William E Mustain

List of Publications by Citations

122 papers	6,294 citations	42 h-index	78 g-index
142 ext. papers	7,678 ext. citations	8.9 avg, IF	6.59 L-index

#	Paper	IF	Citations
122	Anion-exchange membranes in electrochemical energy systems. *Energy and Environmental Science*, **2014**, 7, 3135-3191	35.4	1296
121	Catalytic Aminohalogenation of Alkenes and Alkynes. *ACS Catalysis*, **2013**, 3, 1076-1091	13.1	264
120	Recent progress in the electrochemical conversion and utilization of CO2. *Catalysis Science and Technology*, **2012**, 2, 19-28	5.5	213
119	Beyond catalysis and membranes: visualizing and solving the challenge of electrode water accumulation and flooding in AEMFCs. *Energy and Environmental Science*, **2018**, 11, 551-558	35.4	162
118	Durability challenges of anion exchange membrane fuel cells. *Energy and Environmental Science*, **2020**, 13, 2805-2838	35.4	156
117	Poly(bis-arylimidazoliums) possessing high hydroxide ion exchange capacity and high alkaline stability. *Nature Communications*, **2019**, 10, 2306	17.4	149
116	High stability, high activity Pt/ITO oxygen reduction electrocatalysts. *Journal of the American Chemical Society*, **2013**, 135, 530-3	16.4	146
115	Radiation-grafted anion-exchange membranes: the switch from low- to high-density polyethylene leads to remarkably enhanced fuel cell performance. *Energy and Environmental Science*, **2019**, 12, 1575-1579	35.4	128
114	Effect of nickel oxide synthesis conditions on its physical properties and electrocatalytic oxidation of methanol. *Electrochimica Acta*, **2011**, 56, 5656-5666	6.7	128
113	Composite Poly(norbornene) Anion Conducting Membranes for Achieving Durability, Water Management and High Power (3.4 W/cm2) in Hydrogen/Oxygen Alkaline Fuel Cells. *Journal of the Electrochemical Society*, **2019**, 166, F637-F644	3.9	111
112	An optimised synthesis of high performance radiation-grafted anion-exchange membranes. *Green Chemistry*, **2017**, 19, 831-843	10	111
111	Properties of Nitrogen-Functionalized Ordered Mesoporous Carbon Prepared Using Polypyrrole Precursor. *Journal of the Electrochemical Society*, **2010**, 157, B1665	3.9	110
110	Electrocatalytic Activity and Stability of Pt clusters on State-of-the-Art Supports: A Review. *Catalysis Reviews - Science and Engineering*, **2011**, 53, 256-336	12.6	103
109	Structural and Electrochemical Studies of Pt Clusters Supported on High-Surface-Area Tungsten Carbide for Oxygen Reduction. *ACS Catalysis*, **2011**, 1, 212-220	13.1	103
108	Kinetics and mechanism for the oxygen reduction reaction on polycrystalline cobalt palladium electrocatalysts in acid media. *Journal of Power Sources*, **2007**, 170, 28-37	8.9	101
107	The Effect of Ambient Carbon Dioxide on Anion-Exchange Membrane Fuel Cells. *ChemSusChem*, **2018**, 11, 1136-1150	8.3	100
106	Recent progress and perspectives of bifunctional oxygen reduction/evolution catalyst development for regenerative anion exchange membrane fuel cells. *Nano Energy*, **2018**, 47, 172-198	17.1	98

105	Synthesis of Nanosize Tungsten Oxide and Its Evaluation as an Electrocatalyst Support for Oxygen Reduction in Acid Media. *ACS Catalysis*, **2012**, 2, 456-463	13.1	96
104	Preparation of radiation-grafted powders for use as anion exchange ionomers in alkaline polymer electrolyte fuel cells. *Journal of Materials Chemistry A*, **2014**, 2, 5124-5130	13	88
