Eric J Dufek

List of Publications by Year
in descending order

113 papers	5,492 citations	147801 31 h-index	82547 72 g-index
117 all docs	117 docs citations	117 times ranked	5445 citing authors

#	Article	IF	Citations
1	Pathways for practical high-energy long-cycling lithium metal batteries. Nature Energy, 2019, 4, 180-186.	39.5	2,101
2	Critical Parameters for Evaluating Coin Cells and Pouch Cells of Rechargeable Li-Metal Batteries. Joule, 2019, 3, 1094-1105.	24.0	358
3	Enabling fast charging â€“ A battery technology gap assessment. Journal of Power Sources, 2017, 367, 250-262.	7.8	342
4	Enabling fast charging â€“ Battery thermal considerations. Journal of Power Sources, 2017, 367, 228-236.	7.8	216
5	Glassy Li metal anode for high-performance rechargeable Li batteries. Nature Materials, 2020, 19, 1339-1345.	27.5	162
6	Enabling fast charging â€“ Infrastructure and economic considerations. Journal of Power Sources, 2017, 367, 237-249.	7.8	130
7	Enabling fast charging â€“ Vehicle considerations. Journal of Power Sources, 2017, 367, 216-227.	7.8	129
8	Operation of a Pressurized System for Continuous Reduction of CO₂. Journal of the Electrochemical Society, 2012, 159, F514-F517.	2.9	125
9	Electrode scale and electrolyte transport effects on extreme fast charging of lithium-ion cells. Electrochimica Acta, 2020, 337, 135854.	5.2	122
10	Bench-scale electrochemical system for generation of CO and syn-gas. Journal of Applied Electrochemistry, 2011, 41, 623-631.	2.9	117
11	A Review of Existing and Emerging Methods for Lithium Detection and Characterization in Liâ€Ion and Liâ€Metal Batteries. Advanced Energy Materials, 2021, 11, 2100372.	19.5	114
12	Extreme Fast Charge Challenges for Lithium-Ion Battery: Variability and Positive Electrode Issues. Journal of the Electrochemical Society, 2019, 166, A1926-A1938.	2.9	92
13	Fast charge implications: Pack and cell analysis and comparison. Journal of Power Sources, 2018, 381, 56-65.	7.8	67
14	Impacts of lean electrolyte on cycle life for rechargeable Li metal batteries. Journal of Power Sources, 2018, 407, 53-62.	7.8	62
15	Quantification of heterogeneous, irreversible lithium plating in extreme fast charging of lithium-ion batteries. Energy and Environmental Science, 2021, 14, 4979-4988.	30.8	58
16	Fluorinated phosphazene co-solvents for improved thermal and safety performance in lithium-ion battery electrolytes. Journal of Power Sources, 2014, 263, 66-74.	7.8	50
17	Extended cycle life implications of fast charging for lithium-ion battery cathode. Energy Storage Materials, 2021, 41, 656-666.	18.0	50
18	Challenges of future high power wireless power transfer for light-duty electric vehicles----technology and risk management. ETransportation, 2019, 2, 100012.	14.8	49

