Gregory Offer

List of Publications by Year
in descending order

131 papers	7,575 citations	61945 43 h-index	53190 85 g-index
147 all docs	147 docs citations	147 times ranked	7561 citing authors

#	Article	IF	Citations
1	Lithium sulfur batteries, a mechanistic review. Energy and Environmental Science, 2015, 8, 3477-3494.	15.6	897
2	Lithium-ion battery fast charging: A review. ETransportation, 2019, 1, 100011.	6.8	835
3	In-operando high-speed tomography of lithium-ion batteries during thermal runaway. Nature Communications, 2015, 6, 6924.	5.8	494
4	Comparative analysis of battery electric, hydrogen fuel cell and hybrid vehicles in a future sustainable road transport system. Energy Policy, 2010, 38, 24-29.	4.2	481
5	Lithium ion battery degradation: what you need to know. Physical Chemistry Chemical Physics, 2021, 23, 8200-8221.	1.3	330
6	Coupled thermalâ€“electrochemical modelling of uneven heat generation in lithium-ion battery packs. Journal of Power Sources, 2013, 243, 544-554.	4.0	206
7	Battery electric vehicles, hydrogen fuel cells and biofuels. Which will be the winner?. Energy and Environmental Science, 2011, 4, 3754.	15.6	165
8	Online Measurement of Battery Impedance Using Motor Controller Excitation. IEEE Transactions on Vehicular Technology, 2014, 63, 2557-2566.	3.9	161
9	The effect of thermal gradients on the performance of lithium-ion batteries. Journal of Power Sources, 2014, 247, 1018-1025.	4.0	160
10	Module design and fault diagnosis in electric vehicle batteries. Journal of Power Sources, 2012, 206, 383-392.	4.0	157
11	Immersion cooling for lithium-ion batteries â€“ A review. Journal of Power Sources, 2022, 525, 231094.	4.0	142
12	How Observable Is Lithium Plating? Differential Voltage Analysis to Identify and Quantify Lithium Plating Following Fast Charging of Cold Lithium-Ion Batteries. Journal of the Electrochemical Society, 2019, 166, A725-A739.	1.3	131
13	Perspectiveâ€”Commercializing Lithium Sulfur Batteries: Are We Doing the Right Research?. Journal of the Electrochemical Society, 2018, 165, A6029-A6033.	1.3	124
14	Novel application of differential thermal voltammetry as an in-depth state-of-health diagnosis method for lithium-ion batteries. Journal of Power Sources, 2016, 307, 308-319.	4.0	109
15	Financial viability of electric vehicle lithium-ion battery recycling. IScience, 2021, 24, 102787.	1.9	105
16	Differential thermal voltammetry for tracking of degradation in lithium-ion batteries. Journal of Power Sources, 2015, 273, 495-501.	4.0	104
17	Reviewâ€”Meta-Review of Fire Safety of Lithium-Ion Batteries: Industry Challenges and Research Contributions. Journal of the Electrochemical Society, 2020, 167, 090559.	1.3	92
18	Techno-economic and behavioural analysis of battery electric, hydrogen fuel cell and hybrid vehicles in a future sustainable road transport system in the UK. Energy Policy, 2011, 39, 1939-1950.	4.2	86

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19	Modeling the Effects of Thermal Gradients Induced by Tab and Surface Cooling on Lithium Ion Cell Performance. Journal of the Electrochemical Society, 2018, 165, A3169-A3178.	1.3	82
20	Volumetric expansion of Lithium-Sulfur cell during operation â€“ Fundamental insight into applicable characteristics. Energy Storage Materials, 2018, 10, 233-245.	9.5	80
21	Thermodynamics and Kinetics of the Interaction of Carbon and Sulfur with Solid Oxide fuel Cell Anodes. Journal of the American Ceramic Society, 2009, 92, 763-780.	1.9	79
