Juan-Pablo Correa-Baena

List of Publications by Year
in descending order

107 papers	28,721 citations	22153 59 h-index	33894 99 g-index
111 all docs	111 docs citations	111 times ranked	18522 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.	30.8	4,560
2	Incorporation of rubidium cations into perovskite solar cells improves photovoltaic performance. Science, 2016, 354, 206-209.	12.6	3,137
3	Efficient perovskite solar cells via improved carrier management. Nature, 2021, 590, 587-593.	27.8	1,972
4	Promises and challenges of perovskite solar cells. Science, 2017, 358, 739-744.	12.6	1,510
5	Highly efficient planar perovskite solar cells through band alignment engineering. Energy and Environmental Science, 2015, 8, 2928-2934.	30.8	1,097
6	Not All That Glitters Is Gold: Metal-Migration-Induced Degradation in Perovskite Solar Cells. ACS Nano, 2016, 10, 6306-6314.	14.6	966
7	The rapid evolution of highly efficient perovskite solar cells. Energy and Environmental Science, 2017, 10, 710-727.	30.8	942
8	A molecularly engineered hole-transporting material for efficient perovskite solar cells. Nature Energy, 2016, 1, .	39.5	816
9	Improving efficiency and stability of perovskite solar cells with photocurable fluoropolymers. Science, 2016, 354, 203-206.	12.6	748
10	Enhanced electronic properties in mesoporous TiO2 via lithium doping for high-efficiency perovskite solar cells. Nature Communications, 2016, 7, 10379.	12.8	744
11	Highly efficient and stable planar perovskite solar cells by solution-processed tin oxide. Energy and Environmental Science, 2016, 9, 3128-3134.	30.8	720
12	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.	13.7	696
13	Exploration of the compositional space for mixed lead halogen perovskites for high efficiency solar cells. Energy and Environmental Science, 2016, 9, 1706-1724.	30.8	622
14	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.	30.8	586
15	An interface stabilized perovskite solar cell with high stabilized efficiency and low voltage loss. Energy and Environmental Science, 2019, 12, 2192-2199.	30.8	542
16	Monolithic perovskite/silicon-heterojunction tandem solar cells processed at low temperature. Energy and Environmental Science, 2016, 9, 81-88.	30.8	536
17	Migration of cations induces reversible performance losses over day/night cycling in perovskite solar cells. Energy and Environmental Science, 2017, 10, 604-613.	30.8	525
18	How to Make over 20% Efficient Perovskite Solar Cells in Regular (<i>nâ€“iâ€“p</i>) and Inverted (<i>pâ€“iâ€“n</i>) Architectures. Chemistry of Materials, 2018, 30, 4193-4201.	6.7	473

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19	Perovskite Solar Cells: From the Atomic Level to Film Quality and Device Performance. Angewandte Chemie - International Edition, 2018, 57, 2554-2569.	13.8	413
20	Properties of Contact and Bulk Impedances in Hybrid Lead Halide Perovskite Solar Cells Including Inductive Loop Elements. Journal of Physical Chemistry C, 2016, 120, 8023-8032.	3.1	407
21	Identifying and suppressing interfacial recombination to achieve high open-circuit voltage in perovskite solar cells. Energy and Environmental Science, 2017, 10, 1207-1212.	30.8	288
22	Enhancing Efficiency of Perovskite Solar Cells via Nâ€doped Graphene: Crystal Modification and Surface Passivation. Advanced Materials, 2016, 28, 8681-8686.	21.0	281
23	Homogenized halides and alkali cation segregation in alloyed organic-inorganic perovskites. Science, 2019, 363, 627-631.	12.6	258
24	Enhanced charge carrier mobility and lifetime suppress hysteresis and improve efficiency in planar perovskite solar cells. Energy and Environmental Science, 2018, 11, 78-86.	30.8	246
25	Unbroken Perovskite: Interplay of Morphology, Electroâ€optical Properties, and Ionic Movement. Advanced Materials, 2016, 28, 5031-5037.	21.0	242
26	Ionic Liquid Control Crystal Growth to Enhance Planar Perovskite Solar Cells Efficiency. Advanced Energy Materials, 2016, 6, 1600767.	19.5	224
27	Inverted Currentâ€"Voltage Hysteresis in Mixed Perovskite Solar Cells: Polarization, Energy Barriers, and Defect Recombination. Advanced Energy Materials, 2016, 6, 1600396.	19.5	213
28	Accelerating Materials Development via Automation, Machine Learning, and High-Performance Computing. Joule, 2018, 2, 1410-1420.	24.0	210
29	High Temperatureâ€Stable Perovskite Solar Cell Based on Lowâ€Cost Carbon Nanotube Hole Contact. Advanced Materials, 2017, 29, 1606398.	21.0	209
30	The Role of Grain Boundaries in Perovskite Solar Cells. Advanced Energy Materials, 2019, 9, 1901489.	19.5	202
31	Accelerated Development of Perovskite-Inspired Materials via High-Throughput Synthesis and Machine-Learning Diagnosis. Joule, 2019, 3, 1437-1451.	24.0	187
32	Carbon nanotube-based hybrid hole-transporting material and selective contact for high efficiency perovskite solar cells. Energy and Environmental Science, 2016, 9, 461-466.	30.8	185
33	Chemical Distribution of Multiple Cation (Rb⁺, Cs⁺, MA⁺, and) Tj ETQq1 1 0.784314 rgBT /Ove 29, 3589-3596.	6.7	175
34	Silolothiophene-linked triphenylamines as stable hole transporting materials for high efficiency perovskite solar cells. Energy and Environmental Science, 2015, 8, 2946-2953.	30.8	163
35	Enhanced Efficiency and Stability of Perovskite Solar Cells Through Ndâ€Doping of Mesostructured TiO₂. Advanced Energy Materials, 2016, 6, 1501868.	19.5	157
36	Low-Temperature Nb-Doped SnO₂ Electron-Selective Contact Yields over 20% Efficiency in Planar Perovskite Solar Cells. ACS Energy Letters, 2018, 3, 773-778.	17.4	157

