Fikile R Brushett

List of Publications by Year
in descending order

126 papers	7,397 citations	50170 46 h-index	56606 83 g-index
134 all docs	134 docs citations	134 times ranked	6612 citing authors

#	Article	IF	Citations
1	Transition of lithium growth mechanisms in liquid electrolytes. Energy and Environmental Science, 2016, 9, 3221-3229.	15.6	1,054
2	Pathways to low-cost electrochemical energy storage: a comparison of aqueous and nonaqueous flow batteries. Energy and Environmental Science, 2014, 7, 3459-3477.	15.6	564
3	An Allâ€Organic Nonâ€aqueous Lithiumâ€Ion Redox Flow Battery. Advanced Energy Materials, 2012, 2, 1390-1396.	10.2	334
4	Energy storage emerging: A perspective from the Joint Center for Energy Storage Research. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 12550-12557.	3.3	218
5	Investigating Electrode Flooding in a Flowing Electrolyte, Gasâ€Fed Carbon Dioxide Electrolyzer. ChemSusChem, 2020, 13, 400-411.	3.6	210
6	High current density, long duration cycling of soluble organic active species for non-aqueous redox flow batteries. Energy and Environmental Science, 2016, 9, 3531-3543.	15.6	196
7	The Effects of Catalyst Layer Deposition Methodology on Electrode Performance. Advanced Energy Materials, 2013, 3, 589-599.	10.2	183
8	Interactions between Lithium Growths and Nanoporous Ceramic Separators. Joule, 2018, 2, 2434-2449.	11.7	180
9	A symmetric organic-based nonaqueous redox flow battery and its state of charge diagnostics by FTIR. Journal of Materials Chemistry A, 2016, 4, 5448-5456.	5.2	167
10	â€œWine-Dark Seaâ€ in an Organic Flow Battery: Storing Negative Charge in 2,1,3-Benzothiadiazole Radicals Leads to Improved Cyclability. ACS Energy Letters, 2017, 2, 1156-1161.	8.8	160
11	On the performance of membraneless laminar flow-based fuel cells. Journal of Power Sources, 2010, 195, 3569-3578.	4.0	154
12	Air-Breathing Aqueous Sulfur Flow Battery for Ultralow-Cost Long-Duration Electrical Storage. Joule, 2017, 1, 306-327.	11.7	151
13	Cost-driven materials selection criteria for redox flow battery electrolytes. Journal of Power Sources, 2016, 330, 261-272.	4.0	115
14	Quantifying Mass Transfer Rates in Redox Flow Batteries. Journal of the Electrochemical Society, 2017, 164, E3265-E3275.	1.3	107
15	A stable two-electron-donating phenothiazine for application in nonaqueous redox flow batteries. Journal of Materials Chemistry A, 2017, 5, 24371-24379.	5.2	105
16	On Lifetime and Cost of Redox-Active Organics for Aqueous Flow Batteries. ACS Energy Letters, 2020, 5, 879-884.	8.8	105
17	Recent advances in molecular engineering of redox active organic molecules for nonaqueous flow batteries. Current Opinion in Chemical Engineering, 2016, 13, 45-52.	3.8	104
18	Transport Property Requirements for Flow Battery Separators. Journal of the Electrochemical Society, 2016, 163, A5029-A5040.	1.3	104

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19	4-acetamido-2,2,6,6-tetramethylpiperidine-1-oxyl as a model organic redox active compound for nonaqueous flow batteries. Journal of Power Sources, 2016, 327, 151-159.	4.0	103
20	Elucidating the Nuanced Effects of Thermal Pretreatment on Carbon Paper Electrodes for Vanadium Redox Flow Batteries. ACS Applied Materials & Interfaces, 2018, 10, 44430-44442.	4.0	102
21	Concentration-Dependent Dimerization of Anthraquinone Disulfonic Acid and Its Impact on Charge Storage. Chemistry of Materials, 2017, 29, 4801-4810.	3.2	101
