

Felix BÃ¼chi

List of Publications by Year in descending order

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papers

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50273

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136
docs citations

136
times ranked

3552
citing authors

#	ARTICLE	IF	CITATIONS
1	A model based investigation of evaporative cooling for polymer electrolyte fuel cells “ Stack level analysis. Journal of Power Sources, 2022, 517, 230706.	7.8	6
2	High performance gas diffusion layers with added deterministic structures. Energy and Environmental Science, 2022, 15, 1293-1306.	30.8	12
3	On the role of porous transport layer thickness in polymer electrolyte water electrolysis. Journal of Power Sources Advances, 2022, 15, 100095.	5.1	16
4	Polymer electrolyte membrane electrolyzer and fuel cell system characterization for power system frequency control. International Journal of Electrical Power and Energy Systems, 2022, 141, 108121.	5.5	5
5	Determination of the porosity and its heterogeneity of fuel cell microporous layers by X-ray tomographic microscopy. Journal of Power Sources, 2022, 539, 231612.	7.8	16
6	Does the thermal conductivity of gas diffusion layer matter in polymer electrolyte fuel cells?. Journal of Power Sources, 2022, 540, 231539.	7.8	7
7	A model based investigation of evaporative cooling for polymer electrolyte fuel cells “ System level analysis. Journal of Power Sources, 2022, 542, 231720.	7.8	4
8	Electrolyzer modeling and real-time control for optimized production of hydrogen gas. Applied Energy, 2021, 281, 116031.	10.1	39
9	Unraveling two-phase transport in porous transport layer materials for polymer electrolyte water electrolysis. Journal of Materials Chemistry A, 2021, 9, 22102-22113.	10.3	22
10	Gas Diffusion Layers with Deterministic Structure for High Performance Polymer Electrolyte Fuel Cells. ACS Applied Materials & Interfaces, 2021, 13, 9908-9918.	8.0	17
11	A Method for Spatial Quantification of Water in Microporous Layers of Polymer Electrolyte Fuel Cells by X-ray Tomographic Microscopy. ACS Applied Materials & Interfaces, 2021, 13, 16227-16237.	8.0	18
12	Investigation of the transient freeze start behavior of polymer electrolyte fuel cells. Journal of Power Sources, 2021, 489, 229447.	7.8	17
13	Temperature dependent water transport mechanism in gas diffusion layers revealed by subsecond operando X-ray tomographic microscopy. Journal of Power Sources, 2021, 490, 229492.	7.8	22
14	Mass Transport Limitations of Water Evaporation in Polymer Electrolyte Fuel Cell Gas Diffusion Layers. Energies, 2021, 14, 2967.	3.1	9
15	Operando Liquid Pressure Determination in Polymer Electrolyte Fuel Cells. ACS Applied Materials & Interfaces, 2021, 13, 34003-34011.	8.0	15
16	Effects of Gas Diffusion Layer Substrates on PEFC Water Management: Part I. Operando Liquid Water Saturation and Gas Diffusion Properties. Journal of the Electrochemical Society, 2021, 168, 074505.	2.9	20
17	Insights on the interaction of serpentine channels and gas diffusion layer in an operating polymer electrolyte fuel cell: Numerical modeling across scales. International Journal of Heat and Mass Transfer, 2021, 181, 121859.	4.8	7
18	Elucidation of Fluid Streamlining in Multi-Layered Porous Transport Layers for Polymer Electrolyte Water Electrolyzers by Operando Neutron Radiography. Journal of the Electrochemical Society, 2021, 168, 014505.	2.9	13

