David P Fenning

List of Publications by Year
in descending order

77	2,866	304368 22	174990 52
papers	citations	h-index	g-index

77	77	77	3871
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Constructive molecular configurations for surface-defect passivation of perovskite photovoltaics. Science, 2019, 366, 1509-1513.	6.0	846
2	A fabrication process for flexible single-crystal perovskite devices. Nature, 2020, 583, 790-795.	13.7	278
3	Homogenized halides and alkali cation segregation in alloyed organic-inorganic perovskites. Science, 2019, 363, 627-631.	6.0	258
4	Microscopic Degradation in Formamidinium-Cesium Lead Iodide Perovskite Solar Cells under Operational Stressors. Joule, 2020, 4, 1743-1758.	11.7	156
5	Understanding Detrimental and Beneficial Grain Boundary Effects in Halide Perovskites. Advanced Materials, 2018, 30, e1804792.	11.1	128
6	Direct Observation of Halide Migration and its Effect on the Photoluminescence of Methylammonium Lead Bromide Perovskite Single Crystals. Advanced Materials, 2017, 29, 1703451.	11.1	83
7	Nickel: A very fast diffuser in silicon. Journal of Applied Physics, 2013, 113, .	1.1	81
8	Nanoprobe X-ray fluorescence characterization of defects in large-area solar cells. Energy and Environmental Science, 2011, 4, 4252.	15.6	69
9	Residual Nanoscale Strain in Cesium Lead Bromide Perovskite Reduces Stability and Shifts Local Luminescence. Chemistry of Materials, 2019, 31, 2778-2785.	3.2	53
10	Improved iron gettering of contaminated multicrystalline silicon by high-temperature phosphorus diffusion. Journal of Applied Physics, 2013, 113, 214504.	1.1	52
11	Xâ€Ray Microscopy of Halide Perovskites: Techniques, Applications, and Prospects. Advanced Energy Materials, 2020, 10, 1903170.	10.2	49
12	Impurityâ€toâ€efficiency simulator: predictive simulation of silicon solar cell performance based on iron content and distribution. Progress in Photovoltaics: Research and Applications, 2011, 19, 487-497.	4.4	47
13	Charge Collection in Hybrid Perovskite Solar Cells: Relation to the Nanoscale Elemental Distribution. IEEE Journal of Photovoltaics, 2017, 7, 590-597.	1.5	45
14	Iron distribution in silicon after solar cell processing: Synchrotron analysis and predictive modeling. Applied Physics Letters, 2011, 98, .	1.5	41
15	Spatially Heterogeneous Chlorine Incorporation in Organicâ€“Inorganic Perovskite Solar Cells. Chemistry of Materials, 2016, 28, 6536-6543.	3.2	39
16	Influence of defect type on hydrogen passivation efficacy in multicrystalline silicon solar cells. Progress in Photovoltaics: Research and Applications, 2011, 19, 187-191.	4.4	33
17	Analyses of the Evolution of Iron-Silicide Precipitates in Multicrystalline Silicon During Solar Cell Processing. IEEE Journal of Photovoltaics, 2013, 3, 131-137.	1.5	32
18	Comparison of the Mechanical Properties of a Conjugated Polymer Deposited Using Spin Coating, Interfacial Spreading, Solution Shearing, and Spray Coating. ACS Applied Materials & Interfaces, 2021, 13, 51436-51446.	4.0	32

