots Electron Transporting Layer with Superior UV Stability. Physica Status Solidi - Rapid Research Letters, 2020, 14, 2000062.	1.2	11
97	Monolayer Hexagonal Boron Nitride: An Efficient Electron Blocking Layer in Organic Photovoltaics. Advanced Functional Materials, 2021, 31, 2101238.	7.8	9
98	Interface Engineering of Mesoscopic Perovskite Solar Cells by Atomic Layer Deposition of Ta₂O₅. ACS Applied Energy Materials, 2021, 4, 10433-10441.	2.5	9
99	Synergistic ligand exchange and UV curing of PbS quantum dots for effective surface passivation. Nanoscale, 2019, 11, 22832-22840.	2.8	8
100	Observation of charge transfer in mixed-dimensional heterostructures formed by transition metal dichalcogenide monolayers and PbS quantum dots. Physical Review B, 2019, 100, .	1.1	7
101	Efficient and Stable Mesoscopic Perovskite Solar Cells Using a Dopantâ€Free Dâ€“A Copolymer Holeâ€Transporting Layer. Solar Rrl, 2021, 5, 2000801.	3.1	7
102	Investigation on the Facet-Dependent Anisotropy in Halide Perovskite Single Crystals. Journal of Physical Chemistry C, 2022, 126, 8906-8912.	1.5	7
103	Recent Progress of Light Intensityâ€Modulated Small Perturbation Techniques in Perovskite Solar Cells. Physica Status Solidi - Rapid Research Letters, 2022, 16, .	1.2	6
104	Efficient and Lessâ€Toxic Indiumâ€Doped MAPbI₃ Perovskite Solar Cells Prepared by Metal Alloying Technique. Solar Rrl, 2022, 6, .	3.1	6
105	Identifying dominant recombination mechanisms in spiro-based conventional perovskite solar cells: Roles of interface and bulk recombination. Energy Reports, 2022, 8, 7957-7963.	2.5	5
106	A Dopantâ€Free Hole Transporting Layer for Efficient and Stable Planar Perovskite Solar Cells. Physica Status Solidi - Rapid Research Letters, 2020, 14, 2000147.	1.2	3
107	Suppression of Photovoltaic Losses in Efficient Tandem Organic Solar Cells (15.2%) with Efficient Transporting Layers and Light Management Approach. Energy Technology, 2021, 9, 2000751.	1.8	3
108	Solar Energy: Progress and Design Concerns of Nanostructured Solar Energy Harvesting Devices (Small 19/2016). Small, 2016, 12, 2530-2530.	5.2	2

#	Article	IF	Citations
109	Band alignment and carrier recombination roles on the open circuit voltage of ETLâ€passivated perovskite photovoltaics. International Journal of Energy Research, 2022, 46, 6022-6030.	2.2	2