103	Effect of hydroxide and carbonate alkaline media on anion exchange membranes. *Journal of Power Sources*, **2010**, 195, 7176-7180	8.9	88
102	Catalytic Advantages, Challenges, and Priorities in Alkaline Membrane Fuel Cells. *ACS Catalysis*, **2020**, 10, 225-234	13.1	87
101	Achieving High-Performance and 2000 h Stability in Anion Exchange Membrane Fuel Cells by Manipulating Ionomer Properties and Electrode Optimization. *Advanced Energy Materials*, **2020**, 10, 2001986	21.8	87
100	Nitrogen-doped Carbon-CoO Nanohybrids: A Precious Metal Free Cathode that Exceeds 1.0 W cm Peak Power and 100 h Life in Anion-Exchange Membrane Fuel Cells. *Angewandte Chemie - International Edition*, **2019**, 58, 1046-1051	16.4	80
99	Evaluation of tungsten carbide as the electrocatalyst support for platinum hydrogen evolution/oxidation catalysts. *International Journal of Hydrogen Energy*, **2012**, 37, 8929-8938	6.7	79
98	Investigations of carbon-supported CoPd3 catalysts as oxygen cathodes in PEM fuel cells. *Electrochemistry Communications*, **2006**, 8, 406-410	5.1	77
97	Preferentially Oriented Ag Nanocrystals with Extremely High Activity and Faradaic Efficiency for CO Electrochemical Reduction to CO. *ACS Applied Materials & Interfaces*, **2018**, 10, 1734-1742	9.5	75
96	CoPdx oxygen reduction electrocatalysts for polymer electrolyte membrane and direct methanol fuel cells. *Electrochimica Acta*, **2007**, 52, 2102-2108	6.7	73
95	High Performance Anion Exchange Membrane Fuel Cells Enabled by Fluoropoly(olefin) Membranes. *Advanced Functional Materials*, **2019**, 29, 1902059	15.6	72
94	Activity and durability of Pt-Ni nanocage electocatalysts in proton exchange membrane fuel cells. *Applied Catalysis B: Environmental*, **2017**, 203, 927-935	21.8	71
93	Beyond 1.0 W cm Performance without Platinum: The Beginning of a New Era in Anion Exchange Membrane Fuel Cells. *Journal of the Electrochemical Society*, **2018**, 165, J3039-J3044	3.9	70
92	The Importance of Water Transport in High Conductivity and High-Power Alkaline Fuel Cells. *Journal of the Electrochemical Society*, **2020**, 167, 054501	3.9	69
91	Platinum copper nanotube electrocatalyst with enhanced activity and durability for oxygen reduction reactions. *Journal of Materials Chemistry A*, **2013**, 1, 12293	13	67
90	Highly durable and active Co3O4 nanocrystals supported on carbon nanotubes as bifunctional electrocatalysts in alkaline media. *Applied Catalysis B: Environmental*, **2017**, 203, 138-145	21.8	67
89	Using operando techniques to understand and design high performance and stable alkaline membrane fuel cells. *Nature Communications*, **2020**, 11, 3561	17.4	63
88	Influence of the ionomer/carbon ratio for low-Pt loading catalyst layer prepared by reactive spray deposition technology. *Journal of Power Sources*, **2015**, 283, 84-94	8.9	59

87	Poly(olefin)-Based Anion Exchange Membranes Prepared Using Ziegler–Natta Polymerization. *Macromolecules*, **2019**, 52, 4030-4041	5.5	57
86	Effect of CO_2, HCO_3^- and CO_3^{2-} on oxygen reduction in anion exchange membrane fuel cells. *Electrochimica Acta*, **2010**, 55, 1638-1644	6.7	52
85	Rational Synthesis of Metallo-Cations Toward Redox- and Alkaline-Stable Metallo-Polyelectrolytes. *Journal of the American Chemical Society*, **2020**, 142, 1083-1089	16.4	52
84	Understanding how high-performance anion exchange membrane fuel cells were achieved: Component, interfacial, and cell-level factors. *Current Opinion in Electrochemistry*, **2018**, 12, 233-239	7.2	52