#	Article	IF	Citations
19	Effective lifetimes exceeding 300 <i>Î¼</i>s in gettered <i>p</i>-type epitaxial kerfless silicon for photovoltaics. Applied Physics Letters, 2013, 103, .	1.5	28
20	The Relationship between Chemical Flexibility and Nanoscale Charge Collection in Hybrid Halide Perovskites. Advanced Functional Materials, 2018, 28, 1706995.	7.8	28
21	Enhancing C₂â€“C₃ Production from CO₂ on Copper Electrocatalysts via a Potential-Dependent Mesostructure. ACS Applied Energy Materials, 2018, 1, 1965-1972.	2.5	26
22	Synchrotron-based analysis of chromium distributions in multicrystalline silicon for solar cells. Applied Physics Letters, 2015, 106, .	1.5	24
23	Epitaxial ferroelectric oxides on silicon with perspectives for future device applications. APL Materials, 2021, 9, .	2.2	23
24	How Strain Alters CO₂ Electroreduction on Model Cu(001) Surfaces. ACS Catalysis, 2021, 11, 6662-6671.	5.5	23
25	Synchrotron-based investigation of transition-metal getterability in <i>n</i>-type multicrystalline silicon. Applied Physics Letters, 2016, 108, .	1.5	22
26	Effects of X-rays on Perovskite Solar Cells. Journal of Physical Chemistry C, 2020, 124, 17949-17956.	1.5	21
27	Retrograde Melting and Internal Liquid Gettering in Silicon. Advanced Materials, 2010, 22, 3948-3953.	11.1	19
28	Sorting Metrics for Customized Phosphorus Diffusion Gettering. IEEE Journal of Photovoltaics, 2014, 4, 1421-1428.	1.5	19
29	The Role of Water in the Reversible Optoelectronic Degradation of Hybrid Perovskites at Low Pressure. Journal of Physical Chemistry C, 2017, 121, 25659-25665.	1.5	19
30	Design and fabrication of porous polymer wick structures. Sensors and Actuators B: Chemical, 2010, 150, 556-563.	4.0	18
31	Engineering metal precipitate size distributions to enhance gettering in multicrystalline silicon. Physica Status Solidi (A) Applications and Materials Science, 2012, 209, 1861-1865.	0.8	17
32	Impacts of the Hole Transport Layer Deposition Process on Buried Interfaces in Perovskite Solar Cells. Cell Reports Physical Science, 2020, 1, 100103.	2.8	17
33	Passivation Properties and Formation Mechanism of Amorphous Halide Perovskite Thin Films. Advanced Functional Materials, 2021, 31, 2010330.	7.8	17
34	Correlated Octahedral Rotation and Organic Cation Reorientation Assist Halide Ion Migration in Lead Halide Perovskites. Chemistry of Materials, 2021, 33, 4672-4678.	3.2	16
35	Enhanced Environmental Stability Coupled with a 12.5% Power Conversion Efficiency in an Aluminum Oxide-Encapsulated n-Graphene/p-Silicon Solar Cell. ACS Applied Materials & Interfaces, 2018, 10, 37181-37187.	4.0	13
36	Ferroelectric Modulation of Surface Electronic States in BaTiO₃ for Enhanced Hydrogen Evolution Activity. Nano Letters, 2022, 22, 4276-4284.	4.5	13

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37	Darwin at High Temperature: Advancing Solar Cell Material Design Using Defect Kinetics Simulations and Evolutionary Optimization. Advanced Energy Materials, 2014, 4, 1400459.	10.2	12
38	Imaging Real-Time Amorphization of Hybrid Perovskite Solar Cells under Electrical Biasing. ACS Energy Letters, 2021, 6, 3530-3537.	8.8	12
39	Towards the Tailoring of P Diffusion Gettering to As-Grown Silicon Material Properties. Solid State Phenomena, 0, 178-179, 158-165.	0.3	11
40	Investigation of Lifetime-Limiting Defects After High-Temperature Phosphorus Diffusion in High-Iron-Content Multicrystalline Silicon. IEEE Journal of Photovoltaics, 2014, 4, 866-873.	1.5	11
41	Impact of Iron Precipitation on Phosphorus-Implanted Silicon Solar Cells. IEEE Journal of Photovoltaics, 2016, 6, 1094-1102.	1.5	11
42	Postpassivation of Multication Perovskite with Rubidium Butyrate. ACS Photonics, 2020, 7, 2282-2291.	3.2	11
43	Local melting in silicon driven by retrograde solubility. Acta Materialia, 2013, 61, 4320-4328.	3.8	10
44	Dimethylammonium Addition to Halide Perovskite Precursor Increases Vertical and Lateral Heterogeneity. ACS Energy Letters, 2022, 7, 204-210.	8.8	10
45	Quantitative Determination of Moisture Content in Solar Modules by Short-Wave Infrared Reflectometry. IEEE Journal of Photovoltaics, 2019, 9, 1748-1753.	1.5	9
46	Enhanced iron gettering by short, optimized low-temperature annealing after phosphorus emitter diffusion for industrial silicon solar cell processing. Physica Status Solidi C: Current Topics in Solid State Physics, 2011, 8, 759-762.	0.8	8
47	Opportunities for machine learning to accelerate halide-perovskite commercialization and scale-up. Matter, 2022, 5, 1353-1366.	5.0	8
48	Iron Management in Multicrystalline Silicon through Predictive Simulation: Point Defects, Precipitates, and Structural Defect Interactions. Solid State Phenomena, 0, 205-206, 15-25.	0.3	6
49	Glass vs. Backsheet: Deconvoluting the Role of Moisture in Power Loss in Silicon Photovoltaics With Correlated Imaging During Accelerated Testing. IEEE Journal of Photovoltaics, 2022, 12, 285-292.	1.5	6
50	Synchrotronâ€based microprobe investigation of impurities in raw quartzâ€bearing and carbonâ€bearing feedstock materials for photovoltaic applications. Progress in Photovoltaics: Research and Applications, 2012, 20, 217-225.	4.4	5
51	Europium Addition Reduces Local Structural Disorder and Enhances Photoluminescent Yield in Perovskite CsPbBr 3. Advanced Optical Materials, 2021, 9, 2002221.	3.6	5
52	Stability of Perovskite Films Encapsulated in Single- and Multi-Layer Graphene Barriers. ACS Applied Energy Materials, 2021, 4, 10314-10322.	2.5	5
53	Electrochemical Screening of Contact Layers for Metal Halide Perovskites. ACS Energy Letters, 2022, 7, 683-689.	8.8	5
54	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.	1.5	4