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19	Heterogeneous Behavior of Lithium Plating during Extreme Fast Charging. Cell Reports Physical Science, 2020, 1, 100114.	5.6	49
20	Electrochemical production of syngas from CO₂ captured in switchable polarity solvents. Green Chemistry, 2018, 20, 620-626.	9.0	45
21	Good Practices for Rechargeable Lithium Metal Batteries. Journal of the Electrochemical Society, 2019, 166, A4141-A4149.	2.9	42
22	Influence of Electrolytes and Membranes on Cell Operation for Syn-Gas Production. Electrochemical and Solid-State Letters, 2012, 15, B48.	2.2	41
23	Challenging Practices of Algebraic Battery Life Models through Statistical Validation and Model Identification via Machine-Learning. Journal of the Electrochemical Society, 2021, 168, 020502.	2.9	40
24	A non-aqueous sodium hexafluorophosphate-based electrolyte degradation study: Formation and mitigation of hydrofluoric acid. Journal of Power Sources, 2020, 447, 227363.	7.8	39
25	Advanced diagnostics to evaluate heterogeneity in lithium-ion battery modules. ETransportation, 2020, 3, 100045.	14.8	39
26	Electrochemical Quantification of Lithium Plating: Challenges and Considerations. Journal of the Electrochemical Society, 2019, 166, A2689-A2696.	2.9	38
27	Predicting Calendar Aging in Lithium Metal Secondary Batteries: The Impacts of Solid Electrolyte Interphase Composition and Stability. Advanced Energy Materials, 2018, 8, 1801427.	19.5	37
28	Interfaces in all solid state Li-metal batteries: A review on instabilities, stabilization strategies, and scalability. Energy Storage Materials, 2022, 45, 969-1001.	18.0	36
29	Competitive surface-enhanced Raman scattering assay for the 1,25-dihydroxy metabolite of vitamin D3. Analyst, The, 2010, 135, 2811.	3.5	35
30	Enabling fast charging â€“ Introduction and overview. Journal of Power Sources, 2017, 367, 214-215.	7.8	35
31	Chlor-syngas: Coupling of Electrochemical Technologies for Production of Commodity Chemicals. Energy & Fuels, 2013, 27, 4244-4249.	5.1	33
32	A Comprehensive Understanding of the Aging Effects of Extreme Fast Charging on High Ni NMC Cathode. Advanced Energy Materials, 2022, 12, .	19.5	32
33	Rapid failure mode classification and quantification in batteries: A deep learning modeling framework. Energy Storage Materials, 2022, 45, 1002-1011.	18.0	29
34	Communicationâ€"Implications of Local Current Density Variations on Lithium Plating Affected by Cathode Particle Size. Journal of the Electrochemical Society, 2019, 166, A667-A669.	2.9	28
35	Lithium-electrolyte solvation and reaction in the electrolyte of a lithium ion battery: A ReaxFF reactive force field study. Journal of Chemical Physics, 2020, 152, 184301.	3.0	27
36	A machine learning framework for early detection of lithium plating combining multiple physics-based electrochemical signatures. Cell Reports Physical Science, 2021, 2, 100352.	5.6	27

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37	Developing extreme fast charge battery protocols â€“ A review spanning materials to systems. Journal of Power Sources, 2022, 526, 231129.	7.8	27
38	Syntheses, Characterizations, and Properties of Electronically Perturbed 1,1â€˜-Dimethyl-2,2â€˜-bipyridinium Tetrafluoroborates. Journal of Organic Chemistry, 2006, 71, 315-319.	3.2	23
39	A closed-host bi-layer dense/porous solid electrolyte interphase for enhanced lithium-metal anode stability. Materials Today, 2021, 49, 48-58.	14.2	22
40	Formation of Surface Impurities on Lithiumâ€“Nickelâ€“Manganeseâ€“Cobalt Oxides in the Presence of CO₂ and H₂O. Journal of the American Chemical Society, 2021, 143, 10261-10274.	13.7	21
41	Fast-Charging Aging Considerations: Incorporation and Alignment of Cell Design and Material Degradation Pathways. ACS Applied Energy Materials, 2021, 4, 9133-9143.	5.1	21
42	Influence of S Contamination on CO2 Reduction at Ag Electrodes. Journal of the Electrochemical Society, 2011, 158, B1384.	2.9	19
43	Methodologies for Design, Characterization and Testing of Electrolytes that Enable Extreme Fast Charging of Lithium-ion Cells. Energy Storage Materials, 2022, 44, 296-312.	18.0	19
44	Structural and electronic features important to nÏ€*â€“Ï€Ï€* inversion sensors: synthesis, luminescence, and electrochemical properties of sulfur and chlorine-containing macrocycles. Part 3. Tetrahedron, 2005, 61, 479-484.	1.9	17
45	Hybrid phosphazene anodes for energy storage applications. Journal of Power Sources, 2014, 267, 347-355.	7.8	17
46	Fast Diagnosis of Failure Mechanisms and Lifetime Prediction of Li Metal Batteries. Small Methods, 2021, 5, e2000807.	8.6	17
47	Using <i>In Situ</i> High-Energy X-ray Diffraction to Quantify Electrode Behavior of Li-Ion Batteries from Extreme Fast Charging. ACS Applied Energy Materials, 2021, 4, 11590-11598.	5.1	17
48	Sampling dynamics for pressurized electrochemical cells. Journal of Applied Electrochemistry, 2014, 44, 849-855.	2.9	16
49	Correlation of electrochemical and mechanical responses: Differential analysis of rechargeable lithium metal cells. Journal of Power Sources, 2020, 463, 228180.	7.8	16
50	High-Energy Lateral Mapping (HELM) Studies of Inhomogeneity and Failure Mechanisms in NMC622/Li Pouch Cells. Chemistry of Materials, 2021, 33, 2378-2386.	6.7	16
51	Challenges and needs for system-level electrochemical lithium-ion battery management and diagnostics. MRS Bulletin, 2021, 46, 420-428.	3.5	16
52	Unsaturated phosphazenes as co-solvents for lithium-ion battery electrolytes. Journal of Power Sources, 2015, 278, 794-801.	7.8	15
53	Rotationally Induced Hydrodynamics: Fundamentals and Applications to High-Speed Bioassays. Annual Review of Analytical Chemistry, 2010, 3, 387-407.	5.4	12
54	Operando Synchrotron Studies of Inhomogeneity during Anode-Free Plating of Li Metal in Pouch Cell Batteries. Journal of the Electrochemical Society, 2022, 169, 020571.	2.9	12