22	Exploring the Role of Electrode Microstructure on the Performance of Non-Aqueous Redox Flow Batteries. Journal of the Electrochemical Society, 2019, 166, A2230-A2241.	1.3	95
23	A subtractive approach to molecular engineering of dimethoxybenzene-based redox materials for non-aqueous flow batteries. Journal of Materials Chemistry A, 2015, 3, 14971-14976.	5.2	92
24	Tailoring Two-Electron-Donating Phenothiazines To Enable High-Concentration Redox Electrolytes for Use in Nonaqueous Redox Flow Batteries. Chemistry of Materials, 2019, 31, 4353-4363.	3.2	92
25	RNA interference of sialidase improves glycoprotein sialic acid content consistency. Biotechnology and Bioengineering, 2006, 95, 106-119.	1.7	88
26	Investigation of fuel and media flexible laminar flow-based fuel cells. Electrochimica Acta, 2009, 54, 7099-7105.	2.6	86
27	A Carbon-Supported Copper Complex of 3,5-Diamino-1,2,4-triazole as a Cathode Catalyst for Alkaline Fuel Cell Applications. Journal of the American Chemical Society, 2010, 132, 12185-12187.	6.6	81
28	Carbonate resilience of flowing electrolyte-based alkaline fuel cells. Journal of Power Sources, 2011, 196, 1762-1768.	4.0	81
29	Assessing the levelized cost of vanadium redox flow batteries with capacity fade and rebalancing. Journal of Power Sources, 2020, 460, 227958.	4.0	81
30	Engineering radical polymer electrodes for electrochemical energy storage. Journal of Power Sources, 2017, 352, 226-244.	4.0	73
31	Understanding the role of the porous electrode microstructure in redox flow battery performance using an experimentally validated 3D pore-scale lattice Boltzmann model. Journal of Power Sources, 2020, 447, 227249.	4.0	70
32	Emerging opportunities for electrochemical processing to enable sustainable chemical manufacturing. Current Opinion in Chemical Engineering, 2018, 20, 159-167.	3.8	66
33	Engineering porous electrodes for next-generation redox flow batteries: recent progress and opportunities. Current Opinion in Electrochemistry, 2019, 18, 113-122.	2.5	66
34	Evaluation of Electrospun Fibrous Mats Targeted for Use as Flow Battery Electrodes. Journal of the Electrochemical Society, 2017, 164, A2038-A2048.	1.3	65
35	Quantifying the impact of viscosity on mass-transfer coefficients in redox flow batteries. Journal of Power Sources, 2018, 399, 133-143.	4.0	65
36	An Investigation of the Ionic Conductivity and Species Crossover of Lithiated Nafion 117 in Nonaqueous Electrolytes. Journal of the Electrochemical Society, 2016, 163, A5253-A5262.	1.3	64

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37	Alkaline Microfluidic Hydrogen-Oxygen Fuel Cell as a Cathode Characterization Platform. Journal of the Electrochemical Society, 2009, 156, B565.	1.3	62
38	The lightest organic radical cation for charge storage in redox flow batteries. Scientific Reports, 2016, 6, 32102.	1.6	59
39	Reduction potential predictions of some aromatic nitrogen-containing molecules. RSC Advances, 2014, 4, 57442-57451.	1.7	58
40	Toward an Inexpensive Aqueous Polysulfideâ€“Polyiodide Redox Flow Battery. Industrial & Engineering Chemistry Research, 2017, 56, 9783-9792.	1.8	58
41	Performance and cost characteristics of multi-electron transfer, common ion exchange non-aqueous redox flow batteries. Journal of Power Sources, 2016, 327, 681-692.	4.0	56
42	Towards Low Resistance Nonaqueous Redox Flow Batteries. Journal of the Electrochemical Society, 2017, 164, A2487-A2499.	1.3	54
43	Estimating the cost of organic battery active materials: a case study on anthraquinone disulfonic acid. Translational Materials Research, 2018, 5, 034001.	1.2	52