22	Assessing and comparing German and UK transition policies for electric mobility. Environmental Innovation and Societal Transitions, 2015, 14, 84-100.	2.5	76
23	2021 roadmap on lithium sulfur batteries. JPhys Energy, 2021, 3, 031501.	2.3	74
24	Lithium-ion battery degradation: how to model it. Physical Chemistry Chemical Physics, 2022, 24, 7909-7922.	1.3	73
25	A reliable approach of differentiating discrete sampled-data for battery diagnosis. ETransportation, 2020, 3, 100051.	6.8	71
26	Modeling the voltage loss mechanisms in lithiumâ€“sulfur cells: the importance of electrolyte resistance and precipitation kinetics. Physical Chemistry Chemical Physics, 2015, 17, 22581-22586.	1.3	70
27	A zero dimensional model of lithiumâ€“sulfur batteries during charge and discharge. Physical Chemistry Chemical Physics, 2016, 18, 584-593.	1.3	67
28	Multi-temperature state-dependent equivalent circuit discharge model for lithium-sulfur batteries. Journal of Power Sources, 2016, 328, 289-299.	4.0	66
29	Cost and carbon footprint reduction of electric vehicle lithium-ion batteries through efficient thermal management. Applied Energy, 2021, 289, 116737.	5.1	65
30	In-Operando X-ray Tomography Study of Lithiation Induced Delamination of Si Based Anodes for Lithium-Ion Batteries. ECS Electrochemistry Letters, 2014, 3, A76-A78.	1.9	60
31	Modelling transport-limited discharge capacity of lithium-sulfur cells. Electrochimica Acta, 2016, 219, 502-508.	2.6	58
32	A physically meaningful equivalent circuit network model of a lithium-ion battery accounting for local electrochemical and thermal behaviour, variable double layer capacitance and degradation. Journal of Power Sources, 2016, 325, 171-184.	4.0	55
33	Optimising lithium-ion cell design for plug-in hybrid and battery electric vehicles. Journal of Energy Storage, 2019, 22, 228-238.	3.9	52
34	Optimal cell tab design and cooling strategy for cylindrical lithium-ion batteries. Journal of Power Sources, 2021, 492, 229594.	4.0	51
35	Interactions are important: Linking multi-physics mechanisms to the performance and degradation of solid-state batteries. Materials Today, 2021, 49, 145-183.	8.3	51
36	Cool metric for lithium-ion batteries could spur progress. Nature, 2020, 582, 485-487.	13.7	49

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37	A Raman spectroscopic study of the carbon deposition mechanism on Ni/CGO electrodes during CO/CO₂ electrolysis. Physical Chemistry Chemical Physics, 2014, 16, 13063-13068.	1.3	48
38	Potentiometric measurement of entropy change for lithium batteries. Physical Chemistry Chemical Physics, 2017, 19, 9833-9842.	1.3	48
39	Extending battery life: A low-cost practical diagnostic technique for lithium-ion batteries. Journal of Power Sources, 2016, 331, 224-231.	4.0	47
40	Design and testing of a 9.5ÂkWe proton exchange membrane fuel cellâ€“supercapacitor passive hybrid system. International Journal of Hydrogen Energy, 2014, 39, 7885-7896.	3.8	46
41	Tracking degradation in lithium iron phosphate batteries using differential thermal voltammetry. Journal of Power Sources, 2018, 374, 188-195.	4.0	46
42	The Cell Cooling Coefficient: A Standard to Define Heat Rejection from Lithium-Ion Batteries. Journal of the Electrochemical Society, 2019, 166, A2383-A2395.	1.3	46
43	Irreversible vs Reversible Capacity Fade of Lithium-Sulfur Batteries during Cycling: The Effects of Precipitation and Shuttle. Journal of the Electrochemical Society, 2018, 165, A6107-A6118.	1.3	45