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37	The role of carbon-based materials in enhancing the stability of perovskite solar cells. Energy and Environmental Science, 2020, 13, 1377-1407.	30.8	149
38	An open-access database and analysis tool for perovskite solar cells based on the FAIR data principles. Nature Energy, 2022, 7, 107-115.	39.5	136
39	<i>A</i>-Site Cation in Inorganic <i>A</i>₃Sb₂I₉ Perovskite Influences Structural Dimensionality, Exciton Binding Energy, and Solar Cell Performance. Chemistry of Materials, 2018, 30, 3734-3742.	6.7	134
40	The Doping Mechanism of Halide Perovskite Unveiled by Alkaline Earth Metals. Journal of the American Chemical Society, 2020, 142, 2364-2374.	13.7	132
41	ZnOâ€“TiO₂ Nanocomposite Films for High Light Harvesting Efficiency and Fast Electron Transport in Dye-Sensitized Solar Cells. Journal of Physical Chemistry C, 2012, 116, 23864-23870.	3.1	125
42	The effects of carbon electrode surface properties on bacteria attachment and start up time of microbial fuel cells. Carbon, 2014, 67, 128-139.	10.3	122
43	Changes from Bulk to Surface Recombination Mechanisms between Pristine and Cycled Perovskite Solar Cells. ACS Energy Letters, 2017, 2, 681-688.	17.4	122
44	Perovskite Solar Cells: From the Laboratory to the Assembly Line. Chemistry - A European Journal, 2018, 24, 3083-3100.	3.3	118
45	Triplet-Sensitization by Lead Halide Perovskite Thin Films for Near-Infrared-to-Visible Upconversion. ACS Energy Letters, 2019, 4, 888-895.	17.4	117
46	Highly Efficient and Stable Perovskite Solar Cells based on a Lowâ€Cost Carbon Cloth. Advanced Energy Materials, 2016, 6, 1601116.	19.5	107
47	Optical analysis of CH₃NH₃Sn_xPb_{1âˆ’x}I₃ absorbers: a roadmap for perovskite-on-perovskite tandem solar cells. Journal of Materials Chemistry A, 2016, 4, 11214-11221.	10.3	101
48	Valence Level Character in a Mixed Perovskite Material and Determination of the Valence Band Maximum from Photoelectron Spectroscopy: Variation with Photon Energy. Journal of Physical Chemistry C, 2017, 121, 26655-26666.	3.1	98
49	High Tolerance to Iron Contamination in Lead Halide Perovskite Solar Cells. ACS Nano, 2017, 11, 7101-7109.	14.6	90
50	Solvent-Engineering Method to Deposit Compact Bismuth-Based Thin Films: Mechanism and Application to Photovoltaics. Chemistry of Materials, 2018, 30, 336-343.	6.7	87
51	Triplet Sensitization by Lead Halide Perovskite Thin Films for Efficient Solid-State Photon Upconversion at Subsolar Fluxes. Matter, 2019, 1, 705-719.	10.0	84
52	Selfâ€Powered Sensors Enabled by Wideâ€Bandgap Perovskite Indoor Photovoltaic Cells. Advanced Functional Materials, 2019, 29, 1904072.	14.9	83
53	Towards optical optimization of planar monolithic perovskite/silicon-heterojunction tandem solar cells. Journal of Optics (United Kingdom), 2016, 18, 064012.	2.2	82
54	Globularityâ€Selected Large Molecules for a New Generation of Multication Perovskites. Advanced Materials, 2017, 29, 1702005.	21.0	81

