

Felix Bchi

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ext. citations

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L-index

#	Paper	IF	Citations
127	Operating Proton Exchange Membrane Fuel Cells Without External Humidification of the Reactant Gases: Fundamental Aspects. <i>Journal of the Electrochemical Society</i> , 1997 , 144, 2767-2772	3.9	287
126	Critical Review Identifying Critical Gaps for Polymer Electrolyte Water Electrolysis Development. <i>Journal of the Electrochemical Society</i> , 2017 , 164, F387-F399	3.9	219
125	Study of radiation-grafted FEP-G-polystyrene membranes as polymer electrolytes in fuel cells. <i>Electrochimica Acta</i> , 1995 , 40, 345-353	6.7	212
124	Investigation of the Transversal Water Profile in Nafion Membranes in Polymer Electrolyte Fuel Cells. <i>Journal of the Electrochemical Society</i> , 2001 , 148, A183	3.9	167
123	Anisotropic, effective diffusivity of porous gas diffusion layer materials for PEFC. <i>Electrochimica Acta</i> , 2008 , 54, 551-559	6.7	159
122	Determination of Material Properties of Gas Diffusion Layers: Experiments and Simulations Using Phase Contrast Tomographic Microscopy. <i>Journal of the Electrochemical Society</i> , 2009 , 156, B1175	3.9	138
121	Characterization of perfluorosulfonic acid membranes by conductivity measurements and small-angle x-ray scattering. <i>Electrochimica Acta</i> , 1994 , 39, 1303-1307	6.7	131
120	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	2.5	117
119	Progress in In Situ X-Ray Tomographic Microscopy of Liquid Water in Gas Diffusion Layers of PEFC. <i>Journal of the Electrochemical Society</i> , 2011 , 158, B963	3.9	114
118	Operational aspects of a large PEFC stack under practical conditions. <i>Journal of Power Sources</i> , 2004 , 128, 208-217	8.9	114
117	Investigation of liquid water in gas diffusion layers of polymer electrolyte fuel cells using X-ray tomographic microscopy. <i>Electrochimica Acta</i> , 2011 , 56, 2254-2262	6.7	111
116	In-situ resistance measurements of Nafion [®] 117 membranes in polymer electrolyte fuel cells. <i>Journal of Electroanalytical Chemistry</i> , 1996 , 404, 37-43	4.1	95
115	Saturation Dependent Effective Transport Properties of PEFC Gas Diffusion Layers. <i>Journal of the Electrochemical Society</i> , 2012 , 159, F536-F544	3.9	94
114	Fuel-Cell Hybrid Powertrain: Toward Minimization of Hydrogen Consumption. <i>IEEE Transactions on Vehicular Technology</i> , 2009 , 58, 3168-3176	6.8	85
113	Fuel efficient power management strategy for fuel cell hybrid powertrains. <i>Control Engineering Practice</i> , 2010 , 18, 408-417	3.9	79
112	Microelectrode Investigation of Oxygen Permeation in Perfluorinated Proton Exchange Membranes with Different Equivalent Weights. <i>Journal of the Electrochemical Society</i> , 1996 , 143, 927-932	3.9	73
111	Dependence of current distribution on water management in PEFC of technical size. <i>Journal of Power Sources</i> , 2005 , 145, 62-67	8.9	69

110	Performance of Differently Cross-Linked, Partially Fluorinated Proton Exchange Membranes in Polymer Electrolyte Fuel Cells. <i>Journal of the Electrochemical Society</i> , 1995 , 142, 3044-3048	3.9	69
109	Materials research aspects of organic solid proton conductors. <i>Solid State Ionics</i> , 1993 , 61, 213-218	3.3	69
108	Dynamic Operation of HT-PEFC: In-Operando Imaging of Phosphoric Acid Profiles and (Re)distribution. <i>Journal of the Electrochemical Society</i> , 2015 , 162, F310-F316	3.9	68
107	Crosslinked ion exchange membranes by radiation grafting of styrene/divinylbenzene into FEP films. <i>Journal of Membrane Science</i> , 1996 , 118, 231-238	9.6	68
106	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	3.8	62
105	Measuring the Current Distribution in PEFCs with Sub-Millimeter Resolution. <i>Journal of the Electrochemical Society</i> , 2006 , 153, A2158	3.9	62
104	Operando Properties of Gas Diffusion Layers: Saturation and Liquid Permeability. <i>Journal of the Electrochemical Society</i> , 2017 , 164, F115-F126	3.9	61
103	Electrochemical diffusimetry of fuel cell gas diffusion layers. <i>Journal of Electroanalytical Chemistry</i> , 2008 , 612, 63-77	4.1	61
102	In Situ Membrane Resistance Measurements in Polymer Electrolyte Fuel Cells by Fast Auxiliary Current Pulses. <i>Journal of the Electrochemical Society</i> , 1995 , 142, 1895-1901	3.9	60
101	Cell Performance Determining Parameters in High Pressure Water Electrolysis. <i>Electrochimica Acta</i> , 2016 , 211, 989-997	6.7	57
100	Investigation of membrane degradation in polymer electrolyte fuel cells using local gas permeation analysis. <i>Journal of Power Sources</i> , 2012 , 212, 139-147	8.9	54
99	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	3.9	53
98	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	3.9	53
97	Development of radiation-grafted FEP-g-polystyrene membranes: Some property-structure correlations. <i>Polymers for Advanced Technologies</i> , 1994 , 5, 493-498	3.2	52
96	Polymer Electrolyte Water Electrolysis: Correlating Performance and Porous Transport Layer Structure: Part II. Electrochemical Performance Analysis. <i>Journal of the Electrochemical Society</i> , 2019 , 166, F555-F565	3.9	50
95	Hierarchically Structured Porous Transport Layers for Polymer Electrolyte Water Electrolysis. <i>Advanced Energy Materials</i> , 2020 , 10, 1903216	21.8	47
94	In-Plane Effects in Large-Scale PEMFCs. <i>Journal of the Electrochemical Society</i> , 2006 , 153, A396	3.9	45
93	Advanced Water Management in PEFCs: Diffusion Layers with Patterned Wettability. <i>Journal of the Electrochemical Society</i> , 2016 , 163, F1038-F1048	3.9	45