83	High-performing commercial Fe–N–C cathode electrocatalyst for anion-exchange membrane fuel cells. *Nature Energy*, **2021**, 6, 834-843	62.3	52
82	Quantifying and elucidating the effect of CO2 on the thermodynamics, kinetics and charge transport of AEMFCs. *Energy and Environmental Science*, **2019**, 12, 2806-2819	35.4	50
81	Practical assessment of the performance of aluminium battery technologies. *Nature Energy*, **2021**, 6, 21-29	62.3	48
80	Poly(norbornene) anion conductive membranes: homopolymer, block copolymer and random copolymer properties and performance. *Journal of Materials Chemistry A*, **2020**, 8, 17568-17578	13	40
79	Influence of conductivity on the capacity retention of NiO anodes in Li-ion batteries. *Journal of Power Sources*, **2015**, 276, 46-53	8.9	37
78	Electrochemical Methane Activation and Conversion to Oxygenates at Room Temperature. *Journal of the Electrochemical Society*, **2013**, 160, F1275-F1281	3.9	37
77	Strategies for Reducing the PGM Loading in High Power AEMFC Anodes. *Journal of the Electrochemical Society*, **2018**, 165, F710-F717	3.9	35
76	Nanostructural effects on the cycle life and Li+ diffusion coefficient of nickel oxide anodes. *Journal of Electroanalytical Chemistry*, **2013**, 711, 8-16	4.1	35
75	High-Performing PGM-Free AEMFC Cathodes from Carbon-Supported Cobalt Ferrite Nanoparticles. *Catalysts*, **2019**, 9, 264	4	31
74	Investigation of metal oxide anode degradation in lithium-ion batteries via identical-location TEM. *Journal of Materials Chemistry A*, **2014**, 2, 1627-1630	13	31
73	Stability and Activity of Pt/ITO Electrocatalyst for Oxygen Reduction Reaction in Alkaline Media. *Electrochimica Acta*, **2015**, 157, 175-182	6.7	31
72	Highly Conductive In-SnO2/RGO Nano-Heterostructures with Improved Lithium-Ion Battery Performance. *Scientific Reports*, **2016**, 6, 25860	4.9	29
71	Importance of Particle Size and Distribution in Achieving High-Activity, High-Stability Oxygen Reduction Catalysts. *ACS Catalysis*, **2015**, 5, 1560-1567	13.1	29
70	Hydrogen and Methanol Oxidation Reaction in Hydroxide and Carbonate Alkaline Media. *Journal of the Electrochemical Society*, **2011**, 158, B349	3.9	28

69	Highly active and durable Pd-Cu catalysts for oxygen reduction in alkaline exchange membrane fuel cells. *Frontiers in Energy*, **2017**, 11, 299-309	2.6	27
68	Sol□gel based sulfonic acid-functionalized silica proton conductive membrane. *Journal of Power Sources*, **2009**, 193, 562-569	8.9	26
67	Temperature controlled surface chemistry of nitrogen-doped mesoporous carbon and its influence on Pt ORR activity. *Applied Catalysis A: General*, **2013**, 464-465, 233-242	5.1	25
66	Phosphorus-doped glass proton exchange membranes for low temperature direct methanol fuel cells. *Journal of Power Sources*, **2008**, 175, 91-97	8.9	25
65	Using nanoconfinement to inhibit the degradation pathways of conversion-metal oxide anodes for highly stable fast-charging Li-ion batteries. *Journal of Materials Chemistry A*, **2020**, 8, 2712-2727	13	23
64	Composite Materials with Combined Electronic and Ionic Properties. *Matter*, **2019**, 1, 959-975	12.7	23
63	High Performance FeNC and Mn-oxide/FeNC Layers for AEMFC Cathodes. *Journal of the Electrochemical Society*, **2020**, 167, 134505	3.9	23