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55	Structural Stability of Formamidinium- and Cesium-Based Halide Perovskites. ACS Energy Letters, 2021, 6, 1942-1969.	17.4	76
56	Constructive Effects of Alkyl Chains: A Strategy to Design Simple and Nonâ€Spiro Hole Transporting Materials for Highâ€Efficiency Mixedâ€Ion Perovskite Solar Cells. Advanced Energy Materials, 2016, 6, 1502536.	19.5	72
57	The Role of Dimensionality on the Optoelectronic Properties of Oxide and Halide Perovskites, and their Halide Derivatives. Advanced Energy Materials, 2022, 12, 2100499.	19.5	66
58	Additiveâ€Free Transparent Triarylamineâ€Based Polymeric Holeâ€Transport Materials for Stable Perovskite Solar Cells. ChemSusChem, 2016, 9, 2567-2571.	6.8	65
59	Precursor Concentration Affects Grain Size, Crystal Orientation, and Local Performance in Mixed-Ion Lead Perovskite Solar Cells. ACS Applied Energy Materials, 2018, 1, 6801-6808.	5.1	65
60	Spontaneous crystal coalescence enables highly efficient perovskite solar cells. Nano Energy, 2017, 39, 24-29.	16.0	62
61	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.	3.1	58
62	Recycling and recovery of perovskite solar cells. Materials Today, 2021, 43, 185-197.	14.2	58
63	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.	10.3	57
64	Ambient air-processed mixed-ion perovskites for high-efficiency solar cells. Journal of Materials Chemistry A, 2016, 4, 16536-16545.	10.3	55
65	Protecting hot carriers by tuning hybrid perovskite structures with alkali cations. Science Advances, 2020, 6, .	10.3	54
66	Perovskite PV-Powered RFID: Enabling Low-Cost Self-Powered IoT Sensors. IEEE Sensors Journal, 2020, 20, 471-478.	4.7	46
67	Imaging and Mapping Characterization Tools for Perovskite Solar Cells. Advanced Energy Materials, 2019, 9, 1900444.	19.5	44
68	Transparent Conducting Aerogels of Antimony-Doped Tin Oxide. ACS Applied Materials & Interfaces, 2014, 6, 19127-19134.	8.0	42
69	Stateâ€ofâ€theâ€Art Electronâ€Selective Contacts in Perovskite Solar Cells. Advanced Materials Interfaces, 2018, 5, 1800408.	3.7	38
70	The effect of structural dimensionality on carrier mobility in lead-halide perovskites. Journal of Materials Chemistry A, 2019, 7, 23949-23957.	10.3	38
71	Perowskitâ€Solarzellen: atomare Ebene, SchichtqualitÃt und LeistungsfÃhigkeit der Zellen. Angewandte Chemie, 2018, 130, 2582-2598.	2.0	37
72	A New 1,3,4â€Oxadiazoleâ€Based Holeâ€Transport Material for Efficient CH₃NH₃PbBr₃ Perovskite Solar Cells. ChemSusChem, 2016, 9, 657-661.	6.8	31