92	Polymer Electrolyte Water Electrolysis: Correlating Porous Transport Layer Structural Properties and Performance: Part I. Tomographic Analysis of Morphology and Topology. <i>Journal of the Electrochemical Society</i> , 2019 , 166, F270-F281	3.9	44
91	Improving water management in fuel cells through microporous layer modifications: Fast operando tomographic imaging of liquid water. <i>Journal of Power Sources</i> , 2019 , 435, 226809	8.9	44
90	Cation exchange membranes by pre-irradiation grafting of styrene into FEP films. II. Properties of copolymer membranes. <i>Journal of Polymer Science Part A</i> , 1996 , 34, 1873-1880	2.5	43
89	Factors determining the gas crossover through pinholes in polymer electrolyte fuel cell membranes. <i>Electrochimica Acta</i> , 2012 , 80, 240-247	6.7	42
88	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, The</i> , 1993 , 118, 973-8	5	42
87	Fuel cell/battery passive hybrid power source for electric powertrains. <i>Journal of Power Sources</i> , 2011 , 196, 5867-5872	8.9	41
86	Towards a generic understanding of oxygen evolution reaction kinetics in polymer electrolyte water electrolysis. <i>Energy and Environmental Science</i> , 2020 , 13, 2153-2166	35.4	39
85	Determination of Liquid Water Distribution in Porous Transport Layers. <i>ECS Transactions</i> , 2009 , 16, 587-592		38
84	Measuring the Current Distribution with Sub-Millimeter Resolution in PEFCs. <i>Journal of the Electrochemical Society</i> , 2009 , 156, B301	3.9	37
83	Local Catalyst Support Degradation during Polymer Electrolyte Fuel Cell Start-Up and Shutdown. <i>Journal of the Electrochemical Society</i> , 2012 , 159, F787-F793	3.9	36
82	Interpretation of the electrochemistry of cytochrome c at macro and micro sized carbon electrodes using a microscopic model based on a partially blocked. <i>Journal of Electroanalytical Chemistry and Interfacial Electrochemistry</i> , 1991 , 314, 191-206		36
81	Thermal analysis and optimization of a portable, edge-air-cooled PEFC stack. <i>Journal of Power Sources</i> , 2007 , 172, 324-333	8.9	35
80	High pressure polymer electrolyte water electrolysis: Test bench development and electrochemical analysis. <i>International Journal of Hydrogen Energy</i> , 2017 , 42, 12076-12086	6.7	34
79	Fast X-ray Tomographic Microscopy: Investigating Mechanisms of Performance Drop during Freeze Starts of Polymer Electrolyte Fuel Cells. <i>ChemElectroChem</i> , 2015 , 2, 1551-1559	4.3	34
78	Implications of polymer electrolyte fuel cell exposure to synchrotron radiation on gas diffusion layer water distribution. <i>Journal of Power Sources</i> , 2014 , 245, 796-800	8.9	33
77	Effects of Synchrotron Radiation on Fuel Cell Materials. <i>Journal of the Electrochemical Society</i> , 2012 , 159, F449-F455	3.9	33
76	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	8.9	33
75	Investigation of Mass Transport Losses in Polymer Electrolyte Electrolysis Cells. <i>ECS Transactions</i> , 2015 , 69, 1141-1148	1	31