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19	Laser Structured Gas Diffusion Layers for Improved Water Transport and Fuel Cell Performance. ACS Applied Energy Materials, 2021, 4, 12808-12818.	5.1	11
20	Understanding the Effect of Feed Gas Humidity on the Freeze Start Behavior of Polymer Electrolyte Fuel Cells. Journal of the Electrochemical Society, 2021, 168, 114512.	2.9	2
21	Deep learning based classification of dynamic processes in time-resolved X-ray tomographic microscopy. Scientific Reports, 2021, 11, 24174.	3.3	3
22	The impact of the catalyst layer structure on phosphoric acid migration in HT-PEFC – An operando X-ray tomographic microscopy study. Journal of Electroanalytical Chemistry, 2020, 859, 113832.	3.8	22
23	Hierarchically Structured Porous Transport Layers for Polymer Electrolyte Water Electrolysis. Advanced Energy Materials, 2020, 10, 1903216.	19.5	87
24	Towards a generic understanding of oxygen evolution reaction kinetics in polymer electrolyte water electrolysis. Energy and Environmental Science, 2020, 13, 2153-2166.	30.8	90
25	Transient and Steady State Two-Phase Flow in Anodic Porous Transport Layer of Proton Exchange Membrane Water Electrolyzer. Journal of the Electrochemical Society, 2020, 167, 084509.	2.9	35
26	Optimal Image Denoising for In Situ X-ray Tomographic Microscopy of Liquid Water in Gas Diffusion Layers of Polymer Electrolyte Fuel Cells. Journal of the Electrochemical Society, 2020, 167, 104505.	2.9	11
27	Water Electrolysis: Hierarchically Structured Porous Transport Layers for Polymer Electrolyte Water Electrolysis (Adv. Energy Mater. 2/2020). Advanced Energy Materials, 2020, 10, 2070009.	19.5	2
28	Droplet and Percolation Network Interactions in a Fuel Cell Gas Diffusion Layer. Journal of the Electrochemical Society, 2020, 167, 084506.	2.9	24
29	Improving water management in fuel cells through microporous layer modifications: Fast operando tomographic imaging of liquid water. Journal of Power Sources, 2019, 435, 226809.	7.8	90
30	Polymer Electrolyte Water Electrolysis: Correlating Performance and Porous Transport Layer Structure: Part II. Electrochemical Performance Analysis. Journal of the Electrochemical Society, 2019, 166, F555-F565.	2.9	103
31	Wetting properties of porous high temperature polymer electrolyte fuel cells materials with phosphoric acid. Physical Chemistry Chemical Physics, 2019, 21, 13126-13134.	2.8	17
32	Polymer Electrolyte Water Electrolysis: Correlating Porous Transport Layer Structural Properties and Performance: Part I. Tomographic Analysis of Morphology and Topology. Journal of the Electrochemical Society, 2019, 166, F270-F281.	2.9	88
33	<i>(Invited)</i> Exploring Sub-Second and Sub-Micron X-Ray Tomographic Imaging of Liquid Water in PEFC Gas Diffusion Layers. ECS Transactions, 2019, 92, 11-21.	0.5	13
34	A pore-level direct numerical investigation of water evaporation characteristics under air and hydrogen in the gas diffusion layers of polymer electrolyte fuel cells. International Journal of Heat and Mass Transfer, 2019, 129, 1250-1262.	4.8	18
35	High-numerical-aperture microscope optics for time-resolved experiments. Journal of Synchrotron Radiation, 2019, 26, 1161-1172.	2.4	50
36	An Ensemble Monte Carlo Simulation Study of Water Distribution in Porous Gas Diffusion Layers for Proton Exchange Membrane Fuel Cells. Journal of Electrochemical Energy Conversion and Storage, 2018, 15, .	2.1	3