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73	Moisture-Induced Crystallographic Reorientations and Effects on Charge Carrier Extraction in Metal Halide Perovskite Solar Cells. ACS Energy Letters, 2020, 5, 3526-3534.	17.4	30
74	Monolithic CIGSâ€“Perovskite Tandem Cell for Optimal Light Harvesting without Current Matching. ACS Photonics, 2017, 4, 861-867.	6.6	27
75	Halide Heterogeneity Affects Local Charge Carrier Dynamics in Mixed-Ion Lead Perovskite Thin Films. Chemistry of Materials, 2019, 31, 3712-3721.	6.7	27
76	Antimony-Doped Tin Oxide Aerogels as Porous Electron Collectors for Dye-Sensitized Solar Cells. Journal of Physical Chemistry C, 2014, 118, 17028-17035.	3.1	25
77	The Bloom of Perovskite Optoelectronics: Fundamental Science Matters. ACS Energy Letters, 2019, 4, 861-865.	17.4	24
78	Solubility and Diffusivity: Important Metrics in the Search for the Root Cause of Light- and Elevated Temperature-Induced Degradation. IEEE Journal of Photovoltaics, 2018, 8, 448-455.	2.5	23
79	Phosphonic Acid Modification of the Electron Selective Contact: Interfacial Effects in Perovskite Solar Cells. ACS Applied Energy Materials, 2019, 2, 2402-2408.	5.1	23
80	Pressing challenges in halide perovskite photovoltaicsâ€"from the atomic to module level. Joule, 2021, 5, 1024-1030.	24.0	23
81	Improving the Carrier Lifetime of Tin Sulfide via Prediction and Mitigation of Harmful Point Defects. Journal of Physical Chemistry Letters, 2017, 8, 3661-3667.	4.6	22
82	Identifying high-performance and durable methylammonium-free lead halide perovskites <i>via</i> high-throughput synthesis and characterization. Energy and Environmental Science, 2021, 14, 6638-6654.	30.8	20
83	Polymers and interfacial modifiers for durable perovskite solar cells: a review. Journal of Materials Chemistry C, 2021, 9, 12509-12522.	5.5	18
84	Planar Perovskite Solar Cells with High Openâ€Circuit Voltage Containing a Supramolecular Iron Complex as Hole Transport Material Dopant. ChemPhysChem, 2018, 19, 1363-1370.	2.1	17
85	Impacts of the Hole Transport Layer Deposition Process on Buried Interfaces in Perovskite Solar Cells. Cell Reports Physical Science, 2020, 1, 100103.	5.6	17
86	Enhanced charge carrier lifetime and mobility as a result of Rb and Cs incorporation in hybrid perovskite. Applied Physics Letters, 2021, 118, .	3.3	12
87	Bulky Cations Improve Band Alignment and Efficiency in Snâ€“Pb Halide Perovskite Solar Cells. ACS Applied Energy Materials, 2021, 4, 2616-2628.	5.1	11
88	Distribution and Charge State of Iron Impurities in Intentionally Contaminated Lead Halide Perovskites. IEEE Journal of Photovoltaics, 2018, 8, 156-161.	2.5	8
89	Morphological Characterization of ALD and Doping Effects on Mesoporous SnO₂ Aerogels by XPS and Quantitative SEM Image Analysis. ACS Applied Materials & Interfaces, 2016, 8, 9849-9854.	8.0	6
90	Fluoride additive in epoxide-initiated solâ€“gel synthesis enables thin-film applications of SnO₂ aerogels. RSC Advances, 2016, 6, 21326-21331.	3.6	5

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91	Solid-state infrared-to-visible upconversion for sub-bandgap sensitization of photovoltaics. , 2018, , .		5
92	Snapshots of Lifeâ€"Early Career Materials Scientists Managing in the Midst of a Pandemic. Chemistry of Materials, 2020, 32, 3673-3677.	6.7	5
93	In data science we trust: Machine learning for stable halide perovskites. Matter, 2021, 4, 1092-1094.	10.0	5
94	Formation of a Secondary Phase in Thermally Evaporated MAPbI₃ and Its Effects on Solar Cell Performance. ACS Applied Materials & Interfaces, 2022, 14, 34269-34280.	8.0	5
95	Interplay of Grain Size, Crystal Orientation, and Performance in Mixedion Lead Halide Perovskite Films. , 2018, , .		4
96	Quantitative Specifications to Avoid Degradation during E-Beam and Induced Current Microscopy of Halide Perovskite Devices. Journal of Physical Chemistry C, 2020, 124, 18961-18967.	3.1	4
97	Correction to â€œHow to Make over 20% Efficient Perovskite Solar Cells in Regular (<i>n</i>â€"<i>i</i>â€"<i>p</i>) and Inverted (<i>p</i>â€"<i>i</i>â€"<i>n</i>) Architecturesâ€• Chemistry of Materials, 2019, 31, 8576-8576.	6.7	3
98	Understanding the impact of SrI2 additive on the properties of Sn-based halide perovskites. Optical Materials, 2022, 123, 111806.	3.6	3
99	Solar Cells: Ionic Liquid Control Crystal Growth to Enhance Planar Perovskite Solar Cells Efficiency (Adv. Energy Mater. 20/2016). Advanced Energy Materials, 2016, 6, .	19.5	2
100	PbI₂ Nanocrystal Growth by Atomic Layer Deposition from Pb(tmhd)₂ and HI. Chemistry of Materials, 2022, 34, 2553-2561.	6.7	2
101	Effects of Alkaline Earth Metal Additives on Methylammoniumâ€Free Lead Halide Perovskite Thin Films and Solar Cells. Solar Rrl, 2022, 6, .	5.8	2
102	Trap States Impact Photon Upconversion in Rubrene Sensitized by Lead Halide Perovskite Thin Films. SSRN Electronic Journal, 0, , .	0.4	1
103	Halide Homogenization and Cation Segregation in High Performance Perovskite Solar Cells. , 2019, , .		0
104	Water and oxygen induce undesired phase transitions in cesium-formamidinium lead halide perovskites. , 0, , .		0
105	PbI2 and Lead Halide Perovskites by Atomic Layer Deposition for Perovskite Solar Cells. , 0, , .		0
106	Understanding the formation and transformation of low dimensional capping layers in lead halide perovskites by thermal evaporation. , 0, , .		0
107	Formation of a secondary phase in thermally evaporated MAPbI3 and its effects on solar cell performance. , 0, , .		0