Wolfgang Tress

List of Publications by Year
in descending order

104 papers	30,458 citations	19608 61 h-index	31759 101 g-index
104 all docs	104 docs citations	104 times ranked	18986 citing authors

#	ARTICLE	IF	CITATIONS
1	Cesium-containing triple cation perovskite solar cells: improved stability, reproducibility and high efficiency. Energy and Environmental Science, 2016, 9, 1989-1997.	15.6	4,560
2	Incorporation of rubidium cations into perovskite solar cells improves photovoltaic performance. Science, 2016, 354, 206-209.	6.0	3,137
3	Efficient luminescent solar cells based on tailored mixed-cation perovskites. Science Advances, 2016, 2, e1501170.	4.7	1,669
4	Promises and challenges of perovskite solar cells. Science, 2017, 358, 739-744.	6.0	1,510
5	Understanding the rate-dependent Jâ€“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.	15.6	1,150
6	Highly efficient planar perovskite solar cells through band alignment engineering. Energy and Environmental Science, 2015, 8, 2928-2934.	15.6	1,097
7	Not All That Glitters Is Gold: Metal-Migration-Induced Degradation in Perovskite Solar Cells. ACS Nano, 2016, 10, 6306-6314.	7.3	966
8	The rapid evolution of highly efficient perovskite solar cells. Energy and Environmental Science, 2017, 10, 710-727.	15.6	942
9	Conformal quantum dotâ€“SnO ₂ layers as electron transporters for efficient perovskite solar cells. Science, 2022, 375, 302-306.	6.0	872
10	Consensus statement for stability assessment and reporting for perovskite photovoltaics based on ISOS procedures. Nature Energy, 2020, 5, 35-49.	19.8	797
11	Highly efficient and stable planar perovskite solar cells by solution-processed tin oxide. Energy and Environmental Science, 2016, 9, 3128-3134.	15.6	720
12	Design rules for minimizing voltage losses in high-efficiency organic solar cells. Nature Materials, 2018, 17, 703-709.	13.3	701
13	Unreacted PbI₂ as a Double-Edged Sword for Enhancing the Performance of Perovskite Solar Cells. Journal of the American Chemical Society, 2016, 138, 10331-10343.	6.6	696
14	Ionic polarization-induced currentâ€“voltage hysteresis in CH3NH3PbX3 perovskite solar cells. Nature Communications, 2016, 7, 10334.	5.8	602
15	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.	15.6	586
16	Systematic investigation of the impact of operation conditions on the degradation behaviour of perovskite solar cells. Nature Energy, 2018, 3, 61-67.	19.8	544
17	Vapor-assisted deposition of highly efficient, stable black-phase FAPbI ₃ perovskite solar cells. Science, 2020, 370, .	6.0	530
18	Migration of cations induces reversible performance losses over day/night cycling in perovskite solar cells. Energy and Environmental Science, 2017, 10, 604-613.	15.6	525