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55	Unlocking Failure Mechanisms and Improvement of Practical Liâ€“S Pouch Cells through In Operando Pressure Study. Advanced Energy Materials, 2022, 12, .	19.5	12
56	Nature of Oxygen Adsorption on Defective Carbonaceous Materials. Journal of Physical Chemistry C, 2021, 125, 20686-20696.	3.1	11
57	Sensitivity and reliability of key electrochemical markers for detecting lithium plating during extreme fast charging. Journal of Energy Storage, 2022, 46, 103782.	8.1	11
58	A Novel Framework for Optimizing Ramping Capability of Hybrid Energy Storage Systems. IEEE Transactions on Smart Grid, 2021, 12, 1651-1662.	9.0	10
59	Early Battery Performance Prediction for Mixed Use Charging Profiles Using Hierarchal Machine Learning. Batteries and Supercaps, 2021, 4, 1186-1196.	4.7	10
60	Characterization of Zr(IV)â€“Phosphonate Thin Films Which Inhibit O[sub 2] Reduction on AA2024-T3. Journal of the Electrochemical Society, 2009, 156, C322.	2.9	9
61	2.20 Batteries. , 2018, , 629-662.		9
62	A new detection mechanism involving ketoâ€“enol tautomerization: selective fluorescence detection of Al(<scp>iii</scp>) by dehydration of secondary alcohols in mixed DMSO/aqueous media. RSC Advances, 2016, 6, 11295-11302.	3.6	8
63	Inhibition of O[sub 2] Reduction on AA2024-T3 Using a Zr(IV)-Octadecyl Phosphonate Coating System. Electrochemical and Solid-State Letters, 2008, 11, C9.	2.2	7
64	Communicationâ€”Pressure Evolution in Constrained Rechargeable Lithium-metal Pouch Cells. Journal of the Electrochemical Society, 2020, 167, 020511.	2.9	7
65	Carbon-Binder Weight Loading Optimization for Improved Lithium-Ion Battery Rate Capability. Journal of the Electrochemical Society, 2022, 169, 070519.	2.9	7
66	Dioxygen Reduction Affects Surface Oxide Growth and Dissolution on AA2024-T3. Journal of the Electrochemical Society, 2007, 154, C458.	2.9	6
67	Aluminum electroplating on steel from a fused bromide electrolyte. Surface and Coatings Technology, 2014, 258, 652-663.	4.8	5
68	Perspectiveâ€”Safety Aspects of Energy Storage Testing. Journal of the Electrochemical Society, 2019, 166, E263-E265.	2.9	5
69	Concept Design of Active Shielding for Dynamic Wireless Charging of Light-duty EV. , 2020, , .		5
70	A Quantitative Failure Analysis on Capacity Fade in Rechargeable Lithium Metal Cells. Journal of the Electrochemical Society, 2020, 167, 090502.	2.9	5
71	Evaluation of the SEI Using a Multilayer Spectroscopic Ellipsometry Model. ECS Electrochemistry Letters, 2014, 3, A108-A111.	1.9	4
72	Phosphoranimines containing cationic N-imidazolinium moieties. Inorganica Chimica Acta, 2017, 466, 254-265.	2.4	4