44	An easy-to-parameterise physics-informed battery model and its application towards lithium-ion battery cell design, diagnosis, and degradation. Journal of Power Sources, 2018, 384, 66-79.	4.0	45
45	What Happens Inside a Fuel Cell? Developing an Experimental Functional Map of Fuel Cell Performance. ChemPhysChem, 2010, 11, 2714-2731.	1.0	44
46	Raman Spectroscopy of Solid Oxide Fuel Cells: Technique Overview and Application to Carbon Deposition Analysis. Fuel Cells, 2013, 13, 455-469.	1.5	44
47	Voltage Hysteresis Model for Silicon Electrodes for Lithium Ion Batteries, Including Multi-Step Phase Transformations, Crystallization and Amorphization. Journal of the Electrochemical Society, 2020, 167, 130533.	1.3	44
48	A novel regenerative hydrogen cerium fuel cell for energy storage applications. Journal of Materials Chemistry A, 2015, 3, 9446-9450.	5.2	42
49	Preventing lithium ion battery failure during high temperatures by externally applied compression. Journal of Energy Storage, 2017, 13, 296-303.	3.9	41
50	Modelling of Supercapacitors: Factors Influencing Performance. Journal of the Electrochemical Society, 2016, 163, A2475-A2487.	1.3	40
51	How to Cool Lithium Ion Batteries: Optimising Cell Design using a Thermally Coupled Model. Journal of the Electrochemical Society, 2019, 166, A2849-A2859.	1.3	39
52	The role of adsorbed hydroxyl species in the electrocatalytic carbon monoxide oxidation reaction on platinum. Physical Chemistry Chemical Physics, 2008, 10, 3699.	1.3	38
53	Electrochemical double layer capacitor electro-thermal modelling. Journal of Energy Storage, 2016, 5, 10-24.	3.9	36
54	Automated vehicles and electrification of transport. Energy and Environmental Science, 2015, 8, 26-30.	15.6	35

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55	Using electrochemical impedance spectroscopy to compensate for errors when measuring polarisation curves during three-electrode measurements of solid oxide fuel cell electrodes. Electrochimica Acta, 2008, 53, 7614-7621.	2.6	34
56	Comparing the Effects of Vehicle Automation, Policy-Making and Changed User Preferences on the Uptake of Electric Cars and Emissions from Transport. Sustainability, 2018, 10, 676.	1.6	34
57	Hydrogen PEMFC system for automotive applications. International Journal of Low-Carbon Technologies, 2012, 7, 28-37.	1.2	33
58	Seeing is Believing: In Situ/Operando Optical Microscopy for Probing Electrochemical Energy Systems. Advanced Materials Technologies, 2020, 5, 2000555.	3.0	33
59	Physical Origin of the Differential Voltage Minimum Associated with Lithium Plating in Li-Ion Batteries. Journal of the Electrochemical Society, 2020, 167, 090540.	1.3	33
60	Characterization of Ni-Infiltrated GDC Electrodes for Solid Oxide Cell Applications. Journal of the Electrochemical Society, 2014, 161, F899-F905.	1.3	30
61	The effect of current density and temperature on the degradation of nickel cermet electrodes by carbon monoxide in solid oxide fuel cells. Chemical Engineering Science, 2009, 64, 2291-2300.	1.9	29
62	Finding a better fit for lithium ion batteries: A simple, novel, load dependent, modified equivalent circuit model and parameterization method. Journal of Power Sources, 2021, 484, 229117.	4.0	29
63	The Surface Cell Cooling Coefficient: A Standard to Define Heat Rejection from Lithium Ion Battery Pouch Cells. Journal of the Electrochemical Society, 2020, 167, 020524.	1.3	28
64	Meta-analysis of experimental results for heat capacity and thermal conductivity in lithium-ion batteries: A critical review. Journal of Power Sources, 2022, 522, 230829.	4.0	28
