Kandler Smith

List of Publications by Year
in descending order

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Version: 2024-02-01

65 papers	4,310 citations	147801 31 h-index	168389 53 g-index
70 all docs	70 docs citations	70 times ranked	3303 citing authors

#	Article	IF	Citations
1	Power and thermal characterization of a lithium-ion battery pack for hybrid-electric vehicles. Journal of Power Sources, 2006, 160, 662-673.	7.8	587
2	Solid-state diffusion limitations on pulse operation of a lithium ion cell for hybrid electric vehicles. Journal of Power Sources, 2006, 161, 628-639.	7.8	308
3	Multi-Domain Modeling of Lithium-Ion Batteries Encompassing Multi-Physics in Varied Length Scales. Journal of the Electrochemical Society, 2011, 158, A955.	2.9	277
4	Enabling fast charging â€“ Battery thermal considerations. Journal of Power Sources, 2017, 367, 228-236.	7.8	216
5	Requirements for Enabling Extreme Fast Charging of High Energy Density Li-Ion Cells while Avoiding Lithium Plating. Journal of the Electrochemical Society, 2019, 166, A1412-A1424.	2.9	162
6	Investigation of Lithium Plating-Stripping Process in Li-Ion Batteries at Low Temperature Using an Electrochemical Model. Journal of the Electrochemical Society, 2018, 165, A2167-A2178.	2.9	153
7	Comprehensive Modeling of Temperature-Dependent Degradation Mechanisms in Lithium Iron Phosphate Batteries. Journal of the Electrochemical Society, 2018, 165, A181-A193.	2.9	135
8	Resolving the Discrepancy in Tortuosity Factor Estimation for Li-Ion Battery Electrodes through Micro-Macro Modeling and Experiment. Journal of the Electrochemical Society, 2018, 165, A3403-A3426.	2.9	133
9	Spatial dynamics of lithiation and lithium plating during high-rate operation of graphite electrodes. Energy and Environmental Science, 2020, 13, 2570-2584.	30.8	124
10	Electrode scale and electrolyte transport effects on extreme fast charging of lithium-ion cells. Electrochimica Acta, 2020, 337, 135854.	5.2	122
11	Secondary-Phase Stochastics in Lithium-Ion Battery Electrodes. ACS Applied Materials & Interfaces, 2018, 10, 6317-6326.	8.0	120
12	Thermal/electrical modeling for abuse-tolerant design of lithium ion modules. International Journal of Energy Research, 2010, 34, 204-215.	4.5	109
13	Degradation mechanisms of high capacity 18650 cells containing Si-graphite anode and nickel-rich NMC cathode. Electrochimica Acta, 2019, 297, 1109-1120.	5.2	105
14	Galvanostatic Intermittent Titration and Performance Based Analysis of LiNi_{0.5}Co_{0.2}Mn_{0.3}O₂Cathode. Journal of the Electrochemical Society, 2017, 164, A3380-A3392.	2.9	102
15	Fail-safe design for large capacity lithium-ion battery systems. Journal of Power Sources, 2012, 210, 243-253.	7.8	99
16	Quantification of Inactive Lithium and Solidâ€“Electrolyte Interphase Species on Graphite Electrodes after Fast Charging. ACS Energy Letters, 2020, 5, 2045-2051.	17.4	97
17	Electric vehicle charge optimization including effects of lithium-ion battery degradation. , 2011, , .		94
18	Life prediction model for grid-connected Li-ion battery energy storage system. , 2017, , .		92

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19	Numerical investigation of thermal runaway mitigation through a passive thermal management system. Journal of Power Sources, 2019, 429, 80-88.	7.8	74
20	Spatially Resolving Lithiation in Siliconâ€“Graphite Composite Electrodes via in Situ High-Energy X-ray Diffraction Computed Tomography. Nano Letters, 2019, 19, 3811-3820.	9.1	73
21	Spatial quantification of dynamic inter and intra particle crystallographic heterogeneities within lithium ion electrodes. Nature Communications, 2020, 11, 631.	12.8	73
22	Fingerprinting Redox Heterogeneity in Electrodes during Extreme Fast Charging. Journal of the Electrochemical Society, 2020, 167, 090542.	2.9	64
23	Enabling fast charging of lithium-ion batteries through secondary- /dual- pore network: Part I - Analytical diffusion model. Electrochimica Acta, 2020, 342, 136034.	5.2	58
24	Modular approach for continuous cell-level balancing to improve performance of large battery packs. , 2014, , .		54
25	Model-Instructed Design of Novel Charging Protocols for the Extreme Fast Charging of Lithium-Ion Batteries Without Lithium Plating. Journal of the Electrochemical Society, 2020, 167, 080517.	2.9	53
26	Extended cycle life implications of fast charging for lithium-ion battery cathode. Energy Storage Materials, 2021, 41, 656-666.	18.0	50
27	Electrochemistry Coupled Mesoscale Complexations in Electrodes Lead to Thermo-Electrochemical Extremes. ACS Applied Materials & Interfaces, 2018, 10, 28644-28655.	8.0	49
28	Analysis of Long-Range Interaction in Lithium-Ion Battery Electrodes. Journal of Electrochemical Energy Conversion and Storage, 2016, 13, .	2.1	44
29	Enabling fast charging of lithium-ion batteries through secondary-/dual- pore network: Part II - numerical model. Electrochimica Acta, 2020, 341, 136013.	5.2	42
30	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
31	Quantitative Relationships Between Pore Tortuosity, Pore Topology, and Solid Particle Morphology Using a Novel Discrete Particle Size Algorithm. Journal of the Electrochemical Society, 2020, 167, 100513.	2.9	37
32	Laser ablation for structuring Li-ion electrodes for fast charging and its impact on material properties, rate capability, Li plating, and wetting. Journal of Power Sources, 2022, 537, 231464.	7.8	37
33	Mapping the architecture of single lithium ion electrode particles in 3D, using electron backscatter diffraction and machine learning segmentation. Journal of Power Sources, 2021, 483, 229148.	7.8	35
34	Electron Backscatter Diffraction for Investigating Lithium-Ion Electrode Particle Architectures. Cell Reports Physical Science, 2020, 1, 100137.	5.6	34
35	Quantifying the influence of charge rate and cathode-particle architectures on degradation of Li-ion cells through 3D continuum-level damage models. Journal of Power Sources, 2021, 512, 230415.	7.8	34
36	A Comprehensive Understanding of the Aging Effects of Extreme Fast Charging on High Ni NMC Cathode. Advanced Energy Materials, 2022, 12, .	19.5	32