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37	Breaking through the Cracks: On the Mechanism of Phosphoric Acid Migration in High Temperature Polymer Electrolyte Fuel Cells. <i>Journal of the Electrochemical Society</i> , 2018, 165, F1176-F1183.	2.9	28
38	Comparing the kinetic activation energy of the oxygen evolution and reduction reactions. <i>Electrochimica Acta</i> , 2018, 281, 466-471.	5.2	50
39	Determination of Water Evaporation Rates in Gas Diffusion Layers of Fuel Cells. <i>Journal of the Electrochemical Society</i> , 2018, 165, F652-F661.	2.9	18
40	Critical Reviewâ€”Identifying Critical Gaps for Polymer Electrolyte Water Electrolysis Development. <i>Journal of the Electrochemical Society</i> , 2017, 164, F387-F399.	2.9	347
41	High pressure polymer electrolyte water electrolysis: Test bench development and electrochemical analysis. <i>International Journal of Hydrogen Energy</i> , 2017, 42, 12076-12086.	7.1	56
42	Operando Properties of Gas Diffusion Layers: Saturation and Liquid Permeability. <i>Journal of the Electrochemical Society</i> , 2017, 164, F115-F126.	2.9	75
43	Electrochemical Hydrogen Compression: Efficient Pressurization Concept Derived from an Energetic Evaluation. <i>Journal of the Electrochemical Society</i> , 2017, 164, F1187-F1195.	2.9	53
44	Influence of Operating Conditions and Material Properties on the Mass Transport Losses of Polymer Electrolyte Water Electrolysis. <i>Journal of the Electrochemical Society</i> , 2017, 164, F973-F980.	2.9	69
45	Experimental and pore-level numerical investigation of water evaporation in gas diffusion layers of polymer electrolyte fuel cells. <i>International Journal of Heat and Mass Transfer</i> , 2017, 115, 238-249.	4.8	42
46	Fighting the Noise: Towards the Limits of Subsecond X-ray Tomographic Microscopy of PEFC. <i>ECS Transactions</i> , 2017, 80, 395-402.	0.5	8
47	Advanced Water Management in PEFCs: Diffusion Layers with Patterned Wettability. <i>Journal of the Electrochemical Society</i> , 2016, 163, F1038-F1048.	2.9	54
48	Validation of pore network simulations of ex-situ water distributions in a gas diffusion layer of proton exchange membrane fuel cells with X-ray tomographic images. <i>Journal of Power Sources</i> , 2016, 331, 462-474.	7.8	45
49	Investigating Evaporation in Gas Diffusion Layers for Fuel Cells with X-ray Computed Tomography. <i>Journal of Physical Chemistry C</i> , 2016, 120, 28701-28711.	3.1	79
50	Cell Performance Determining Parameters in High Pressure Water Electrolysis. <i>Electrochimica Acta</i> , 2016, 211, 989-997.	5.2	83
51	Operando X-ray Tomographic Microscopy Imaging of HT-PEFC: A Comparative Study of Phosphoric Acid Electrolyte Migration. <i>Journal of the Electrochemical Society</i> , 2016, 163, F842-F847.	2.9	45
52	Characterization of Liquid Water Saturation in Gas Diffusion Layers by X-Ray Tomographic Microscopy. <i>Journal of the Electrochemical Society</i> , 2016, 163, F202-F209.	2.9	67
53	Imaging Phosphoric Acid Migration in High Temperature Polymer Electrolyte Fuel Cells by X-Ray Tomographic Microscopy. <i>ECS Transactions</i> , 2015, 69, 591-599.	0.5	7
54	Correlating Electrolyte Inventory and Lifetime of HT-PEFC by Accelerated Stress Testing. <i>Journal of the Electrochemical Society</i> , 2015, 162, F1367-F1372.	2.9	35