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73	Electrodeposition as an alternate method for preparation of environmental samples for iodide by AMS. Nuclear Instruments & Methods in Physics Research B, 2015, 361, 372-375.	1.4	3
74	Use of phosphoranimines to reduce organic carbonate content in Li-ion battery electrolytes. Electrochimica Acta, 2016, 209, 36-43.	5.2	3
75	Density impact on performance of composite Si/graphite electrodes. Journal of Applied Electrochemistry, 2016, 46, 359-367.	2.9	3
76	Electrochemical Systems for Production of Syngas and Co-Products. ECS Transactions, 2013, 58, 125-137.	0.5	2
77	Application of morphological synthesis for understanding electrode microstructure evolution as a function of applied charge/discharge cycles. Applied Physics A: Materials Science and Processing, 2016, 122, 1.	2.3	2
78	Unlocking Failure Mechanisms and Improvement of Practical Liâ€"S Pouch Cells through In Operando Pressure Study (Adv. Energy Mater. 7/2022). Advanced Energy Materials, 2022, 12, .	19.5	2
79	Novel Short-Circuit Detection in Li-Ion Battery Architectures. ECS Transactions, 2017, 80, 75-84.	0.5	1
80	Cell degradation quantificationâ€"a performance metric-based approach. JPhys Energy, 2020, 2, 034003.	5.3	1
81	Sensitivity and Reliability of Global Electrochemical Lithium Detection Signatures. ECS Meeting Abstracts, 2021, MA2021-01, 165-165.	0.0	1
82	Identification and Quantification of Aging Modes with Deep Learning Models. ECS Meeting Abstracts, 2021, MA2021-01, 195-195.	0.0	1
83	Effects of External Pressure on the Performance of Lithium Anode Cells. ECS Meeting Abstracts, 2018, , .	0.0	1
84	Pressure Evolution in Constrained Li Metal Pouch Cells. ECS Meeting Abstracts, 2019, MA2019-01, 531-531.	0.0	1
85	Multimodal Characterization of Degradation Mechanisms in Lithium-Ion Batteries from Extreme Fast Charging. ECS Meeting Abstracts, 2021, MA2021-02, 482-482.	0.0	1
86	Batteries: Predicting Calendar Aging in Lithium Metal Secondary Batteries: The Impacts of Solid Electrolyte Interphase Composition and Stability (Adv. Energy Mater. 26/2018). Advanced Energy Materials, 2018, 8, 1870117.	19.5	0
87	Utilization of AFM for Observing Early-Onset Mechanisms of Lithium-Metal. ECS Meeting Abstracts, 2021, MA2021-01, 47-47.	0.0	0
88	Early Detection of Lithium Plating in Lithium Ion Batteries: Using Multiple Physics-Based Electrochemical Signatures to Construct a Machine Learning Framework. ECS Meeting Abstracts, 2021, MA2021-01, 274-274.	0.0	0
89	(Invited) The Role of Variability in Failure for High Energy and High Power Batteries. ECS Meeting Abstracts, 2018, , .	0.0	0
90	(Invited) High Energy Cell Design: Challenges and Quantitative Characterization of the Role of Lean Electrolyte. ECS Meeting Abstracts, 2018, , .	0.0	0

