

Eric J Dufek

List of Publications by Year in descending order

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113
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times ranked

5445
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#	ARTICLE	IF	CITATIONS
1	Rapid failure mode classification and quantification in batteries: A deep learning modeling framework. <i>Energy Storage Materials</i> , 2022, 45, 1002-1011.	18.0	29
2	Methodologies for Design, Characterization and Testing of Electrolytes that Enable Extreme Fast Charging of Lithium-ion Cells. <i>Energy Storage Materials</i> , 2022, 44, 296-312.	18.0	19
3	Sensitivity and reliability of key electrochemical markers for detecting lithium plating during extreme fast charging. <i>Journal of Energy Storage</i> , 2022, 46, 103782.	8.1	11
4	Interfaces in all solid state Li-metal batteries: A review on instabilities, stabilization strategies, and scalability. <i>Energy Storage Materials</i> , 2022, 45, 969-1001.	18.0	36
5	Operando Synchrotron Studies of Inhomogeneity during Anode-Free Plating of Li Metal in Pouch Cell Batteries. <i>Journal of the Electrochemical Society</i> , 2022, 169, 020571.	2.9	12
6	Unlocking Failure Mechanisms and Improvement of Practical Li-ion Pouch Cells through In Operando Pressure Study. <i>Advanced Energy Materials</i> , 2022, 12, .	19.5	12
7	Unlocking Failure Mechanisms and Improvement of Practical Li-ion Pouch Cells through In Operando Pressure Study (<i>Adv. Energy Mater.</i> 7/2022). <i>Advanced Energy Materials</i> , 2022, 12, .	19.5	2
8	Developing extreme fast charge battery protocols – A review spanning materials to systems. <i>Journal of Power Sources</i> , 2022, 526, 231129.	7.8	27
9	A Comprehensive Understanding of the Aging Effects of Extreme Fast Charging on High Ni NMC Cathode. <i>Advanced Energy Materials</i> , 2022, 12, .	19.5	32
10	Carbon-Binder Weight Loading Optimization for Improved Lithium-Ion Battery Rate Capability. <i>Journal of the Electrochemical Society</i> , 2022, 169, 070519.	2.9	7
11	Fast Diagnosis of Failure Mechanisms and Lifetime Prediction of Li Metal Batteries. <i>Small Methods</i> , 2021, 5, e2000807.	8.6	17
12	A Novel Framework for Optimizing Ramping Capability of Hybrid Energy Storage Systems. <i>IEEE Transactions on Smart Grid</i> , 2021, 12, 1651-1662.	9.0	10
13	Quantification of heterogeneous, irreversible lithium plating in extreme fast charging of lithium-ion batteries. <i>Energy and Environmental Science</i> , 2021, 14, 4979-4988.	30.8	58
14	Challenging Practices of Algebraic Battery Life Models through Statistical Validation and Model Identification via Machine-Learning. <i>Journal of the Electrochemical Society</i> , 2021, 168, 020502.	2.9	40
15	A Review of Existing and Emerging Methods for Lithium Detection and Characterization in Li-ion and Li-Metal Batteries. <i>Advanced Energy Materials</i> , 2021, 11, 2100372.	19.5	114
16	High-Energy Lateral Mapping (HELM) Studies of Inhomogeneity and Failure Mechanisms in NMC622/Li Pouch Cells. <i>Chemistry of Materials</i> , 2021, 33, 2378-2386.	6.7	16
17	A machine learning framework for early detection of lithium plating combining multiple physics-based electrochemical signatures. <i>Cell Reports Physical Science</i> , 2021, 2, 100352.	5.6	27
18	Sensitivity and Reliability of Global Electrochemical Lithium Detection Signatures. <i>ECS Meeting Abstracts</i> , 2021, MA2021-01, 165-165.	0.0	1