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55	Fast X-ray Tomographic Microscopy: Investigating Mechanisms of Performance Drop during Freeze Starts of Polymer Electrolyte Fuel Cells. ChemElectroChem, 2015, 2, 1551-1559.	3.4	41
56	Operando Sub-Second Tomographic Imaging of Water in PEFC Gas Diffusion Layers. ECS Transactions, 2015, 69, 523-531.	0.5	23
57	Dynamic Operation of HT-PEFC: In-Operando Imaging of Phosphoric Acid Profiles and (Re)distribution. Journal of the Electrochemical Society, 2015, 162, F310-F316.	2.9	92
58	Investigation of Mass Transport Losses in Polymer Electrolyte Electrolysis Cells. ECS Transactions, 2015, 69, 1141-1148.	0.5	48
59	Towards re-electrification of hydrogen obtained from the power-to-gas process by highly efficient H ₂ /O ₂ polymer electrolyte fuel cells. RSC Advances, 2014, 4, 56139-56146.	3.6	27
60	Implications of polymer electrolyte fuel cell exposure to synchrotron radiation on gas diffusion layer water distribution. Journal of Power Sources, 2014, 245, 796-800.	7.8	38
61	Polymer electrolyte fuel cell performance degradation at different synchrotron beam intensities. Journal of Synchrotron Radiation, 2014, 21, 82-88.	2.4	30
62	Polymer Electrolyte Fuel Cells, Mass Transport. , 2014, , 1661-1669.		2
63	Quantifying phosphoric acid in high-temperature polymer electrolyte fuel cell components by X-ray tomographic microscopy. Journal of Synchrotron Radiation, 2014, 21, 1319-1326.	2.4	19
64	A new in-situ spectroelectrochemical setup for FTIR measurements in operating high temperature polymer electrolyte fuel cells. Electrochemistry Communications, 2013, 34, 200-203.	4.7	4
65	Investigation of the Representative Area of the Water Saturation in Gas Diffusion Layers of Polymer Electrolyte Fuel Cells. Journal of Physical Chemistry C, 2013, 117, 25991-25999.	3.1	35
66	Investigation of PEFC Freeze Start by X-ray Tomographic Microscopy. ECS Transactions, 2013, 58, 453-462.	0.5	12
67	Local Degradation at Membrane Defects in Polymer Electrolyte Fuel Cells. Journal of the Electrochemical Society, 2013, 160, F456-F463.	2.9	43
68	Simulation of 3D Porous Media Flows with Application to Polymer Electrolyte Fuel Cells. Communications in Computational Physics, 2013, 13, 851-866.	1.7	26
69	On the Effects of Irradiation During X-Ray Imaging of PEFC. ECS Meeting Abstracts, 2013, , .	0.0	0
70	Saturation Dependent Effective Transport Properties of PEFC Gas Diffusion Layers. Journal of the Electrochemical Society, 2012, 159, F536-F544.	2.9	113
71	Transient Bi-Domain 1D PEFC Model. ECS Electrochemistry Letters, 2012, 1, F1-F3.	1.9	4
72	Effects of Synchrotron Radiation on Fuel Cell Materials. Journal of the Electrochemical Society, 2012, 159, F449-F455.	2.9	42

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73	Local Catalyst Support Degradation during Polymer Electrolyte Fuel Cell Start-Up and Shutdown. Journal of the Electrochemical Society, 2012, 159, F787-F793.	2.9	42
74	Factors determining the gas crossover through pinholes in polymer electrolyte fuel cell membranes. Electrochimica Acta, 2012, 80, 240-247.	5.2	64
75	Investigation of membrane degradation in polymer electrolyte fuel cells using local gas permeation analysis. Journal of Power Sources, 2012, 212, 139-147.	7.8	64
76	1D Modeling and Experimental Study of the PEFC Dynamic Behaviour at Load Increase. Fuel Cells, 2011, 11, 526-536.	2.4	3
77	Investigation of liquid water in gas diffusion layers of polymer electrolyte fuel cells using X-ray tomographic microscopy. Electrochimica Acta, 2011, 56, 2254-2262.	5.2	132
78	Fuel cell/battery passive hybrid power source for electric powertrains. Journal of Power Sources, 2011, 196, 5867-5872.	7.8	53
79	Progress in In Situ X-Ray Tomographic Microscopy of Liquid Water in Gas Diffusion Layers of PEFC. Journal of the Electrochemical Society, 2011, 158, B963-B970.	2.9	130
80	Towards Ultra-Fast X-ray Tomographic Microscopy of Liquid Water in PEFC. ECS Transactions, 2011, 41, 387-394.	0.5	12
81	Effects of Synchrotron Radiation on Polymer Electrolyte Fuel Cell Materials. ECS Transactions, 2011, 41, 371-378.	0.5	2
82	Parameter extraction from experimental PEFC data using an evolutionary optimization algorithm. EPJ Applied Physics, 2011, 54, 23409.	0.7	0
83	Local online gas analysis in PEFC using tracer gas concepts. Journal of Power Sources, 2010, 195, 1647-1656.	7.8	6
84	Investigating the Dynamics of a Direct Parallel Combination of Supercapacitors and Polymer Electrolyte Fuel Cells. Fuel Cells, 2010, 10, 873-878.	2.4	6
85	Investigation of Channel-to-Channel Cross Convection in Serpentine Flow Fields. Fuel Cells, 2010, 10, 1040-1049.	2.4	29
86	Fuel efficient power management strategy for fuel cell hybrid powertrains. Control Engineering Practice, 2010, 18, 408-417.	5.5	89
87	Adapted Flow Field Structures for PEFC. Journal of the Electrochemical Society, 2010, 157, B673.	2.9	7
88	Determination of Local GDL Saturation on the Pore Level by In Situ Synchrotron Based X-ray Tomographic Microscopy. ECS Transactions, 2010, 33, 1397-1405.	0.5	3
89	Deciphering complex, functional structures with synchrotron-based absorption and phase contrast tomographic microscopy. , 2010, , .		3
90	Fuel cell/battery passive hybrid powertrain with active power sharing capability. , 2010, , .		5