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19	Perovskite Solar Cells on the Way to Their Radiative Efficiency Limit â€“ Insights Into a Success Story of High Openâ€Circuit Voltage and Low Recombination. Advanced Energy Materials, 2017, 7, 1602358.	10.2	430
20	Predicting the Openâ€Circuit Voltage of CH₃NH₃PbI₃ Perovskite Solar Cells Using Electroluminescence and Photovoltaic Quantum Efficiency Spectra: the Role of Radiative and Nonâ€Radiative Recombination. Advanced Energy Materials, 2015, 5, 1400812.	10.2	425
21	Europium-Doped CsPbI2Br for Stable and Highly Efficient Inorganic Perovskite Solar Cells. Joule, 2019, 3, 205-214.	11.7	387
22	Review on Recent Progress of Allâ€Inorganic Metal Halide Perovskites and Solar Cells. Advanced Materials, 2019, 31, e1902851.	11.1	309
23	How the formation of interfacial charge causes hysteresis in perovskite solar cells. Energy and Environmental Science, 2018, 11, 2404-2413.	15.6	289
24	Identifying and suppressing interfacial recombination to achieve high open-circuit voltage in perovskite solar cells. Energy and Environmental Science, 2017, 10, 1207-1212.	15.6	288
25	Small-molecule solar cellsâ€"status and perspectives. Nanotechnology, 2008, 19, 424001.	1.3	269
26	Perovskite light-emitting diodes. Nature Electronics, 2022, 5, 203-216.	13.1	268
27	Influence of Holeâ€Transport Layers and Donor Materials on Openâ€Circuit Voltage and Shape of <i>Iâ€“</i><i>V</i> Curves of Organic Solar Cells. Advanced Functional Materials, 2011, 21, 2140-2149.	7.8	263
28	Enhanced charge carrier mobility and lifetime suppress hysteresis and improve efficiency in planar perovskite solar cells. Energy and Environmental Science, 2018, 11, 78-86.	15.6	246
29	Unbroken Perovskite: Interplay of Morphology, Electroâ€optical Properties, and Ionic Movement. Advanced Materials, 2016, 28, 5031-5037.	11.1	242
30	The effect of illumination on the formation of metal halide perovskite films. Nature, 2017, 545, 208-212.	13.7	242
31	Band structure engineering in organic semiconductors. Science, 2016, 352, 1446-1449.	6.0	239
32	Inverted Currentâ€"Voltage Hysteresis in Mixed Perovskite Solar Cells: Polarization, Energy Barriers, and Defect Recombination. Advanced Energy Materials, 2016, 6, 1600396.	10.2	213
33	High Temperatureâ€Stable Perovskite Solar Cell Based on Lowâ€Cost Carbon Nanotube Hole Contact. Advanced Materials, 2017, 29, 1606398.	11.1	209
34	Light Harvesting and Charge Recombination in CH₃NH₃PbI₃ Perovskite Solar Cells Studied by Hole Transport Layer Thickness Variation. ACS Nano, 2015, 9, 4200-4209.	7.3	205
35	Imbalanced mobilities causing S-shaped IV curves in planar heterojunction organic solar cells. Applied Physics Letters, 2011, 98, .	1.5	203
36	Metal Halide Perovskites as Mixed Electronicâ€"Ionic Conductors: Challenges and Opportunitiesâ€"From Hysteresis to Memristivity. Journal of Physical Chemistry Letters, 2017, 8, 3106-3114.	2.1	188

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37	Performance of perovskite solar cells under simulated temperature-illumination real-world operating conditions. Nature Energy, 2019, 4, 568-574.	19.8	186
38	Optimum mobility, contact properties, and open-circuit voltage of organic solar cells: A drift-diffusion simulation study. Physical Review B, 2012, 85, .	1.1	174
39	Origin of apparent light-enhanced and negative capacitance in perovskite solar cells. Nature Communications, 2019, 10, 1574.	5.8	167
40	Low-Temperature Nb-Doped SnO₂ Electron-Selective Contact Yields over 20% Efficiency in Planar Perovskite Solar Cells. ACS Energy Letters, 2018, 3, 773-778.	8.8	157
41	Light trapping in thin film organic solar cells. Materials Today, 2014, 17, 389-396.	8.3	138
42	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
43	Working Principles of Perovskite Photodetectors: Analyzing the Interplay Between Photoconductivity and Voltageâ€Driven Energyâ€Level Alignment. Advanced Functional Materials, 2015, 25, 6936-6947.	7.8	129
44	Photoelectron spectroscopy study of systematically varied doping concentrations in an organic semiconductor layer using a molecular p-dopant. Journal of Applied Physics, 2009, 106, .	1.1	128
45	Changes from Bulk to Surface Recombination Mechanisms between Pristine and Cycled Perovskite Solar Cells. ACS Energy Letters, 2017, 2, 681-688.	8.8	122
46	Sequential vacuum-evaporated perovskite solar cells with more than 24% efficiency. Science Advances, 2022, 8, .	4.7	118
47	Highly Efficient and Stable Perovskite Solar Cells based on a Lowâ€Cost Carbon Cloth. Advanced Energy Materials, 2016, 6, 1601116.	10.2	107
48	Ba-induced phase segregation and band gap reduction in mixed-halide inorganic perovskite solar cells. Nature Communications, 2019, 10, 4686.	5.8	105
49	Investigation of Driving Forces for Charge Extraction in Organic Solar Cells: Transient Photocurrent Measurements on Solar Cells Showing Sâ€Shaped Currentâ€"Voltage Characteristics. Advanced Energy Materials, 2013, 3, 873-880.	10.2	103
50	Temperature Dependence of Charge Carrier Generation in Organic Photovoltaics. Physical Review Letters, 2015, 114, 128701.	2.9	96
51	Intermediate Phase Enhances Inorganic Perovskite and Metal Oxide Interface for Efficient Photovoltaics. Joule, 2020, 4, 222-234.	11.7	88
52	A New Fullereneâ€Free Bulkâ€Heterojunction System for Efficient Highâ€Voltage and Highâ€Fill Factor Solutionâ€Processed Organic Photovoltaics. Advanced Materials, 2015, 27, 1900-1907.	11.1	84
53	Globularityâ€Selected Large Molecules for a New Generation of Multication Perovskites. Advanced Materials, 2017, 29, 1702005.	11.1	81
54	Simple experimental test to distinguish extraction and injection barriers at the electrodes of (organic) solar cells with S-shaped currentâ€"voltage characteristics. Solar Energy Materials and Solar Cells, 2013, 117, 599-603.	3.0	77