62	Carbonate Dynamics and Opportunities With Low Temperature, Anion Exchange Membrane-Based Electrochemical Carbon Dioxide Separators. *Journal of Electrochemical Energy Conversion and Storage*, **2017**, 14,	2	21
61	Low-Temperature Lithium Plating/Corrosion Hazard in Lithium-Ion Batteries: Electrode Rippling, Variable States of Charge, and Thermal and Nonthermal Runaway. *ACS Applied Energy Materials*, **2020**, 3, 3653-3664	6.1	21
60	Fabrication of High Performing PEMFC Catalyst-Coated Membranes with a Low Cost Air-Assisted Cylindrical Liquid Jets Spraying System. *Journal of the Electrochemical Society*, **2016**, 163, E407-E413	3.9	20
59	Understanding the Dynamics of Primary Zn-MnO2 Alkaline Battery Gassing with Operando Visualization and Pressure Cells. *Journal of the Electrochemical Society*, **2018**, 165, A2528-A2535	3.9	19
58	Stability limitations for Pt/Sn□h2O3 and Pt/In□SnO2 in acidic electrochemical systems. *Electrochimica Acta*, **2014**, 115, 116-125	6.7	19
57	Nitrogen-doped Carbon□CoOx Nanohybrids: A Precious Metal Free Cathode that Exceeds 1.0 W cm□ Peak Power and 100 h Life in Anion-Exchange Membrane Fuel Cells. *Angewandte Chemie*, **2019**, 131, 1058-1063	3.6	19
56	High-rate and long-life of Li-ion batteries using reduced graphene oxide/Co3O4 as anode materials. *RSC Advances*, **2016**, 6, 24320-24330	3.7	18
55	Explaining the role and mechanism of carbon matrices in enhancing reaction reversibility of metal oxide anodes for high performance Li ion batteries. *Carbon*, **2018**, 130, 515-524	10.4	17
54	Flame-based processing as a practical approach for manufacturing hydrogen evolution electrodes. *Journal of Power Sources*, **2014**, 271, 366-376	8.9	17
53	Non-destructive parameter extraction for a reduced order lumped electrochemical-thermal model for simulating Li-ion full-cells. *Journal of Power Sources*, **2020**, 445, 227296	8.9	17
52	Performance of Li-ion secondary batteries in low power, hybrid power supplies. *Journal of Power Sources*, **2009**, 189, 1184-1189	8.9	16

51	A Model for the Electroreduction of Molecular Oxygen. *Journal of the Electrochemical Society*, **2007**, 154, A668	3.9	16
50	Ionomer Optimization for Water Uptake and Swelling in Anion Exchange Membrane Electrolyzer: Oxygen Evolution Electrode. *Journal of the Electrochemical Society*, **2020**, 167, 164514	3.9	14
49	Two Pathways for Near Room Temperature Electrochemical Conversion of Methane to Methanol. *ECS Transactions*, **2015**, 66, 129-136	1	13
48	Effects of pore structure in nitrogen functionalized mesoporous carbon on oxygen reduction reaction activity of platinum nanoparticles. *Carbon*, **2013**, 60, 28-40	10.4	13
47	High Performance Bi-Metallic Manganese Cobalt Oxide/Carbon Nanotube Li-ion Battery Anodes. *Electrochimica Acta*, **2016**, 213, 620-625	6.7	13
46	Effect of cobalt alloying on the electrochemical performance of manganese oxide nanoparticles nucleated on multiwalled carbon nanotubes. *Nanotechnology*, **2017**, 28, 155403	3.4	10
45	Cobalt Doping as a Pathway To Stabilize the Solid-State Conversion Chemistry of Manganese Oxide Anodes in Li-Ion Batteries. *Journal of Physical Chemistry C*, **2018**, 122, 7120-7127	3.8	10
44	Effect of surface chemistry on the double layer capacitance of polypyrrole-derived ordered mesoporous carbon. *RSC Advances*, **2014**, 4, 47039-47046	3.7	10