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19	A closed-host bi-layer dense/porous solid electrolyte interphase for enhanced lithium-metal anode stability. <i>Materials Today</i> , 2021, 49, 48-58.	14.2	22
20	Utilization of AFM for Observing Early-Onset Mechanisms of Lithium-Metal. <i>ECS Meeting Abstracts</i> , 2021, MA2021-01, 47-47.	0.0	0
21	Challenges and needs for system-level electrochemical lithium-ion battery management and diagnostics. <i>MRS Bulletin</i> , 2021, 46, 420-428.	3.5	16
22	Early Battery Performance Prediction for Mixed Use Charging Profiles Using Hierarchical Machine Learning. <i>Batteries and Supercaps</i> , 2021, 4, 1186-1196.	4.7	10
23	Early Detection of Lithium Plating in Lithium Ion Batteries: Using Multiple Physics-Based Electrochemical Signatures to Construct a Machine Learning Framework. <i>ECS Meeting Abstracts</i> , 2021, MA2021-01, 274-274.	0.0	0
24	Identification and Quantification of Aging Modes with Deep Learning Models. <i>ECS Meeting Abstracts</i> , 2021, MA2021-01, 195-195.	0.0	1
25	Formation of Surface Impurities on Lithium-Nickel-Manganese-Cobalt Oxides in the Presence of CO ₂ and H ₂ O. <i>Journal of the American Chemical Society</i> , 2021, 143, 10261-10274.	13.7	21
26	Nature of Oxygen Adsorption on Defective Carbonaceous Materials. <i>Journal of Physical Chemistry C</i> , 2021, 125, 20686-20696.	3.1	11
27	Fast-Charging Aging Considerations: Incorporation and Alignment of Cell Design and Material Degradation Pathways. <i>ACS Applied Energy Materials</i> , 2021, 4, 9133-9143.	5.1	21
28	Extended cycle life implications of fast charging for lithium-ion battery cathode. <i>Energy Storage Materials</i> , 2021, 41, 656-666.	18.0	50
29	Using <i>In Situ</i> High-Energy X-ray Diffraction to Quantify Electrode Behavior of Li-Ion Batteries from Extreme Fast Charging. <i>ACS Applied Energy Materials</i> , 2021, 4, 11590-11598.	5.1	17
30	Mapping the Deposition of Li Metal in Pouch Cells By Synchrotron Diffraction. <i>ECS Meeting Abstracts</i> , 2021, MA2021-02, 129-129.	0.0	0
31	Physics-Based Machine Learning: Data Needs and Practices for Failure Mode Classification and Life Prediction. <i>ECS Meeting Abstracts</i> , 2021, MA2021-02, 44-44.	0.0	0
32	Is Cathode a Bottleneck for Enabling Extreme Fast Charging?. <i>ECS Meeting Abstracts</i> , 2021, MA2021-02, 433-433.	0.0	0
33	A Bi-Layer Dense/Porous Solid Electrolyte Interphase for Enhanced Lithium-Metal Stability. <i>ECS Meeting Abstracts</i> , 2021, MA2021-02, 141-141.	0.0	0
34	Deep Learning for Rapid Failure Mode Classification and Quantification in Batteries. <i>ECS Meeting Abstracts</i> , 2021, MA2021-02, 159-159.	0.0	0
35	Multimodal Characterization of Degradation Mechanisms in Lithium-Ion Batteries from Extreme Fast Charging. <i>ECS Meeting Abstracts</i> , 2021, MA2021-02, 482-482.	0.0	1
36	A non-aqueous sodium hexafluorophosphate-based electrolyte degradation study: Formation and mitigation of hydrofluoric acid. <i>Journal of Power Sources</i> , 2020, 447, 227363.	7.8	39

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37	Cell degradation quantification—a performance metric-based approach. <i>JPhys Energy</i> , 2020, 2, 034003.	5.3	1
38	Heterogeneous Behavior of Lithium Plating during Extreme Fast Charging. <i>Cell Reports Physical Science</i> , 2020, 1, 100114.	5.6	49
39	Electrode scale and electrolyte transport effects on extreme fast charging of lithium-ion cells. <i>Electrochimica Acta</i> , 2020, 337, 135854.	5.2	122
40	Glassy Li metal anode for high-performance rechargeable Li batteries. <i>Nature Materials</i> , 2020, 19, 1339-1345.	27.5	162
41	Concept Design of Active Shielding for Dynamic Wireless Charging of Light-duty EV. , 2020, , .		5
42	Lithium-electrolyte solvation and reaction in the electrolyte of a lithium ion battery: A ReaxFF reactive force field study. <i>Journal of Chemical Physics</i> , 2020, 152, 184301.	3.0	27
43	A Quantitative Failure Analysis on Capacity Fade in Rechargeable Lithium Metal Cells. <i>Journal of the Electrochemical Society</i> , 2020, 167, 090502.	2.9	5
44	Communication—Pressure Evolution in Constrained Rechargeable Lithium-metal Pouch Cells. <i>Journal of the Electrochemical Society</i> , 2020, 167, 020511.	2.9	7
45	Advanced diagnostics to evaluate heterogeneity in lithium-ion battery modules. <i>ETransportation</i> , 2020, 3, 100045.	14.8	39
46	Correlation of electrochemical and mechanical responses: Differential analysis of rechargeable lithium metal cells. <i>Journal of Power Sources</i> , 2020, 463, 228180.	7.8	16
47	Extreme Fast Charging: The Current State of Understanding. <i>ECS Meeting Abstracts</i> , 2020, MA2020-01, 73-73.	0.0	0
48	Nucleation and Growth in Electrochemically Deposited Metals. <i>ECS Meeting Abstracts</i> , 2020, MA2020-01, 1169-1169.	0.0	0
49	Realistic Diagnostics to Evaluate Imbalance and Heterogeneity of Lithium-Ion Battery Modules. <i>ECS Meeting Abstracts</i> , 2020, MA2020-01, 102-102.	0.0	0
50	(Invited) Directions of High Energy Batteries and Status of Battery500 Consortium. <i>ECS Meeting Abstracts</i> , 2020, MA2020-02, 29-29.	0.0	0
51	Effect of Artificial SEI Content on Lithium Metal Anode Morphology and Performance. <i>ECS Meeting Abstracts</i> , 2020, MA2020-02, 151-151.	0.0	0
52	(Invited) How Well Cathode Materials are Being Used in Rechargeable Li Batteries. <i>ECS Meeting Abstracts</i> , 2020, MA2020-02, 34-34.	0.0	0
53	(Invited) Quantification of Heterogeneous, Irreversible Lithium Plating in Extreme Fastcharging of Li-Ion Batteries. <i>ECS Meeting Abstracts</i> , 2020, MA2020-02, 589-589.	0.0	0
54	Electrochemical Quantification of Lithium Plating: Challenges and Considerations. <i>Journal of the Electrochemical Society</i> , 2019, 166, A2689-A2696.	2.9	38