44	Electrolyte Development for Non-Aqueous Redox Flow Batteries Using a High-Throughput Screening Platform. Journal of the Electrochemical Society, 2014, 161, A1905-A1914.	1.3	51
45	A General Technoeconomic Model for Evaluating Emerging Electrolytic Processes. Energy Technology, 2020, 8, 1900994.	1.8	49
46	Voltammetry study of quinoxaline in aqueous electrolytes. Electrochimica Acta, 2015, 180, 695-704.	2.6	48
47	Analysis of Pt/C electrode performance in a flowing-electrolyte alkaline fuel cell. International Journal of Hydrogen Energy, 2012, 37, 2559-2570.	3.8	45
48	Electroreduction of carbon dioxide to formate at high current densities using tin and tin oxide gas diffusion electrodes. Journal of Applied Electrochemistry, 2019, 49, 917-928.	1.5	45
49	Editorsâ€™ Choiceâ€”Flooded by Success: On the Role of Electrode Wettability in CO₂ Electrolyzers that Generate Liquid Products. Journal of the Electrochemical Society, 2020, 167, 124521.	1.3	45
50	Electrocatalytic Hydrogenation of Oxygenates using Earthâ€Abundant Transitionâ€Metal Nanoparticles under Mild Conditions. ChemSusChem, 2016, 9, 1904-1910.	3.6	44
51	Design rules for electrode arrangement in an air-breathing alkaline direct methanol laminar flow fuel cell. Journal of Power Sources, 2012, 218, 28-33.	4.0	42
52	A Membraneâ€Free Neutral pH Formate Fuel Cell Enabled by a Selective Nickel Sulfide Oxygen Reduction Catalyst. Angewandte Chemie - International Edition, 2017, 56, 7496-7499.	7.2	42
53	Dimerization of 9,10-anthraquinone-2,7-Disulfonic acid (AQDS). Electrochimica Acta, 2019, 317, 478-485.	2.6	40
54	Combining Structural and Electrochemical Analysis of Electrodes Using Micro-Computed Tomography and a Microfluidic Fuel Cell. Journal of the Electrochemical Society, 2012, 159, B292-B298.	1.3	39

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55	Tuning the Stability of Organic Active Materials for Nonaqueous Redox Flow Batteries via Reversible, Electrochemically Mediated Li⁺ Coordination. Chemistry of Materials, 2016, 28, 2529-2539.	3.2	37
56	BF₃-promoted electrochemical properties of quinoxaline in propylene carbonate. RSC Advances, 2015, 5, 18822-18831.	1.7	36
57	The Critical Role of Supporting Electrolyte Selection on Flow Battery Cost. Journal of the Electrochemical Society, 2017, 164, A3883-A3895.	1.3	36
58	Nonâ€Solvent Induced Phase Separation Enables Designer Redox Flow Battery Electrodes. Advanced Materials, 2021, 33, e2006716.	11.1	35
59	Comparing Physical and Electrochemical Properties of Different Weave Patterns for Carbon Cloth Electrodes in Redox Flow Batteries. Journal of Electrochemical Energy Conversion and Storage, 2020, 17, .	1.1	35
60	Lignin-KMC: A Toolkit for Simulating Lignin Biosynthesis. ACS Sustainable Chemistry and Engineering, 2019, 7, 18313-18322.	3.2	33
61	Exploration of Biomass-Derived Activated Carbons for Use in Vanadium Redox Flow Batteries. ACS Sustainable Chemistry and Engineering, 2020, 8, 9472-9482.	3.2	33
62	Untapped Potential: The Need and Opportunity for High-Voltage Aqueous Redox Flow Batteries. ACS Energy Letters, 2022, 7, 659-667.	8.8	31
63	A One-Dimensional Stack Model for Redox Flow Battery Analysis and Operation. Batteries, 2019, 5, 25.	2.1	30
64	Modelling of redox flow battery electrode processes at a range of length scales: a review. Sustainable Energy and Fuels, 2020, 4, 5433-5468.	2.5	29