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55	Highly efficient, stable and hysteresisâ€'less planar perovskite solar cell based on chemical bath treated Zn2SnO4 electron transport layer. Nano Energy, 2020, 75, 105038.	8.2	77
56	Carbon Nanoparticles in Highâ€Performance Perovskite Solar Cells. Advanced Energy Materials, 2018, 8, 1702719.	10.2	74
57	Correlation of open-circuit voltage and energy levels in zinc-phthalocyanine: C<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mrow /><mml:mn>60</mml:mn></mml:msub></mml:math>bulk heterojunction solar cells with varied mixing ratio. Physical Review B, 2013, 88, .	1.1	71
58	Interfaces and Interfacial Layers in Inorganic Perovskite Solar Cells. Angewandte Chemie - International Edition, 2021, 60, 26440-26453.	7.2	69
59	Photovoltaic and Amplified Spontaneous Emission Studies of Highâ€Quality Formamidinium Lead Bromide Perovskite Films. Advanced Functional Materials, 2016, 26, 2846-2854.	7.8	66
60	Additiveâ€Free Transparent Triarylamineâ€Based Polymeric Holeâ€Transport Materials for Stable Perovskite Solar Cells. ChemSusChem, 2016, 9, 2567-2571.	3.6	65
61	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.	5.2	65
62	2D/3D Hybrid Cs₂AgBiBr₆ Double Perovskite Solar Cells: Improved Energy Level Alignment for Higher Contactâ€Selectivity and Large Open Circuit Voltage. Advanced Energy Materials, 2022, 12, 2103215.	10.2	62
63	Formamidiniumâ€Based Dionâ€Jacobson Layered Hybrid Perovskites: Structural Complexity and Optoelectronic Properties. Advanced Functional Materials, 2020, 30, 2003428.	7.8	61
64	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.	1.5	58
65	Poly(ethylene glycol)â€"[60]Fullereneâ€Based Materials for Perovskite Solar Cells with Improved Moisture Resistance and Reduced Hysteresis. ChemSusChem, 2018, 11, 1032-1039.	3.6	57
66	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.	5.2	57
67	Dominating recombination mechanisms in organic solar cells based on ZnPc and C60. Applied Physics Letters, 2013, 102, 163901.	1.5	55
68	Copolymerâ€Templated Nickel Oxide for Highâ€Efficiency Mesoscopic Perovskite Solar Cells in Inverted Architecture. Advanced Functional Materials, 2021, 31, 2102237.	7.8	51
69	Correlation of Absorption Profile and Fill Factor in Organic Solar Cells: The Role of Mobility Imbalance. Advanced Energy Materials, 2013, 3, 631-638.	10.2	50
70	Dopant-Free Hole-Transporting Polymers for Efficient and Stable Perovskite Solar Cells. Macromolecules, 2019, 52, 2243-2254.	2.2	50
71	Sub-glass transition annealing enhances polymer solar cell performance. Journal of Materials Chemistry A, 2014, 2, 6146-6152.	5.2	48
72	Outstanding Passivation Effect by a Mixed-Salt Interlayer with Internal Interactions in Perovskite Solar Cells. ACS Energy Letters, 2020, 5, 3159-3167.	8.8	47