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55	Seeding of Silicon Wire Growth by Outâ€Diffused Metal Precipitates. Small, 2011, 7, 563-567.	5.2	3
56	Simulated co-optimization of crystalline silicon solar cell throughput and efficiency using continuously ramping phosphorus diffusion profiles. , 2012, , .		3
57	Elucidating and engineering recombination-active metal-rich precipitates in n-type multicrystalline silicon. , 2014, , .		3
58	Halide Perovskites â€“ Optoelectronic and Structural Characterization Methods. Advanced Energy Materials, 2020, 10, 2001812.	10.2	3
59	Insights into Na⁺ Diffusion in Silicon Modules under Operating Conditions: Measuring Low Concentrations by D-SIMS. , 2020, , .		3
60	Design Concept for the In Situ Nanoprobe Beamline for the APS Upgrade. Microscopy and Microanalysis, 2018, 24, 194-195.	0.2	2
61	Exploring Frontiers in Research and Teaching: NanoEngineering and Chemical Engineering at UC San Diego. ACS Nano, 2020, 14, 9203-9216.	7.3	2
62	Quantification of Sodiumâ€Ion Migration in Silicon Nitride by Flatbandâ€Potential Monitoring at Deviceâ€Operating Temperatures. Physica Status Solidi (A) Applications and Materials Science, 2020, 217, 2000212.	0.8	2
63	First principles modeling of polymer encapsulant degradation in Si photovoltaic modules. Physical Chemistry Chemical Physics, 2021, 23, 10357-10364.	1.3	2
64	Toward Exotic Silicon Doping with a Low Thermal Budget and Flexible Profile Control by Liquid-Phase Epitaxy. ACS Applied Materials & Interfaces, 2021, 13, 18202-18208.	4.0	2
65	Finite Element Simulation of Potential-Induced Degradation Kinetics in p-Type Silicon Solar Modules. IEEE Journal of Photovoltaics, 2022, 12, 45-52.	1.5	2
66	Electrocatalytic Hydrogen Evolution on Ferroelectric Perovskite Heterostructures. ECS Meeting Abstracts, 2022, MA2022-01, 1691-1691.	0.0	2
67	Modeling the size distribution of iron silicide precipitates in multicrystalline silicon. , 2012, , .		1
68	Finite- vs. infinite-source emitters in silicon photovoltaics: Effect on transition metal gettering. , 2016, , .		1
69	The Role of Water on the Interfacial Adhesion in Si Solar Modules. , 2021, , .		1
70	In-Situ Polymerized Wicks for Passive Water Management in PEM Fuel Cell Systems. , 2009, , .		0
71	X-ray Microprobe Investigation of Iron During a Simulated Silicon Feedstock Extraction Process. Metallurgical and Materials Transactions B: Process Metallurgy and Materials Processing Science, 2016, 47, 3565-3574.	1.0	0
72	Influence of Module Architecture and Humidity on Local Module Degradation. , 2021, , .		0

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73	Accounting for sample morphology in correlative X-ray microscopy via ray tracing. MRS Advances, 2021, 6, 547-553.	0.5	0
74	Synchrotron-Based Investigation of Metal Impurity Diffusion in Silicon Solar Cell Materials. , 2009, , .		0
75	Elucidating the Role of Strain in Promoting C-C Coupling on Cu Surfaces. ECS Meeting Abstracts, 2020, MA2020-02, 3197-3197.	0.0	0
76	A Poissonâ€“Nernstâ€“Planck Model of Ion Transport and Interface Segregation in Metalâ€“Insulatorâ€“Semiconductor Structures and Solar Cells. Physica Status Solidi (B): Basic Research, 2022, 259, .	0.7	0
77	(Digital Presentation) Electrochemical CO₂-to-Formate Conversion on Metastable Tin Oxide Catalyst in a Catholyte-Free Electrolyzer. ECS Meeting Abstracts, 2022, MA2022-01, 2104-2104.	0.0	0