65	Data-driven electrode parameter identification for vanadium redox flow batteries through experimental and numerical methods. Applied Energy, 2020, 279, 115530.	5.1	26
66	Assessing capacity loss remediation methods for asymmetric redox flow battery chemistries using levelized cost of storage. Journal of Power Sources, 2021, 506, 230085.	4.0	26
67	Feasibility of a Supportingâ€Saltâ€Free Nonaqueous Redox Flow Battery Utilizing Ionic Active Materials. ChemSusChem, 2017, 10, 2080-2088.	3.6	25
68	Investigation of Pt, Pt[sub 3]Co, and Pt[sub 3]Co/Mo Cathodes for the ORR in a Microfluidic H[sub 2]/O[sub 2] Fuel Cell. Journal of the Electrochemical Society, 2010, 157, B837.	1.3	23
69	Pulsed Electrodeposition of Tin Electrocatalysts onto Gas Diffusion Layers for Carbon Dioxide Reduction to Formate. MRS Advances, 2017, 2, 451-458.	0.5	22
70	Ultrathin Conformal oCVD PEDOT Coatings on Carbon Electrodes Enable Improved Performance of Redox Flow Batteries. Advanced Materials Interfaces, 2020, 7, 2000855.	1.9	22
71	Synthesis of Pyridineâ€“ and Pyrazineâ€“BF₃ Complexes and Their Characterization in Solution and Solid State. Journal of Physical Chemistry C, 2016, 120, 8461-8471.	1.5	21
72	Computational Evidence for Kinetically Controlled Radical Coupling during Lignification. ACS Sustainable Chemistry and Engineering, 2019, 7, 13270-13277.	3.2	21

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73	Fabrication of high surface area ribbon electrodes for use in redox flow batteries via coaxial electrospinning. Journal of Energy Storage, 2021, 33, 102079.	3.9	21
74	Comparison of Separators vs Membranes in Nonaqueous Redox Flow Battery Electrolytes Containing Small Molecule Active Materials. ACS Applied Energy Materials, 2021, 4, 5443-5451.	2.5	20
75	Perfunctionalized Dodecaborate Clusters as Stable Metal-Free Active Materials for Charge Storage. ACS Applied Energy Materials, 2019, 2, 4907-4913.	2.5	19
76	The impact of bulk electrolysis cycling conditions on the perceived stability of redox active materials. Electrochemistry Communications, 2020, 111, 106625.	2.3	19
77	A Method for Evaluating Soluble Redox Couple Stability Using Microelectrode Voltammetry. Journal of the Electrochemical Society, 2020, 167, 160513.	1.3	19
78	Recent Developments and Trends in Redox Flow Batteries. Green Energy and Technology, 2015, , 673-712.	0.4	17
79	Thermodynamic Modeling of CO₂ Separation Systems with Soluble, Redox-Active Capture Species. Industrial & Engineering Chemistry Research, 2022, 61, 10531-10546.	1.8	17
80	Full-Field Synchrotron Tomography of Nongraphitic Foam and Laminate Anodes for Lithium-Ion Batteries. ACS Applied Materials & Interfaces, 2014, 6, 4524-4534.	4.0	16
81	Molecular Dynamics Modeling of the Conductivity of Lithiated Nafion Containing Nonaqueous Solvents. Journal of the Electrochemical Society, 2016, 163, A2232-A2239.	1.3	15
82	An investigation of 2,5-di-tertbutyl-1,4-bis(methoxyethoxy)benzene in ether-based electrolytes. Electrochimica Acta, 2017, 246, 251-258.	2.6	14
83	Combining electrochemical and imaging analyses to understand the effect of electrode microstructure and electrolyte properties on redox flow batteries. Applied Energy, 2022, 306, 117678.	5.1	13
84	Investigating the factors that influence resistance rise of PIM-1 membranes in nonaqueous electrolytes. Electrochemistry Communications, 2019, 107, 106530.	2.3	11
85	Too Much of a Good Thing? Assessing Performance Tradeoffs of Two-Electron Compounds for Redox Flow Batteries. Journal of the Electrochemical Society, 2021, 168, 050501.	1.3	11