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55	Challenges of future high power wireless power transfer for light-duty electric vehicles—technology and risk management. ETransportation, 2019, 2, 100012.	14.8	49
56	Perspective—Safety Aspects of Energy Storage Testing. Journal of the Electrochemical Society, 2019, 166, E263-E265.	2.9	5
57	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
58	Communication—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
59	Pathways for practical high-energy long-cycling lithium metal batteries. Nature Energy, 2019, 4, 180-186.	39.5	2,101
60	Critical Parameters for Evaluating Coin Cells and Pouch Cells of Rechargeable Li-Metal Batteries. Joule, 2019, 3, 1094-1105.	24.0	358
61	Good Practices for Rechargeable Lithium Metal Batteries. Journal of the Electrochemical Society, 2019, 166, A4141-A4149.	2.9	42
62	(Invited) Extreme Fast Charging of Lithium-Ion Battery: Understanding Bottlenecks and Safety Issues. ECS Meeting Abstracts, 2019, , .	0.0	0
63	Pressure Evolution in Constrained Li Metal Pouch Cells. ECS Meeting Abstracts, 2019, MA2019-01, 531-531.	0.0	1
64	(Invited) Multiscale Stress-Transport-Kinetics Continuum Models for Lithium-Metal Batteries-Relevance of Richard Alkire's Electrodeposition Legacy for Next-Generation Batteries. ECS Meeting Abstracts, 2019, , .	0.0	0
65	Electro-Assisted Recycling of Lithium Ion Batteries. ECS Meeting Abstracts, 2019, , .	0.0	0
66	(Invited) Lithium Plating — Understanding of a Very Complicated Phenomenon. ECS Meeting Abstracts, 2019, , .	0.0	0
67	Lithium Metal Electrode — Understanding Its Unique Characteristics and Functions. ECS Meeting Abstracts, 2019, , .	0.0	0
68	Power Hardware in the Loop (PHIL) Simulation of Battery Packs. ECS Meeting Abstracts, 2019, , .	0.0	0
69	A Non-Aqueous NaPF ₆ -Based Electrolyte Degradation Study: Formation and Mitigation of HF. ECS Meeting Abstracts, 2019, , .	0.0	0
70	Fast charge implications: Pack and cell analysis and comparison. Journal of Power Sources, 2018, 381, 56-65.	7.8	67
71	Electrochemical production of syngas from CO ₂ captured in switchable polarity solvents. Green Chemistry, 2018, 20, 620-626.	9.0	45
72	Impacts of lean electrolyte on cycle life for rechargeable Li metal batteries. Journal of Power Sources, 2018, 407, 53-62.	7.8	62