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91	Measuring the Current Distribution with Submillimeter Resolution in PEFCs. Journal of the Electrochemical Society, 2009, 156, B1225.	2.9	22
92	Measuring the Current Distribution with Sub-Millimeter Resolution in PEFCs. Journal of the Electrochemical Society, 2009, 156, B301.	2.9	42
93	Fuel-Cell Hybrid Powertrain: Toward Minimization of Hydrogen Consumption. IEEE Transactions on Vehicular Technology, 2009, 58, 3168-3176.	6.3	110
94	Determination of Material Properties of Gas Diffusion Layers: Experiments and Simulations Using Phase Contrast Tomographic Microscopy. Journal of the Electrochemical Society, 2009, 156, B1175.	2.9	163
95	Heterogeneous Cell Ageing in Polymer Electrolyte Fuel Cell Stacks. , 2009, , 431-439.		4
96	Electrochemical diffusimetry of fuel cell gas diffusion layers. Journal of Electroanalytical Chemistry, 2008, 612, 63-77.	3.8	73
97	Anisotropic, effective diffusivity of porous gas diffusion layer materials for PEFC. Electrochimica Acta, 2008, 54, 551-559.	5.2	184
98	Measurement of the local membrane resistance in polymer electrolyte fuel cells (PEFC) on the sub-mm scale. Measurement Science and Technology, 2008, 19, 085702.	2.6	9
99	Cell Interaction Phenomena in Polymer Electrolyte Fuel Cell Stacks. Journal of the Electrochemical Society, 2008, 155, B704.	2.9	32
100	Determination of Liquid Water Distribution in Porous Transport Layers. ECS Transactions, 2008, 16, 587-592.	0.5	47
101	On the Efficiency of an Advanced Automotive Fuel Cell System. Fuel Cells, 2007, 7, 159-164.	2.4	15
102	Consumption and Efficiency of a Passenger Car with a Hydrogen/Oxygen PEFC based Hybrid Electric Drivetrain. Fuel Cells, 2007, 7, 329-335.	2.4	20
103	Thermal analysis and optimization of a portable, edge-air-cooled PEFC stack. Journal of Power Sources, 2007, 172, 324-333.	7.8	48
104	Voltage balancing: Long-term experience with the 250V supercapacitor module of the hybrid fuel cell vehicle HY-LIGHT. Journal of Power Sources, 2007, 174, 264-271.	7.8	34
105	In-Plane Effects in Large-Scale PEFCs. Journal of the Electrochemical Society, 2006, 153, A909.	2.9	15
106	Homogenization of the current density in polymer electrolyte fuel cells by in-plane cathode catalyst gradients. Electrochimica Acta, 2006, 51, 5383-5393.	5.2	27
107	Expanding current distribution measurement in PEFCs to sub-millimeter resolution. Electrochemistry Communications, 2006, 8, 1435-1438.	4.7	18
108	Experimental investigation of coupling phenomena in polymer electrolyte fuel cell stacks. Journal of Power Sources, 2006, 161, 1076-1083.	7.8	36