86	Limited Accessibility to Surface Area Generated by Thermal Pretreatment of Electrodes Reduces Its Impact on Redox Flow Battery Performance. ACS Applied Energy Materials, 2021, 4, 13516-13527.	2.5	11
87	Microelectrode-Based Sensor for Measuring <i>Operando</i> Active Species Concentrations in Redox Flow Cells. ACS Applied Energy Materials, 2021, 4, 13830-13840.	2.5	11
88	Using voltammetry augmented with physics-based modeling and Bayesian hypothesis testing to identify analytes in electrolyte solutions. Journal of Electroanalytical Chemistry, 2022, 904, 115751.	1.9	8
89	A Comparative Study of Compressive Effects on the Morphology and Performance of Carbon Paper and Cloth Electrodes in Redox Flow Batteries. Energy Technology, 2022, 10, .	1.8	7
90	A generalized reduced fluid dynamic model for flow fields and electrodes in redox flow batteries. AIChE Journal, 2022, 68, .	1.8	6

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91	In-situ measurement of ethanol tolerance in an operating fuel cell. International Journal of Hydrogen Energy, 2013, 38, 8980-8991.	3.8	5
92	An investigation on the impact of halidization on substituted dimethoxybenzenes. Electrochimica Acta, 2020, 335, 135580.	2.6	5
93	Leveraging Neural Networks and Genetic Algorithms to Refine Electrode Properties in Redox Flow Batteries. Journal of the Electrochemical Society, 2021, 168, 050547.	1.3	5
94	Pulse Plating of Copper onto Gas Diffusion Layers for the Electroreduction of Carbon Dioxide. MRS Advances, 2018, 3, 1277-1284.	0.5	4
95	Exploration of reduced graphene oxide microparticles as electrocatalytic materials in vanadium redox flow batteries. Journal of Energy Storage, 2022, 50, 104192.	3.9	4
96	Vapor Feed Direct Methanol Fuel Cell with Flowing Electrolyte. ECS Transactions, 2007, 11, 1419-1424.	0.3	3
97	Early Stage Anodic Instability of Glassy Carbon Electrodes in Propylene Carbonate Solvent Containing Lithium Hexafluorophosphate. Langmuir, 2017, 33, 11911-11918.	1.6	3
98	How a cofactor-free protein environment lowers the barrier to O2 reactivity. Journal of Biological Chemistry, 2019, 294, 3661-3669.	1.6	3
99	Methodsâ€"A Potentialâ€"Dependent Thiele Modulus to Quantify the Effectiveness of Porous Electrocatalysts. Journal of the Electrochemical Society, 0, , .	1.3	3
100	Synthesis and Characterization of Lithium-Conducting Composite Polymerâ€"Ceramic Membranes for Use in Nonaqueous Redox Flow Batteries. ACS Applied Materials & Interfaces, 2021, 13, 53746-53757.	4.0	3
101	Investigation of Pulse-Reverse Electrodeposited Copper Electrocatalysts for Carbon Dioxide Reduction to Ethylene. ECS Transactions, 2017, 77, 933-946.	0.3	2
102	Understanding the Impact of Convective Transport on Intercalation Batteries Through Dimensional Analysis. Journal of the Electrochemical Society, 2020, 167, 140551.	1.3	2
103	From the Synthesis Vial to the Full Cell: Electrochemical Methods for Characterizing Active Materials for Redox Flow Batteries. , 2021, , .		1
104	Electrochemical Stability and Reversibility of Aqueous Polysulfide Electrodes Cycled Beyond the Solubility Limit. Journal of the Electrochemical Society, 2022, 169, 060524.	1.3	1
105	Innentitelbild: A Membraneâ€Free Neutral pH Formate Fuel Cell Enabled by a Selective Nickel Sulfide Oxygen Reduction Catalyst (Angew. Chem. 26/2017). Angewandte Chemie, 2017, 129, 7428-7428.	1.6	0
106	Redox Flow Batteries: Nonâ€Solvent Induced Phase Separation Enables Designer Redox Flow Battery Electrodes (Adv. Mater. 16/2021). Advanced Materials, 2021, 33, 2170126.	11.1	0
