Wolfgang Tress

List of Publications by Citations

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

101 papers	23,176 citations	55 h-index	104 g-index
104 ext. papers	26,655 ext. citations	18.3 avg, IF	7.31 L-index

#	Paper	IF	Citations
101	Cesium-containing triple cation perovskite solar cells: improved stability, reproducibility and high efficiency. *Energy and Environmental Science*, **2016**, 9, 1989-1997	35.4	3740
100	Incorporation of rubidium cations into perovskite solar cells improves photovoltaic performance. *Science*, **2016**, 354, 206-209	33.3	2628
99	Efficient luminescent solar cells based on tailored mixed-cation perovskites. *Science Advances*, **2016** , 2, e1501170	14.3	1498
98	Promises and challenges of perovskite solar cells. *Science*, **2017**, 358, 739-744	33.3	1016
97	Understanding the rate-dependent J⊠V hysteresis, slow time component, and aging in CH3NH3PbI3 perovskite solar cells: the role of a compensated electric field. *Energy and Environmental Science*, **2015**, 8, 995-1004	35.4	998
96	Highly efficient planar perovskite solar cells through band alignment engineering. *Energy and Environmental Science*, **2015**, 8, 2928-2934	35.4	949
95	The rapid evolution of highly efficient perovskite solar cells. *Energy and Environmental Science*, **2017**, 10, 710-727	35.4	811
94	Not All That Glitters Is Gold: Metal-Migration-Induced Degradation in Perovskite Solar Cells. *ACS Nano*, **2016**, 10, 6306-14	16.7	759
93	Highly efficient and stable planar perovskite solar cells by solution-processed tin oxide. *Energy and Environmental Science*, **2016**, 9, 3128-3134	35.4	603
92	Unreacted PbI2 as a Double-Edged Sword for Enhancing the Performance of Perovskite Solar Cells. *Journal of the American Chemical Society*, **2016**, 138, 10331-43	16.4	537
91	Ionic polarization-induced current-voltage hysteresis in CH3NH3PbX3 perovskite solar cells. *Nature Communications*, **2016**, 7, 10334	17.4	500
90	Design rules for minimizing voltage losses in high-efficiency organic solar cells. *Nature Materials*, **2018**, 17, 703-709	27	500
89	Systematic investigation of the impact of operation conditions on the degradation behaviour of perovskite solar cells. *Nature Energy*, **2018**, 3, 61-67	62.3	427
88	Interpretation and evolution of open-circuit voltage, recombination, ideality factor and subgap defect states during reversible light-soaking and irreversible degradation of perovskite solar cells. *Energy and Environmental Science*, **2018**, 11, 151-165	35.4	425
87	Migration of cations induces reversible performance losses over day/night cycling in perovskite solar cells. *Energy and Environmental Science*, **2017**, 10, 604-613	35.4	387
86	Consensus statement for stability assessment and reporting for perovskite photovoltaics based on ISOS procedures. *Nature Energy*, **2020**, 5, 35-49	62.3	369
85	Predicting the Open-Circuit Voltage of CH3NH3PbI3 Perovskite Solar Cells Using Electroluminescence and Photovoltaic Quantum Efficiency Spectra: the Role of Radiative and Non-Radiative Recombination. *Advanced Energy Materials*, **2015**, 5, 1400812	21.8	358