43	Effect of Carbonate on Oxygen Reduction, Hydrogen Oxidation and Anion Exchange Membrane Chemical Stability. *ECS Transactions*, **2010**, 33, 1735-1749	1	10
42	Carbonate Selective Ca2Ru2O7 Pyrochlore Enabling Room Temperature Carbonate Fuel Cells I. Synthesis and Physical Characterization. *Journal of the Electrochemical Society*, **2011**, 159, B18-B23	3.9	10
41	Influence of Non-Conducting Zirconia on the Electrochemical Performance of Nickel Oxide in Alkaline Media at Room Temperature. *Journal of the Electrochemical Society*, **2012**, 159, E187-E192	3.9	10
40	Improving Performance in Alkaline Membrane Fuel Cells through Enhanced Water Management. *ECS Transactions*, **2016**, 75, 949-954	1	10
39	Ultra-Low Pt Loading Catalyst Layers for PEMFC Using Reactive Spray Deposition Technology. *ECS Transactions*, **2015**, 69, 487-496	1	9
38	Application of a Coated Film Catalyst Layer Model to a High Temperature Polymer Electrolyte Membrane Fuel Cell with Low Catalyst Loading Produced by Reactive Spray Deposition Technology. *Catalysts*, **2015**, 5, 1673-1691	4	9
37	Electroless Deposition and Characterization of PtxRu1 Catalysts on Pt/C Nanoparticles for Methanol Oxidation. *Journal of Fuel Cell Science and Technology*, **2010**, 7,		9
36	Platinum lass Composite Electrode for Fuel Cell Applications. *Electrochemical and Solid-State Letters*, **2007**, 10, B210		9
35	Ionomer Optimization for Water Uptake and Swelling in Anion Exchange Membrane Electrolyzer: Hydrogen Evolution Electrode. *Journal of the Electrochemical Society*, **2021**, 168, 024503	3.9	9
34	Selective deposition of chemically-bonded gold electrodes onto PDMS microchannel side walls. *Journal of Electroanalytical Chemistry*, **2014**, 727, 141-147	4.1	8

33	Electrochemical Methane Activation and Conversion to Oxygenates at Room Temperature. *ECS Transactions*, **2013**, 53, 1-20	1	8
32	Carbon dioxide vent for direct methanol fuel cells. *Journal of Power Sources*, **2008**, 185, 392-400	8.9	8
31	Structure and chemistry of the solid electrolyte interphase (SEI) on a high capacity conversion-based anode: NiO. *Journal of Materials Chemistry A*, **2021**, 9, 523-537	13	8
30	Improved Capacity Retention of Metal Oxide Anodes in Li-Ion Batteries: Increasing Intraparticle Electronic Conductivity through Na Inclusion in Mn3O4. *ChemElectroChem*, **2018**, 5, 2059-2063	4.3	7
29	Carbonate Selective Ca2Ru2O7-yPyrochlore Enabling Room Temperature Carbonate Fuel Cells. *Journal of the Electrochemical Society*, **2011**, 159, B12-B17	3.9	7
28	Investigation of Transport and Kinetic Nonideality in Solid Li-Ion Electrodes through Deconvolution of Electrochemical Impedance Spectra. *Journal of the Electrochemical Society*, **2020**, 167, 020523	3.9	6
27	In-depth structural understanding of zinc oxide addition to alkaline electrolytes to protect aluminum against corrosion and gassing. *Journal of Applied Electrochemistry*, **2019**, 49, 895-907	2.6	6
26	Performance of a Direct Borohydride Fuel Cell Stack. *ECS Transactions*, **2009**, 25, 1951-1957	1	6
25	Deposition of PtxRu1□ Catalysts for Methanol Oxidation in Micro Direct Methanol Fuel Cells. *Israel Journal of Chemistry*, **2008**, 48, 251-257	3.4	6
24	Editors□Choice□Examining Performance and Durability of Anion Exchange Membrane Fuel Cells with Novel Spirocyclic Anion Exchange Membranes. *Journal of the Electrochemical Society*, **2021**, 168, 044525	3.9	6