65	A composite electrode model for lithium-ion batteries with silicon/graphite negative electrodes. Journal of Power Sources, 2022, 527, 231142.	4.0	28
66	Carbon deposition behaviour in metal-infiltrated gadolinia doped ceria electrodes for simulated biogas upgrading in solid oxide electrolysis cells. Journal of Power Sources, 2015, 293, 912-921.	4.0	26
67	Lithium sulfur battery nail penetration test under load. Journal of Energy Storage, 2015, 2, 25-29.	3.9	26
68	A Shrinking-Core Model for the Degradation of High-Nickel Cathodes (NMC811) in Li-Ion Batteries: Passivation Layer Growth and Oxygen Evolution. Journal of the Electrochemical Society, 2021, 168, 020509.	1.3	23
69	Localized Swelling Inhomogeneity Detection in Lithium Ion Cells Using Multi-Dimensional Laser Scanning. Journal of the Electrochemical Society, 2019, 166, A27-A34.	1.3	21
70	Experimental analysis of Hybridised Energy Storage Systems for automotive applications. Journal of Power Sources, 2016, 324, 388-401.	4.0	20
71	The Effect of Current Inhomogeneity on the Performance and Degradation of Li-S Batteries. Journal of the Electrochemical Society, 2018, 165, A6073-A6080.	1.3	20
72	The role of cell geometry when selecting tab or surface cooling to minimise cell degradation. ETransportation, 2020, 5, 100073.	6.8	20

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73	Inhomogeneous degradation induced by lithium plating in a large-format lithium-ion battery. Journal of Power Sources, 2022, 542, 231753.	4.0	19
74	Battery Degradation-Aware Current Derating: An Effective Method to Prolong Lifetime and Ease Thermal Management. Journal of the Electrochemical Society, 2021, 168, 060506.	1.3	18
75	The Cell Cooling Coefficient as a design tool to optimise thermal management of lithium-ion cells in battery packs. ETransportation, 2020, 6, 100089.	6.8	17
76	Understanding the drivers of fleet emission reduction activities of the German car manufacturers. Environmental Innovation and Societal Transitions, 2015, 16, 3-21.	2.5	16
77	Chemical Descriptors of Yttria-Stabilized Zirconia at Low Defect Concentration: An ab Initio Study. Journal of Physical Chemistry A, 2015, 119, 6412-6420.	1.1	16
78	From Atoms to Cells: Multiscale Modeling of LiNi_xMn_yCo_zO₂ Cathodes for Li-Ion Batteries. ACS Energy Letters, 2022, 7, 108-122.	8.8	16
79	The atomistic structure of yttria stabilised zirconia at 6.7 mol%: an ab initio study. Physical Chemistry Chemical Physics, 2016, 18, 31277-31285.	1.3	15
80	How to Design Lithium Ion Capacitors: Modelling, Mass Ratio of Electrodes and Pre-lithiation. Journal of the Electrochemical Society, 2020, 167, 013527.	1.3	15
81	The prismatic surface cell cooling coefficient: A novel cell design optimisation tool & thermal parameterization method for a 3D discretised electro-thermal equivalent-circuit model. ETransportation, 2021, 7, 100099.	6.8	15
82	Regularized MPC for Power Management of Hybrid Energy Storage Systems with Applications in Electric Vehicles * *Supported by the "Developing FUTURE Vehicles" project of the British Engineering and Physical Sciences Research Council.. IFAC-PapersOnLine, 2016, 49, 265-270.	0.5	14
83	Experimental and numerical analysis to identify the performance limiting mechanisms in solid-state lithium cells under pulse operating conditions. Physical Chemistry Chemical Physics, 2019, 21, 22740-22755.	1.3	14
84	Designing, building, testing and racing a low-cost fuel cell range extender for a motorsport application. Journal of Power Sources, 2010, 195, 7838-7848.	4.0	13