84	Perovskite Solar Cells on the Way to Their Radiative Efficiency Limit Insights Into a Success Story of High Open-Circuit Voltage and Low Recombination. *Advanced Energy Materials*, **2017**, 7, 1602358	21.8	331
83	Europium-Doped CsPbI2Br for Stable and Highly Efficient Inorganic Perovskite Solar Cells. *Joule*, **2019**, 3, 205-214	27.8	290
82	Vapor-assisted deposition of highly efficient, stable black-phase FAPbI perovskite solar cells. *Science*, **2020**, 370,	33.3	257
81	Small-molecule solar cells-status and perspectives. *Nanotechnology*, **2008**, 19, 424001	3.4	254
80	Influence of Hole-Transport Layers and Donor Materials on Open-Circuit Voltage and Shape of IV Curves of Organic Solar Cells. *Advanced Functional Materials*, **2011**, 21, 2140-2149	15.6	248
79	Identifying and suppressing interfacial recombination to achieve high open-circuit voltage in perovskite solar cells. *Energy and Environmental Science*, **2017**, 10, 1207-1212	35.4	242
78	How the formation of interfacial charge causes hysteresis in perovskite solar cells. *Energy and Environmental Science*, **2018**, 11, 2404-2413	35.4	211
77	Unbroken Perovskite: Interplay of Morphology, Electro-optical Properties, and Ionic Movement. *Advanced Materials*, **2016**, 28, 5031-7	24	208
76	Enhanced charge carrier mobility and lifetime suppress hysteresis and improve efficiency in planar perovskite solar cells. *Energy and Environmental Science*, **2018**, 11, 78-86	35.4	202
75	The effect of illumination on the formation of metal halide perovskite films. *Nature*, **2017**, 545, 208-212	50.4	197
74	Review on Recent Progress of All-Inorganic Metal Halide Perovskites and Solar Cells. *Advanced Materials*, **2019**, 31, e1902851	24	191
73	Imbalanced mobilities causing S-shaped IV curves in planar heterojunction organic solar cells. *Applied Physics Letters*, **2011**, 98, 063301	3.4	189
72	Band structure engineering in organic semiconductors. *Science*, **2016**, 352, 1446-9	33.3	186
71	Conformal quantum dot-SnO layers as electron transporters for efficient perovskite solar cells.. *Science*, **2022**, 375, 302-306	33.3	181
70	Inverted CurrentVoltage Hysteresis in Mixed Perovskite Solar Cells: Polarization, Energy Barriers, and Defect Recombination. *Advanced Energy Materials*, **2016**, 6, 1600396	21.8	174
69	High Temperature-Stable Perovskite Solar Cell Based on Low-Cost Carbon Nanotube Hole Contact. *Advanced Materials*, **2017**, 29, 1606398	24	173
68	Light Harvesting and Charge Recombination in CH3NH3PbI3 Perovskite Solar Cells Studied by Hole Transport Layer Thickness Variation. *ACS Nano*, **2015**, 9, 4200-9	16.7	167
67	Optimum mobility, contact properties, and open-circuit voltage of organic solar cells: A drift-diffusion simulation study. *Physical Review B*, **2012**, 85,	3.3	154

66	Metal Halide Perovskites as Mixed Electronic-Ionic Conductors: Challenges and Opportunities-From Hysteresis to Memristivity. *Journal of Physical Chemistry Letters*, **2017**, 8, 3106-3114	6.4	134
65	Low-Temperature Nb-Doped SnO2 Electron-Selective Contact Yields over 20% Efficiency in Planar Perovskite Solar Cells. *ACS Energy Letters*, **2018**, 3, 773-778	20.1	119
64	Addition of adamantylammonium iodide to hole transport layers enables highly efficient and electroluminescent perovskite solar cells. *Energy and Environmental Science*, **2018**, 11, 3310-3320	35.4	118
63	Performance of perovskite solar cells under simulated temperature-illumination real-world operating conditions. *Nature Energy*, **2019**, 4, 568-574	62.3	117
62	Photoelectron spectroscopy study of systematically varied doping concentrations in an organic semiconductor layer using a molecular p-dopant. *Journal of Applied Physics*, **2009**, 106, 103711	2.5	117
61	Working Principles of Perovskite Photodetectors: Analyzing the Interplay Between Photoconductivity and Voltage-Driven Energy-Level Alignment. *Advanced Functional Materials*, **2015**, 25, 6936-6947	15.6	114
60	Light trapping in thin film organic solar cells. *Materials Today*, **2014**, 17, 389-396	21.8	111
59	Origin of apparent light-enhanced and negative capacitance in perovskite solar cells. *Nature Communications*, **2019**, 10, 1574	17.4	109
58	Changes from Bulk to Surface Recombination Mechanisms between Pristine and Cycled Perovskite Solar Cells. *ACS Energy Letters*, **2017**, 2, 681-688	20.1	99
57	Highly Efficient and Stable Perovskite Solar Cells based on a Low-Cost Carbon Cloth. *Advanced Energy Materials*, **2016**, 6, 1601116	21.8	91
56	Investigation of Driving Forces for Charge Extraction in Organic Solar Cells: Transient Photocurrent Measurements on Solar Cells Showing S-Shaped Current–Voltage Characteristics. *Advanced Energy Materials*, **2013**, 3, 873-880	21.8	89
55	Temperature dependence of charge carrier generation in organic photovoltaics. *Physical Review Letters*, **2015**, 114, 128701	7.4	84
54	A new fullerene-free bulk-heterojunction system for efficient high-voltage and high-fill factor solution-processed organic photovoltaics. *Advanced Materials*, **2015**, 27, 1900-7	24	77
53	Globularity-Selected Large Molecules for a New Generation of Multication Perovskites. *Advanced Materials*, **2017**, 29, 1702005	24	67
52	Ba-induced phase segregation and band gap reduction in mixed-halide inorganic perovskite solar cells. *Nature Communications*, **2019**, 10, 4686	17.4	65
51	Simple experimental test to distinguish extraction and injection barriers at the electrodes of (organic) solar cells with S-shaped current–voltage characteristics. *Solar Energy Materials and Solar Cells*, **2013**, 117, 599-603	6.4	65
50	Correlation of open-circuit voltage and energy levels in zinc-phthalocyanine: C60 bulk heterojunction solar cells with varied mixing ratio. *Physical Review B*, **2013**, 88,	3.3	61
49	Carbon Nanoparticles in High-Performance Perovskite Solar Cells. *Advanced Energy Materials*, **2018**, 8, 1702719	21.8	59