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73	Improving Cathodes with a Polymer Interlayer in Reversed Organic Solar Cells. Advanced Energy Materials, 2014, 4, 1400643.	10.2	43
74	Interfacial Engineering of Metal Oxides for Highly Stable Halide Perovskite Solar Cells. Advanced Materials Interfaces, 2018, 5, 1800367.	1.9	39
75	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
76	Transient Photovoltage Measurements on Perovskite Solar Cells with Varied Defect Concentrations and Inhomogeneous Recombination Rates. Small Methods, 2020, 4, 2000290.	4.6	36
77	Cs₂AgBiBr₆ Double Perovskites as Leadâ€Free Alternatives for Perovskite Solar Cells?. Solar Rrl, 2022, 6, 2100770.	3.1	36
78	The Bottlenecks of Cs₂AgBiBr₆ Solar Cells: How Contacts and Slow Transients Limit the Performance. Advanced Optical Materials, 2021, 9, 2100202.	3.6	35
79	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.	0.8	31
80	Light Trapping with Dielectric Scatterers in Singleâ€•and Tandemâ€Junction Organic Solar Cells. Advanced Energy Materials, 2013, 3, 1606-1613.	10.2	30
81	Mobile ions determine the luminescence yield of perovskite light-emitting diodes under pulsed operation. Nature Communications, 2021, 12, 4899.	5.8	30
82	The role of the hole-transport layer in perovskite solar cells - reducing recombination and increasing absorption. , 2014, , .		28
83	Crystalâ€Sizeâ€Induced Band Gap Tuning in Perovskite Films. Angewandte Chemie - International Edition, 2021, 60, 21368-21376.	7.2	28
84	Maximum Efficiency and Open-Circuit Voltage of Perovskite Solar Cells. , 2016, , 53-77.		27
85	Mixed interlayers at the interface between PEDOT:PSS and conjugated polymers provide charge transport control. Journal of Materials Chemistry C, 2015, 3, 2664-2676.	2.7	26
86	Phosphonic Acid Modification of the Electron Selective Contact: Interfacial Effects in Perovskite Solar Cells. ACS Applied Energy Materials, 2019, 2, 2402-2408.	2.5	23
87	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.	1.4	22
88	Perovskite Solar Cells Yielding Reproducible Photovoltage of 1.20 V. Research, 2019, 2019, 8474698.	2.8	22
89	Planar Perovskite Solar Cells with High Openâ€Circuit Voltage Containing a Supramolecular Iron Complex as Hole Transport Material Dopant. ChemPhysChem, 2018, 19, 1363-1370.	1.0	17
90	Photoconductivity as loss mechanism in organic solar cells. Physica Status Solidi - Rapid Research Letters, 2013, 7, 401-405.	1.2	16

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91	Electroluminescence Dynamics in Perovskite Solar Cells Reveals Giant Overshoot Effect. Journal of Physical Chemistry Letters, 2019, 10, 1779-1783.	2.1	16
92	Tetrapropyl-tetraphenyl-diindenoperylene derivative as a green absorber for high-voltage stable organic solar cells. Physical Review B, 2011, 83, .	1.1	14
93	Unravelling the structural complexity and photophysical properties of adamantyl-based layered hybrid perovskites. Journal of Materials Chemistry A, 2020, 8, 17732-17740.	5.2	14
94	Interfaces and Interfacial Layers in Inorganic Perovskite Solar Cells. Angewandte Chemie, 2021, 133, 26644-26657.	1.6	14
95	Exploiting diffusion currents at Ohmic contacts for trap characterization in organic semiconductors. Organic Electronics, 2014, 15, 2428-2432.	1.4	11
96	A charge carrier transport model for donor-acceptor blend layers. Journal of Applied Physics, 2015, 117, .	1.1	11
97	Extended Intermolecular Interactions Governing Photocurrentâ€"Voltage Relations in Ternary Organic Solar Cells. Journal of Physical Chemistry Letters, 2016, 7, 3936-3944.	2.1	11
98	Crystalâ€Sizeâ€Induced Band Gap Tuning in Perovskite Films. Angewandte Chemie, 2021, 133, 21538-21546.	1.6	10
99	When photoluminescence, electroluminescence, and open-circuit voltage diverge â€" light soaking and halide segregation in perovskite solar cells. Journal of Materials Chemistry A, 2021, 9, 13967-13978.	5.2	8
100	New method for lateral mapping of bimolecular recombination in thin-film organic solar cells. Progress in Photovoltaics: Research and Applications, 2016, 24, 1096-1108.	4.4	7
101	A partially-planarised hole-transporting quart-<i>p</i>-phenylene for perovskite solar cells. Journal of Materials Chemistry C, 2019, 7, 4332-4335.	2.7	6
102	Effect of concentration gradients in ZnPc:C60 bulk heterojunction organic solar cells. Solar Energy Materials and Solar Cells, 2011, , .	3.0	5
103	Intermediate Phase Enhances Inorganic Perovskite and Metal Oxide Interface for Efficient Photovoltaics. Joule, 2020, 4, 507-508.	11.7	4
104	Understanding the limit and potential in emerging perovskite solar cells. , 2017, , .		1