85	Measuring Irreversible Heat Generation in Lithium-Ion Batteries: An Experimental Methodology. Journal of the Electrochemical Society, 2022, 169, 030523.	1.3	13
86	Towards online tracking of the shuttle effect in lithium sulfur batteries using differential thermal voltammetry. Journal of Energy Storage, 2019, 21, 765-772.	3.9	12
87	Insights into the Role of Silicon and Graphite in the Electrochemical Performance of Silicon/Graphite Blended Electrodes with a Multi-Material Porous Electrode Model. Journal of the Electrochemical Society, 2022, 169, 020568.	1.3	11
88	Mechanical behaviour of inorganic solid-state batteries: can we model the ionic mobility in the electrolyte with Nernstâ€“Einstein's relation?. Physical Chemistry Chemical Physics, 2021, 23, 27159-27170.	1.3	10
89	Real-time monitoring of proton exchange membrane fuel cell stack failure. Journal of Applied Electrochemistry, 2016, 46, 1157-1162.	1.5	9
90	A Fast, Memory-Efficient Discrete-Time Realization Algorithm for Reduced-Order Li-Ion Battery Models. Journal of Electrochemical Energy Conversion and Storage, 2017, 14, .	1.1	9

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91	â€œCanâ€•You Really Make a Battery Out of That?. Journal of Chemical Education, 2016, 93, 681-686.	1.1	8
92	A Composite Single Particle Lithium-Ion Battery Model Through System Identification. IEEE Transactions on Control Systems Technology, 2022, 30, 1-13.	3.2	8
93	â€œPEM Fuel Cell Electrocatalysts and Catalyst Layers: Fundamentals and Applicationsâ€• Platinum Metals Review, 2009, 53, 219-220.	1.5	7
94	Degradation Diagnostics for Li₄Ti₅O₁₂-Based Lithium Ion Capacitors: Insights from a Physics-Based Model. Journal of the Electrochemical Society, 2020, 167, 043503.	1.3	7
95	The Effects of Temperature and Cell Parameters on Lithium-Ion Battery Fast Charging Protocols: A Model-Driven Investigation. Journal of the Electrochemical Society, 2022, 169, 060542.	1.3	7
96	Lithium-Ion Diagnostics: The First Quantitative In-Operando Technique for Diagnosing Lithium Ion Battery Degradation Modes under Load with Realistic Thermal Boundary Conditions. Journal of the Electrochemical Society, 2021, 168, 030532.	1.3	6
97	Large-Format Bipolar and Parallel Solid-State Lithium-Metal Cell Stacks: A Thermally Coupled Model-Based Comparative Study. Journal of the Electrochemical Society, 2020, 167, 160555.	1.3	6
98	A Novel Three Electrode Design for Electrochemical Investigations of an Intermediate Temperature SOFC. ECS Transactions, 2007, 7, 1645-1652.	0.3	5
99	Degradation of thin-film lithium batteries characterised by improved potentiometric measurement of entropy change. Physical Chemistry Chemical Physics, 2018, 20, 11378-11385.	1.3	5
100	Novel methods for measuring the thermal diffusivity and the thermal conductivity of a lithium-ion battery. Applied Thermal Engineering, 2022, 212, 118573.	3.0	4
101	Thermal evaluation of lithium-ion batteries: Defining the cylindrical cell cooling coefficient. Journal of Energy Storage, 2022, 54, 105217.	3.9	3
102	Novel Degradation Model-Based Current Derating Strategy for Lithium-Ion-Batteries. ECS Meeting Abstracts, 2020, MA2020-02, 3808-3808.	0.0	2
103	Comparing electric mobility policies to transition science: Transition management already in action?. , 2012, , .		1
104	In-Situ Raman Characterization of SOFC Anodes. Materials Research Society Symposia Proceedings, 2012, 1385, 1.	0.1	1
105	Optical Microscopy: Seeing is Believing: In Situ/Operando Optical Microscopy for Probing Electrochemical Energy Systems (Adv. Mater. Technol. 10/2020). Advanced Materials Technologies, 2020, 5, 2070060.	3.0	1