48	Photovoltaic and Amplified Spontaneous Emission Studies of High-Quality Formamidinium Lead Bromide Perovskite Films. *Advanced Functional Materials*, **2016**, 26, 2846-2854	15.6	57
47	Additive-Free Transparent Triarylamine-Based Polymeric Hole-Transport Materials for Stable Perovskite Solar Cells. *ChemSusChem*, **2016**, 9, 2567-2571	8.3	56
46	Intermediate Phase Enhances Inorganic Perovskite and Metal Oxide Interface for Efficient Photovoltaics. *Joule*, **2020**, 4, 222-234	27.8	55
45	Relating open-circuit voltage losses to the active layer morphology and contact selectivity in organic solar cells. *Journal of Materials Chemistry A*, **2018**, 6, 12574-12581	13	53
44	Dominating recombination mechanisms in organic solar cells based on ZnPc and C60. *Applied Physics Letters*, **2013**, 102, 163901	3.4	50
43	Room Temperature as a Goldilocks Environment for CH3NH3PbI3 Perovskite Solar Cells: The Importance of Temperature on Device Performance. *Journal of Physical Chemistry C*, **2016**, 120, 11382-11393	3.8	50
42	Correlation of Absorption Profile and Fill Factor in Organic Solar Cells: The Role of Mobility Imbalance. *Advanced Energy Materials*, **2013**, 3, 631-638	21.8	44
41	Poly(ethylene glycol)-[60]Fullerene-Based Materials for Perovskite Solar Cells with Improved Moisture Resistance and Reduced Hysteresis. *ChemSusChem*, **2018**, 11, 1032-1039	8.3	43
40	Sub-glass transition annealing enhances polymer solar cell performance. *Journal of Materials Chemistry A*, **2014**, 2, 6146-6152	13	43
39	Highly efficient, stable and hysteresis-less planar perovskite solar cell based on chemical bath treated Zn2SnO4 electron transport layer. *Nano Energy*, **2020**, 75, 105038	17.1	42
38	How far does the defect tolerance of lead-halide perovskites range? The example of Bi impurities introducing efficient recombination centers. *Journal of Materials Chemistry A*, **2019**, 7, 23838-23853	13	38
37	Formamidinium-Based Dion-Jacobson Layered Hybrid Perovskites: Structural Complexity and Optoelectronic Properties. *Advanced Functional Materials*, **2020**, 30, 2003428	15.6	34
36	Dopant-Free Hole-Transporting Polymers for Efficient and Stable Perovskite Solar Cells. *Macromolecules*, **2019**, 52, 2243-2254	5.5	33
35	Improving Cathodes with a Polymer Interlayer in Reversed Organic Solar Cells. *Advanced Energy Materials*, **2014**, 4, 1400643	21.8	31
34	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	3.9	29
33	Open circuit voltage and IV curve shape of ZnPc:C60 solar cells with varied mixing ratio and hole transport layer. *Journal of Photonics for Energy*, **2011**, 1, 011114	1.2	29
32	Light Trapping with Dielectric Scatterers in Single- and Tandem-Junction Organic Solar Cells. *Advanced Energy Materials*, **2013**, 3, 1606-1613	21.8	28
31	Perovskite light-emitting diodes. *Nature Electronics*, **2022**, 5, 203-216	28.4	27