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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	A Reformulation of the Pseudo2D Battery Model Coupling Large Electrochemical-Mechanical Deformations at Particle and Electrode Levels. Journal of the Electrochemical Society, 2019, 166, A1330-A1339.	2.9	26
39	Advanced cell-level control for extending electric vehicle battery pack lifetime. , 2016, , .		23
40	Artificial generation of representative single Li-ion electrode particle architectures from microscopy data. Npj Computational Materials, 2021, 7, .	8.7	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	Asphericity Can Cause Nonuniform Lithium Intercalation in Battery Active Particles. ACS Energy Letters, 2022, 7, 1871-1879.	17.4	21
43	From Battery Cell to Electrodes: Real-Time Estimation of Charge and Health of Individual Battery Electrodes. IEEE Transactions on Industrial Electronics, 2020, 67, 2167-2175.	7.9	20
44	Degradation mechanisms and lifetime prediction for lithium-ion batteries — A control perspective. , 2015, , .		19
45	Scaling Relations for Intercalation Induced Damage in Electrodes. Electrochimica Acta, 2016, 204, 31-49.	5.2	19
46	Mechanistic Analysis of Microstructural Attributes to Lithium Plating in Fast Charging. ACS Applied Materials & Interfaces, 2020, 12, 55795-55808.	8.0	19
47	State-space representation of Li-ion battery porous electrode impedance model with balanced model reduction. Journal of Power Sources, 2015, 273, 1226-1236.	7.8	18
48	Efficient and Extensible Quasi-Explicit Modular Nonlinear Multiscale Battery Model: GH-MSMD. Journal of the Electrochemical Society, 2017, 164, A1076-A1088.	2.9	18
49	Stochasticity at Scales Leads to Lithium Intercalation Cascade. ACS Applied Materials & Interfaces, 2020, 12, 16359-16366.	8.0	18
50	Lithium-Ion Battery Life Model with Electrode Cracking and Early-Life Break-in Processes. Journal of the Electrochemical Society, 2021, 168, 100530.	2.9	14
51	Quantitative Microstructure Characterization of a NMC Electrode. ECS Transactions, 2017, 77, 1095-1118.	0.5	12
52	MATBOX: An Open-source Microstructure Analysis Toolbox for microstructure generation, segmentation, characterization, visualization, correlation, and meshing. SoftwareX, 2022, 17, 100915.	2.6	12
53	Significant life extension of lithium-ion batteries using compact metallic lithium reservoir with passive control. Electrochimica Acta, 2021, 370, 137777.	5.2	10
54	Early Battery Performance Prediction for Mixed Use Charging Profiles Using Hierarchal Machine Learning. Batteries and Supercaps, 2021, 4, 1186-1196.	4.7	10

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55	Investigation of Active Life Balancing to Recondition Li-ion Battery Packs for 2nd Life. , 2020, , .		10
56	Super-resolving microscopy images of Li-ion electrodes for fine-feature quantification using generative adversarial networks. Npj Computational Materials, 2022, 8, .	8.7	9
57	Life prediction of large lithium-ion battery packs with active and passive balancing. , 2017, , .		8
58	Optimal battery utilization over lifetime for parallel hybrid electric vehicle to maximize fuel economy. , 2016, , .		7
59	Carbon-Binder Weight Loading Optimization for Improved Lithium-Ion Battery Rate Capability. Journal of the Electrochemical Society, 2022, 169, 070519.	2.9	7
60	A Segregated Approach for Modeling the Electrochemistry in the 3-D Microstructure of Li-Ion Batteries and Its Acceleration Using Block Preconditioners. Journal of Scientific Computing, 2021, 86, 1.	2.3	6
61	A multi-node thermal system model for lithium-ion battery packs. , 2015, , .		5
62	Addressing the Observability Problem in Batteries: Algorithm Design for Electrode-level Charge and Health Estimation. , 2020, , .		4
63	Safer Batteries via Active Fault Tolerant Control. , 2019, , .		3
64	Field-Aging Test Bed for Behind-the-Meter PV + Energy Storage. , 2019, , .		2
65	Preface to special issue on electrical energy storage for future transportation and renewable energy. International Journal of Energy Research, 2010, 34, 95-96.	4.5	1