107	Electrochemical Residence Time Distribution As a Diagnostic Tool for Electrodes in Redox Flow Batteries. ECS Meeting Abstracts, 2021, MA2021-01, 974-974.	0.0	0
108	Assessing the Design and Operation of Redox Flow Batteries through Levelized Cost Analysis. ECS Meeting Abstracts, 2021, MA2021-01, 223-223.	0.0	0

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109	Analytical and Numerical Modeling of Microelectrode Voltammetry in Oblate Spheroidal Coordinates. ECS Meeting Abstracts, 2021, MA2021-01, 1803-1803.	0.0	0
110	(Energy Technology Division Graduate Student Award sponsored by Bio-Logic) Designer Porous Carbon Electrodes for Redox Flow Batteries. ECS Meeting Abstracts, 2021, MA2021-01, 240-240.	0.0	0
111	Expanding the Cell Design Space: Modeling the Impact of Electrolyte Convection on the Performance of Intercalation Batteries. ECS Meeting Abstracts, 2021, MA2021-01, 45-45.	0.0	0
112	(Student Battery Slam Best Presentation Award Winner) Combining Experimentation and Computation for Accelerated Understanding of Electrode Morphology in Redox Flow Batteries. ECS Meeting Abstracts, 2021, MA2021-01, 266-266.	0.0	0
113	Untapped Potential: The Need and Pathways to High-Voltage Aqueous Redox Flow Batteries. ECS Meeting Abstracts, 2021, MA2021-01, 206-206.	0.0	0
114	Thermodynamic Modeling of CO₂ Separation Systems with Soluble, Redox-Active Capture Species. ECS Meeting Abstracts, 2021, MA2021-01, 954-954.	0.0	0
115	A Flow-through Microelectrode Sensor for Monitoring in Operando Concentrations in Redox Flow Batteries. ECS Meeting Abstracts, 2021, MA2021-01, 218-218.	0.0	0
116	The Influence of Electrode Microstructure on the Performance of Non-Aqueous Redox Flow Batteries. ECS Meeting Abstracts, 2018, , .	0.0	0
117	Conditions for High Rate, High Capacity Li-Ion Convection Cells through Dimensional Analysis. ECS Meeting Abstracts, 2021, MA2021-02, 424-424.	0.0	0
118	Non-Solvent Induced Phase Separation: A Versatile Synthetic Method for High Performance Redox Flow Battery Electrodes. ECS Meeting Abstracts, 2021, MA2021-02, 115-115.	0.0	0
119	(Invited) Characterizing Redox Flow Battery Electrolytes Using Microelectrodes. ECS Meeting Abstracts, 2021, MA2021-02, 1491-1491.	0.0	0
120	Modeling the Impact of Sequential Two-Electron Transfer Compounds on Redox Flow Battery Performance. ECS Meeting Abstracts, 2020, MA2020-02, 2682-2682.	0.0	0
121	Combining Electrochemical, Fluid Dynamic, and Imaging Analyses to Understand the Effect of Electrode Microstructure and Electrolyte on Redox Flow Batteries. ECS Meeting Abstracts, 2020, MA2020-02, 3032-3032.	0.0	0
122	Accessible Surface Area in Porous Carbon Electrodes and Its Impact on Redox Flow Battery Performance. ECS Meeting Abstracts, 2020, MA2020-02, 3034-3034.	0.0	0
123	Small-Scale, Low-Cost Flow Cell Platform for Rapid Characterization of Redox Flow Battery Materials. ECS Meeting Abstracts, 2020, MA2020-02, 2674-2674.	0.0	0
124	Neutron Radiography As a Powerful Method to Visualize Reactive Flows in Redox Flow Batteries. ECS Meeting Abstracts, 2022, MA2022-01, 2014-2014.	0.0	0
125	(Invited) Modeling Electrochemical and Rheological Characteristics of Suspension-Based Electrolytes for Redox Flow Batteries. ECS Meeting Abstracts, 2022, MA2022-01, 2022-2022.	0.0	0
126	Predicting Cell Cycling Performance in Redox Flow Batteries Using Reduced-Order Analytical Models. ECS Meeting Abstracts, 2022, MA2022-01, 474-474.	0.0	0