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109	Measuring the Current Distribution in PEFCs with Sub-Millimeter Resolution. Journal of the Electrochemical Society, 2006, 153, A2158.	2.9	69
110	In-Plane Effects in Large-Scale PEMFCs. Journal of the Electrochemical Society, 2006, 153, A396.	2.9	51
111	Dependence of current distribution on water management in PEFC of technical size. Journal of Power Sources, 2005, 145, 62-67.	7.8	71
112	Modular Stack-Internal Air Humidification Concept-Verification in a 1â€‰kW Stack. Fuel Cells, 2004, 4, 214-218.	2.4	12
113	Operational aspects of a large PEFC stack under practical conditions. Journal of Power Sources, 2004, 128, 208-217.	7.8	137
114	PEFC: Stacks, Systems, and Applications. Chimia, 2004, 58, 869-878.	0.6	3
115	Fuel Cell Modeling and Simulations. Chimia, 2004, 58, 857-868.	0.6	17
116	Investigation of the Transversal Water Profile in Nafion Membranes in Polymer Electrolyte Fuel Cells. Journal of the Electrochemical Society, 2001, 148, A183.	2.9	194
117	Development of Radiation-Grafted Membranes for Fuel Cell Applications Based on Poly(ethylene-alt-tetrafluoroethylene). ACS Symposium Series, 1999, , 174-188.	0.5	17
118	In-Plane Resolved In-Situ Measurements of the Membrane Resistance in PEFCs. ECS Proceedings Volumes, 1998, 1998-27, 71-80.	0.1	1
119	Operating Proton Exchange Membrane Fuel Cells Without External Humidification of the Reactant Gases: Fundamental Aspects. Journal of the Electrochemical Society, 1997, 144, 2767-2772.	2.9	322
120	Microelectrode Investigation of Oxygen Permeation in Perfluorinated Proton Exchange Membranes with Different Equivalent Weights. Journal of the Electrochemical Society, 1996, 143, 927-932.	2.9	82
121	Cation exchange membranes by pre-irradiation grafting of styrene into FEP films. II. Properties of copolymer membranes. Journal of Polymer Science Part A, 1996, 34, 1873-1880.	2.3	56
122	Crosslinked ion exchange membranes by radiation grafting of styrene/divinylbenzene into FEP films. Journal of Membrane Science, 1996, 118, 231-238.	8.2	77
123	In-situ resistance measurements of Nafion® 117 membranes in polymer electrolyte fuel cells. Journal of Electroanalytical Chemistry, 1996, 404, 37-43.	3.8	115
124	Study of radiation-grafted FEP-G-polystyrene membranes as polymer electrolytes in fuel cells. Electrochimica Acta, 1995, 40, 345-353.	5.2	261
125	In Situ Membrane Resistance Measurements in Polymer Electrolyte Fuel Cells by Fast Auxiliary Current Pulses. Journal of the Electrochemical Society, 1995, 142, 1895-1901.	2.9	68
126	Performance of Differently Cross-Linked, Partially Fluorinated Proton Exchange Membranes in Polymer Electrolyte Fuel Cells. Journal of the Electrochemical Society, 1995, 142, 3044-3048.	2.9	91

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127	Cation exchange membranes by pre-irradiation grafting of styrene into FEP films. I. Influence of synthesis conditions. <i>Journal of Polymer Science Part A</i> , 1994, 32, 1931-1938.	2.3	138
128	Development of radiation-grafted FEP-g-polystyrene membranes: Some property-structure correlations. <i>Polymers for Advanced Technologies</i> , 1994, 5, 493-498.	3.2	64
129	Characterization of perfluorosulfonic acid membranes by conductivity measurements and small-angle x-ray scattering. <i>Electrochimica Acta</i> , 1994, 39, 1303-1307.	5.2	147
130	Materials research aspects of organic solid proton conductors. <i>Solid State Ionics</i> , 1993, 61, 213-218.	2.7	87
131	Electrocatalytic reduction of hydrogen peroxide at a stationary pyrolytic graphite electrode surface in the presence of cytochrome c peroxidase: a description based on a microelectrode array model for adsorbed enzyme molecules. <i>Analyst</i> , 1993, 118, 973-978.	3.5	48
132	Interpretation of the electrochemistry of cytochrome c at macro and micro sized carbon electrodes using a microscopic model based on a partially blocked surface. <i>Journal of Electroanalytical Chemistry and Interfacial Electrochemistry</i> , 1991, 314, 191-206.	0.1	42
133	Performance and Operational Characteristics of a Hybrid Vehicle Powered by Fuel Cells and Supercapacitors. , 0, , .		30
134	Conductive Heat Transfer in Partially Saturated Gas Diffusion Layers with Evaporative Cooling. <i>Journal of the Electrochemical Society</i> , 0, , .	2.9	0