106	Detecting, Diagnosing and Controlling Degradation in Lithium Ion Battery Packs. ECS Meeting Abstracts, 2016, , .	0.0	1
107	Lithium Plating Heterogeneity Caused by Realistic Thermal Gradients. ECS Meeting Abstracts, 2021, MA2021-02, 460-460.	0.0	1
108	Investigating Li Plating Distribution Caused By a Thermal Gradient through Modelling, Differential Voltage, and Post-Mortem Analysis. ECS Meeting Abstracts, 2022, MA2022-01, 186-186.	0.0	1

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109	A Review of Progress in the UK Supergen Fuel Cell Programme. ECS Transactions, 2009, 25, 35-42.	0.3	0
110	Understanding the automotive industry: German OEM behaviour during the last 20 years and its implications. , 2013, , .		0
111	Control and energy management strategies for a novel series hybrid. , 2013, , .		0
112	Control and energy management strategies for a novel series hybrid. World Electric Vehicle Journal, 2013, 6, 288-297.	1.6	0
113	Commercial Markets for Li-S. , 2019, , 275-287.		0
114	Mechanisms. , 2019, , 129-131.		0
115	Understanding Lithium Sulfur Cells, Modelling the Mechanisms behind Voltage- and Capacity-Drop during Discharge. ECS Meeting Abstracts, 2016, , .	0.0	0
116	The Effects of High G Impacts on Li-Ion Batteries. ECS Meeting Abstracts, 2016, , .	0.0	0
117	The Effects of High G Impacts on Li-Ion Batteries. ECS Meeting Abstracts, 2016, , .	0.0	0
118	Combined Battery/Supercapacitor Hybridised Energy Storage Systems for Hybrid Electric Vehicles. ECS Meeting Abstracts, 2016, , .	0.0	0
119	A Fast, Efficient Discrete-Time Realization Algorithm for Reduced-Order Battery Models. ECS Meeting Abstracts, 2016, , .	0.0	0
120	Differential Thermal Voltammetry As a Low Cost in-Situ Diagnosis Tool for Lithium-Ion Batteries. ECS Meeting Abstracts, 2016, , .	0.0	0
121	Understanding Battery Failure: A Multi-Scale and High-Speed X-Ray CT Approach. ECS Meeting Abstracts, 2016, , .	0.0	0
122	What Is the Rate Limiting Mechanism in Solid-State Lithium Cells at Different Pulse Operating Conditions?. ECS Meeting Abstracts, 2019, , .	0.0	0
123	The Effects of Thermal Gradients in Automotive Battery Packs Balancing Strategy. ECS Meeting Abstracts, 2019, , .	0.0	0
124	Visualising and Characterising Zinc Ion Transport for Zinc Ion Batteries By Fluorescence Microscopy. ECS Meeting Abstracts, 2019, , .	0.0	0
125	Effect of Mass Ratio of Electrodes in Lithium Ion Capacitors: Insights from a Physics-Based Model. ECS Meeting Abstracts, 2019, , .	0.0	0
126	Embedded Ocv Based Model for State of Health Monitoring in a BMS. ECS Meeting Abstracts, 2020, MA2020-01, 42-42.	0.0	0

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127	Cost and Carbon Footprint Reduction of Electric Vehicle Lithium-Ion Batteries through Efficient Thermal Management. ECS Meeting Abstracts, 2021, MA2021-02, 743-743.	0.0	0
128	The Cell Cooling Coefficient As a Design Tool to Optimize Thermal Management of Lithium-Ion Cells in Battery Packs. ECS Meeting Abstracts, 2021, MA2021-02, 422-422.	0.0	0
129	Physical Origin of the Differential Voltage Minimum Associated With Lithium Plating in Li-Ion Batteries. ECS Meeting Abstracts, 2021, MA2021-02, 466-466.	0.0	0
130	Lithium-Ion Battery Degradation Mode Diagnostics Using Heat Generation Profiles. ECS Meeting Abstracts, 2020, MA2020-02, 3175-3175.	0.0	0
131	Lithium-Ion Battery Degradation: How to Diagnose It. ECS Meeting Abstracts, 2022, MA2022-01, 396-396.	0.0	0