23	ORR and Fuel Cell Performance of Pt Supported on N-Functionalized Mesoporous Carbon. *ECS Transactions*, **2011**, 41, 1183-1191	1	5
22	Understanding how single-atom site density drives the performance and durability of PGM-free Fe□N□C cathodes in anion exchange membrane fuel cells. *Materials Today Advances*, **2021**, 12, 100179	7.4	5
21	Effect of Membrane Properties on the Carbonation of Anion Exchange Membrane Fuel Cells. *Membranes*, **2021**, 11,	3.8	5
20	Predicting the Effects of Carbon Dioxide on the Conductivity of Electrospun Anion Exchange Membranes. *Journal of the Electrochemical Society*, **2019**, 166, F1047-F1054	3.9	4
19	Determining the Electrochemically Active Area of IrOx Powder Catalysts in an Operating Proton Exchange Membrane Electrolyzer. *ECS Transactions*, **2015**, 69, 877-881	1	4
18	Design of Highly Reversible Zinc Anodes for Aqueous Batteries Using Preferentially Oriented Electrolytic Zinc. *Batteries and Supercaps*, **2020**, 3, 1220-1232	5.6	4
17	Catalysts for Polymer Membrane Fuel Cells. *Catalysts*, **2020**, 10, 86	4	4
16	Metal Oxide/Reduced Graphene Oxide Anodes for Lithium-Ion Batteries. *ECS Transactions*, **2015**, 66, 47-55	1	4

15	Editors Choice Power-Generating Electrochemical CO2 Scrubbing from Air Enabling Practical AEMFC Application. *Journal of the Electrochemical Society*, **2021**, 168, 024504	3.9	4
14	Electrospun nanofibers with surface oriented lamellar patterns and their potential applications. *Nanoscale*, **2020**, 12, 12993-13000	7.7	3
13	Water and Ion Transport in Anion Exchange Membrane Fuel Cells. *Lecture Notes in Energy*, **2018**, 1-31	0.4	3
12	Reaction Dependent Transport of Carbonate and Bicarbonate through Anion Exchange Membranes in Electrolysis and Fuel Cell Operations. *ECS Transactions*, **2015**, 69, 1-9	1	3
11	Understanding and improving anode performance in an alkaline membrane electrolyzer using statistical design of experiments. *Electrochimica Acta*, **2022**, 409, 140001	6.7	3
10	Strategies for Reducing the PGM Loading in High Power AEMFC Anodes. *ECS Transactions*, **2018**, 85, 873-887	1	2
9	Promises and Challenges of Unconventional Electrocatalyst Supports. *Lecture Notes in Energy*, **2013**, 689-728	0.4	2
8	Modeling Nickel Oxide Particle Stress Behavior Induced by Lithiation Using a FEM Linear Elastic Approach. *Journal of the Electrochemical Society*, **2017**, 164, A867-A873	3.9	1
7	Electrolytes for Long-Life, Ultra Low-Power Direct Methanol Fuel Cells **2009**, 1-50		1
6	Partial deployment of Al in Zn MnO2 alkaline battery anodes to improve the capacity and reversibility. *Journal of Power Sources*, **2021**, 506, 230167	8.9	1
5	(Invited) Electrochemical Pathways for Electrochemical Oxidation of Acetic Acid. *ECS Transactions*, **2018**, 85, 29-34	1	0
4	Large Scale Synthesis of Manganese Oxide/Reduced Graphene Oxide Composites as Anode Materials for Long Cycle Lithium Ion Batteries. *ACS Applied Energy Materials*, **2021**, 4, 5424-5433	6.1	0
3	Influence of Preparation Conditions on Platinum and Palladium Catalysts Supported on Anodically Oxidized Stainless Steel Wire Meshes for CO Oxidation. *Emission Control Science and Technology*, **2021**, 7, 210-221	2	0
2	Understanding the Growth of Pt Nanoparticles by Galvanic Displacement on ITO Nanocubes for ORR. *ECS Transactions*, **2014**, 64, 191-198	1	
1	In Situ Oxygen Gradient Generation Inside a Termite-Inspired Microfluidic Habitat. *ECS Transactions*, **2015**, 66, 1-5	1	