30	Mixed interlayers at the interface between PEDOT:PSS and conjugated polymers provide charge transport control. *Journal of Materials Chemistry C*, **2015**, 3, 2664-2676	7.1	23
29	Outstanding Passivation Effect by a Mixed-Salt Interlayer with Internal Interactions in Perovskite Solar Cells. *ACS Energy Letters*, **2020**, 5, 3159-3167	20.1	22
28	Maximum Efficiency and Open-Circuit Voltage of Perovskite Solar Cells **2016**, 53-77		21
27	Electric potential mapping by thickness variation: A new method for model-free mobility determination in organic semiconductor thin films. *Organic Electronics*, **2013**, 14, 3460-3471	3.5	20
26	Phosphonic Acid Modification of the Electron Selective Contact: Interfacial Effects in Perovskite Solar Cells. *ACS Applied Energy Materials*, **2019**, 2, 2402-2408	6.1	19
25	The role of the hole-transport layer in perovskite solar cells - reducing recombination and increasing absorption **2014**,		19
24	Perovskite Solar Cells Yielding Reproducible Photovoltage of 1.20 V. *Research*, **2019**, 2019, 8474698	7.8	17
23	Interfaces and Interfacial Layers in Inorganic Perovskite Solar Cells. *Angewandte Chemie - International Edition*, **2021**, 60, 26440-26453	16.4	16
22	Photoconductivity as loss mechanism in organic solar cells. *Physica Status Solidi - Rapid Research Letters*, **2013**, 7, 401-405	2.5	15
21	Transient Photovoltage Measurements on Perovskite Solar Cells with Varied Defect Concentrations and Inhomogeneous Recombination Rates. *Small Methods*, **2020**, 4, 2000290	12.8	13
20	Planar Perovskite Solar Cells with High Open-Circuit Voltage Containing a Supramolecular Iron Complex as Hole Transport Material Dopant. *ChemPhysChem*, **2018**, 19, 1363-1370	3.2	13
19	Tetrapropyl-tetraphenyl-diindenoperylene derivative as a green absorber for high-voltage stable organic solar cells. *Physical Review B*, **2011**, 83,	3.3	13
18	Electroluminescence Dynamics in Perovskite Solar Cells Reveals Giant Overshoot Effect. *Journal of Physical Chemistry Letters*, **2019**, 10, 1779-1783	6.4	12
17	Copolymer-Templated Nickel Oxide for High-Efficiency Mesoscopic Perovskite Solar Cells in Inverted Architecture. *Advanced Functional Materials*, **2021**, 31, 2102237	15.6	12
16	A charge carrier transport model for donor-acceptor blend layers. *Journal of Applied Physics*, **2015**, 117, 045501	2.5	11
15	2D/3D Hybrid Cs2AgBiBr6 Double Perovskite Solar Cells: Improved Energy Level Alignment for Higher Contact-Selectivity and Large Open Circuit Voltage. *Advanced Energy Materials*,2103215	21.8	10
14	The Bottlenecks of Cs2AgBiBr6 Solar Cells: How Contacts and Slow Transients Limit the Performance. *Advanced Optical Materials*, **2021**, 9, 2100202	8.1	10
13	Exploiting diffusion currents at Ohmic contacts for trap characterization in organic semiconductors. *Organic Electronics*, **2014**, 15, 2428-2432	3.5	9

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12	Extended Intermolecular Interactions Governing Photocurrent-Voltage Relations in Ternary Organic Solar Cells. *Journal of Physical Chemistry Letters*, **2016**, 7, 3936-3944	6.4	9
11	Mobile ions determine the luminescence yield of perovskite light-emitting diodes under pulsed operation. *Nature Communications*, **2021**, 12, 4899	17.4	9
10	New method for lateral mapping of bimolecular recombination in thin-film organic solar cells. *Progress in Photovoltaics: Research and Applications*, **2016**, 24, 1096-1108	6.8	7
9	Unravelling the structural complexity and photophysical properties of adamantyl-based layered hybrid perovskites. *Journal of Materials Chemistry A*, **2020**, 8, 17732-17740	13	7
8	A partially-planarised hole-transporting quart-p-phenylene for perovskite solar cells. *Journal of Materials Chemistry C*, **2019**, 7, 4332-4335	7.1	5
7	Cs2AgBiBr6 Double Perovskites as Lead-Free Alternatives for Perovskite Solar Cells?. *Solar Rrl*,2100770	7.1	5
6	Effect of concentration gradients in ZnPc:C60 bulk heterojunction organic solar cells. *Solar Energy Materials and Solar Cells*, **2011**,	6.4	4
5	Crystal-Size-Induced Band Gap Tuning in Perovskite Films. *Angewandte Chemie - International Edition*, **2021**, 60, 21368-21376	16.4	3
4	Crystal-Size-Induced Band Gap Tuning in Perovskite Films. *Angewandte Chemie*, **2021**, 133, 21538-21546	3.6	3
3	Intermediate Phase Enhances Inorganic Perovskite and Metal Oxide Interface for Efficient Photovoltaics. *Joule*, **2020**, 4, 507-508	27.8	2
2	When photoluminescence, electroluminescence, and open-circuit voltage diverge ▯light soaking and halide segregation in perovskite solar cells. *Journal of Materials Chemistry A*, **2021**, 9, 13967-13978	13	2
1	Interfaces and Interfacial Layers in Inorganic Perovskite Solar Cells. *Angewandte Chemie*,	3.6	1