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73	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
74	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
75	2.20 Batteries. , 2018, , 629-662.		9
76	(Invited) The Role of Variability in Failure for High Energy and High Power Batteries. ECS Meeting Abstracts, 2018, , .	0.0	0
77	(Invited) High Energy Cell Design: Challenges and Quantitative Characterization of the Role of Lean Electrolyte. ECS Meeting Abstracts, 2018, , .	0.0	0
78	The Implications of Fast Charge in Lithium Ion Battery Performance and Life: Cell vs. Pack. ECS Meeting Abstracts, 2018, , .	0.0	0
79	Effects of Electrolyte Volume and Salt Concentration on SEI Stability and Cycling Performance of Lithium Metal Anodes. ECS Meeting Abstracts, 2018, , .	0.0	0
80	Effect of Formation Rates on Performance of Lithium Metal Batteries. ECS Meeting Abstracts, 2018, , .	0.0	0
81	Interfacial Stability, Impact on Surface Stabilization and Charge Transfer. ECS Meeting Abstracts, 2018, , .	0.0	0
82	Effects of External Pressure on the Performance of Lithium Anode Cells. ECS Meeting Abstracts, 2018, , .	0.0	1
83	Enabling fast charging “ Vehicle considerations. Journal of Power Sources, 2017, 367, 216-227.	7.8	129
84	Enabling fast charging “ Infrastructure and economic considerations. Journal of Power Sources, 2017, 367, 237-249.	7.8	130
85	Enabling fast charging “ A battery technology gap assessment. Journal of Power Sources, 2017, 367, 250-262.	7.8	342
86	Enabling fast charging “ Battery thermal considerations. Journal of Power Sources, 2017, 367, 228-236.	7.8	216
87	Enabling fast charging “ Introduction and overview. Journal of Power Sources, 2017, 367, 214-215.	7.8	35
88	Phosphoranimes containing cationic N-imidazolium moieties. Inorganica Chimica Acta, 2017, 466, 254-265.	2.4	4
89	Novel Short-Circuit Detection in Li-Ion Battery Architectures. ECS Transactions, 2017, 80, 75-84.	0.5	1
90	Use of phosphoranimes to reduce organic carbonate content in Li-ion battery electrolytes. Electrochimica Acta, 2016, 209, 36-43.	5.2	3

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91	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
92	A new detection mechanism involving keto-enol tautomerization: selective fluorescence detection of Al(III) by dehydration of secondary alcohols in mixed DMSO/aqueous media. RSC Advances, 2016, 6, 11295-11302.	3.6	8
93	Density impact on performance of composite Si/graphite electrodes. Journal of Applied Electrochemistry, 2016, 46, 359-367.	2.9	3
94	Unsaturated phosphazenes as co-solvents for lithium-ion battery electrolytes. Journal of Power Sources, 2015, 278, 794-801.	7.8	15
95	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
96	Evaluation of the SEI Using a Multilayer Spectroscopic Ellipsometry Model. ECS Electrochemistry Letters, 2014, 3, A108-A111.	1.9	4
97	Aluminum electroplating on steel from a fused bromide electrolyte. Surface and Coatings Technology, 2014, 258, 652-663.	4.8	5
98	Sampling dynamics for pressurized electrochemical cells. Journal of Applied Electrochemistry, 2014, 44, 849-855.	2.9	16
99	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
100	Hybrid phosphazene anodes for energy storage applications. Journal of Power Sources, 2014, 267, 347-355.	7.8	17
101	Electrochemical Systems for Production of Syngas and Co-Products. ECS Transactions, 2013, 58, 125-137.	0.5	2
102	Chlor-syngas: Coupling of Electrochemical Technologies for Production of Commodity Chemicals. Energy & Fuels, 2013, 27, 4244-4249.	5.1	33
103	Operation of a Pressurized System for Continuous Reduction of CO ₂ . Journal of the Electrochemical Society, 2012, 159, F514-F517.	2.9	125
104	Influence of Electrolytes and Membranes on Cell Operation for Syn-Gas Production. Electrochemical and Solid-State Letters, 2012, 15, B48.	2.2	41
105	Influence of S Contamination on CO ₂ Reduction at Ag Electrodes. Journal of the Electrochemical Society, 2011, 158, B1384.	2.9	19
106	Bench-scale electrochemical system for generation of CO and syn-gas. Journal of Applied Electrochemistry, 2011, 41, 623-631.	2.9	117
107	Rotationally Induced Hydrodynamics: Fundamentals and Applications to High-Speed Bioassays. Annual Review of Analytical Chemistry, 2010, 3, 387-407.	5.4	12
108	Competitive surface-enhanced Raman scattering assay for the 1,25-dihydroxy metabolite of vitamin D ₃ . Analyst, The, 2010, 135, 2811.	3.5	35

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109	Characterization of Zr(IV)-Phosphonate Thin Films Which Inhibit O ₂ Reduction on AA2024-T3. Journal of the Electrochemical Society, 2009, 156, C322.	2.9	9
110	Inhibition of O ₂ Reduction on AA2024-T3 Using a Zr(IV)-Octadecyl Phosphonate Coating System. Electrochemical and Solid-State Letters, 2008, 11, C9.	2.2	7
111	Dioxygen Reduction Affects Surface Oxide Growth and Dissolution on AA2024-T3. Journal of the Electrochemical Society, 2007, 154, C458.	2.9	6
112	Syntheses, Characterizations, and Properties of Electronically Perturbed 1,1'-Dimethyl-2,2'-bipyridinium Tetrafluoroborates. Journal of Organic Chemistry, 2006, 71, 315-319.	3.2	23
113	Structural and electronic features important to n ⁺ -i ⁻ inversion sensors: synthesis, luminescence, and electrochemical properties of sulfur and chlorine-containing macrocycles. Part 3. Tetrahedron, 2005, 61, 479-484.	1.9	17