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91	The Implications of Fast Charge in Lithium Ion Battery Performance and Life: Cell vs. Pack. ECS Meeting Abstracts, 2018, , .	0.0	0
92	Effects of Electrolyte Volume and Salt Concentration on SEI Stability and Cycling Performance of Lithium Metal Anodes. ECS Meeting Abstracts, 2018, , .	0.0	0
93	Effect of Formation Rates on Performance of Lithium Metal Batteries. ECS Meeting Abstracts, 2018, , .	0.0	0
94	Interfacial Stability, Impact on Surface Stabilization and Charge Transfer. ECS Meeting Abstracts, 2018, , .	0.0	0
95	(Invited) Extreme Fast Charging of Lithium-Ion Battery: Understanding Bottlenecks and Safety Issues. ECS Meeting Abstracts, 2019, , .	0.0	0
96	(Invited) Multiscale Stress-Transport-Kinetics Continuum Models for Lithium-Metal Batteries-Relevance of Richard Alkireâ€™s Electrodeposition Legacy for Next-Generation Batteries. ECS Meeting Abstracts, 2019, , .	0.0	0
97	Electro-Assisted Recycling of Lithium Ion Batteries. ECS Meeting Abstracts, 2019, , .	0.0	0
98	(Invited) Lithium Plating â€“ Understanding of a Very Complicated Phenomenon. ECS Meeting Abstracts, 2019, , .	0.0	0
99	Lithium Metal Electrode â€" Understanding Its Unique Characteristics and Functions. ECS Meeting Abstracts, 2019, , .	0.0	0
100	Power Hardware in the Loop (PHIL) Simulation of Battery Packs. ECS Meeting Abstracts, 2019, , .	0.0	0
101	A Non-Aqueous NaPF6-Based Electrolyte Degradation Study: Formation and Mitigation of HF. ECS Meeting Abstracts, 2019, , .	0.0	0
102	Extreme Fast Charging: The Current State of Understanding. ECS Meeting Abstracts, 2020, MA2020-01, 73-73.	0.0	0
103	Nucleation and Growth in Electrochemically Deposited Metals. ECS Meeting Abstracts, 2020, MA2020-01, 1169-1169.	0.0	0
104	Realistic Diagnostics to Evaluate Imbalance and Heterogeneity of Lithium-Ion Battery Modules. ECS Meeting Abstracts, 2020, MA2020-01, 102-102.	0.0	0
105	Mapping the Deposition of Li Metal in Pouch Cells By Synchrotron Diffraction. ECS Meeting Abstracts, 2021, MA2021-02, 129-129.	0.0	0
106	Physics-Based Machine Learning: Data Needs and Practices for Failure Mode Classification and Life Prediction. ECS Meeting Abstracts, 2021, MA2021-02, 44-44.	0.0	0
107	Is Cathode a Bottleneck for Enabling Extreme Fast Charging?. ECS Meeting Abstracts, 2021, MA2021-02, 433-433.	0.0	0
108	A Bi-Layer Dense/Porous Solid Electrolyte Interphase for Enhanced Lithium-Metal Stability. ECS Meeting Abstracts, 2021, MA2021-02, 141-141.	0.0	0

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109	(Invited) Directions of High Energy Batteries and Status of Battery500 Consortium. ECS Meeting Abstracts, 2020, MA2020-02, 29-29.	0.0	0
110	Effect of Artificial SEI Content on Lithium Metal Anode Morphology and Performance. ECS Meeting Abstracts, 2020, MA2020-02, 151-151.	0.0	0
111	(Invited) How Well Cathode Materials are Being Used in Rechargeable Li Batteries. ECS Meeting Abstracts, 2020, MA2020-02, 34-34.	0.0	0
112	(Invited) Quantificationof Heterogeneous, Irreversible Lithium Plating in Extreme Fastcharging of Li-Ion Batteries. ECS Meeting Abstracts, 2020, MA2020-02, 589-589.	0.0	0
113	Deep Learning for Rapid Failure Mode Classification and Quantification in Batteries. ECS Meeting Abstracts, 2021, MA2021-02, 159-159.	0.0	0