74	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	3.9	31
73	Investigation of the Representative Area of the Water Saturation in Gas Diffusion Layers of Polymer Electrolyte Fuel Cells. <i>Journal of Physical Chemistry C</i> , 2013 , 117, 25991-25999	3.8	31
72	Local Degradation at Membrane Defects in Polymer Electrolyte Fuel Cells. <i>Journal of the Electrochemical Society</i> , 2013 , 160, F456-F463	3.9	31
71	Electrochemical Hydrogen Compression: Efficient Pressurization Concept Derived from an Energetic Evaluation. <i>Journal of the Electrochemical Society</i> , 2017 , 164, F1187-F1195	3.9	30
70	Experimental investigation of coupling phenomena in polymer electrolyte fuel cell stacks. <i>Journal of Power Sources</i> , 2006 , 161, 1076-1083	8.9	28
69	High-numerical-aperture microscope optics for time-resolved experiments. <i>Journal of Synchrotron Radiation</i> , 2019 , 26, 1161-1172	2.4	28
68	Correlating Electrolyte Inventory and Lifetime of HT-PEFC by Accelerated Stress Testing. <i>Journal of the Electrochemical Society</i> , 2015 , 162, F1367-F1372	3.9	27
67	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	4.9	26
66	Cell Interaction Phenomena in Polymer Electrolyte Fuel Cell Stacks. <i>Journal of the Electrochemical Society</i> , 2008 , 155, B704	3.9	24
65	Voltage balancing: Long-term experience with the 250V supercapacitor module of the hybrid fuel cell vehicle HY-LIGHT. <i>Journal of Power Sources</i> , 2007 , 174, 264-271	8.9	24
64	Polymer electrolyte fuel cell performance degradation at different synchrotron beam intensities. <i>Journal of Synchrotron Radiation</i> , 2014 , 21, 82-8	2.4	23
63	Towards re-electrification of hydrogen obtained from the power-to-gas process by highly efficient H ₂ /O ₂ polymer electrolyte fuel cells. <i>RSC Advances</i> , 2014 , 4, 56139-56146	3.7	23
62	Investigation of Channel-to-Channel Cross Convection in Serpentine Flow Fields. <i>Fuel Cells</i> , 2010 , 10, 1040-1049	2.9	22
61	Operando Sub-Second Tomographic Imaging of Water in PEFC Gas Diffusion Layers. <i>ECS Transactions</i> , 2015 , 69, 523-531	1	21
60	Comparing the kinetic activation energy of the oxygen evolution and reduction reactions. <i>Electrochimica Acta</i> , 2018 , 281, 466-471	6.7	21
59	Simulation of 3D Porous Media Flows with Application to Polymer Electrolyte Fuel Cells. <i>Communications in Computational Physics</i> , 2013 , 13, 851-866	2.4	20
58	Measuring the Current Distribution with Submillimeter Resolution in PEFCs. <i>Journal of the Electrochemical Society</i> , 2009 , 156, B1225	3.9	20
57	Transient and Steady State Two-Phase Flow in Anodic Porous Transport Layer of Proton Exchange Membrane Water Electrolyzer. <i>Journal of the Electrochemical Society</i> , 2020 , 167, 084509	3.9	18

56	Homogenization of the current density in polymer electrolyte fuel cells by in-plane cathode catalyst gradients. <i>Electrochimica Acta</i> , 2006 , 51, 5383-5393	6.7	18
55	Expanding current distribution measurement in PEFCs to sub-millimeter resolution. <i>Electrochemistry Communications</i> , 2006 , 8, 1435-1438	5.1	17
54	Consumption and Efficiency of a Passenger Car with a Hydrogen/Oxygen PEFC based Hybrid Electric Drivetrain. <i>Fuel Cells</i> , 2007 , 7, 329-335	2.9	16
53	Fuel Cell Modeling and Simulations. <i>Chimia</i> , 2004 , 58, 857-868	1.3	16
52	Quantifying phosphoric acid in high-temperature polymer electrolyte fuel cell components by X-ray tomographic microscopy. <i>Journal of Synchrotron Radiation</i> , 2014 , 21, 1319-26	2.4	16
51	On the Efficiency of an Advanced Automotive Fuel Cell System. <i>Fuel Cells</i> , 2007 , 7, 159-164	2.9	15
50	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	3.9	15
49	In-Plane Effects in Large-Scale PEFCs. <i>Journal of the Electrochemical Society</i> , 2006 , 153, A909	3.9	14
48	Determination of Water Evaporation Rates in Gas Diffusion Layers of Fuel Cells. <i>Journal of the Electrochemical Society</i> , 2018 , 165, F652-F661	3.9	13
47	Performance and Operational Characteristics of a Hybrid Vehicle Powered by Fuel Cells and Supercapacitors 2003 ,		12
46	Development of Radiation-Grafted Membranes for Fuel Cell Applications Based on Poly(ethylene-alt-tetrafluoroethylene). <i>ACS Symposium Series</i> , 1999 , 174-188	0.4	12
45	Investigation of PEFC Freeze Start by X-ray Tomographic Microscopy. <i>ECS Transactions</i> , 2013 , 58, 453-462		11
44	Towards Ultra-Fast X-ray Tomographic Microscopy of Liquid Water in PEFC. <i>ECS Transactions</i> , 2011 , 41, 387-394	1	11
43	Modular Stack-Internal Air Humidification Concept-Verification in a 1 kW Stack. <i>Fuel Cells</i> , 2004 , 4, 214-218		11
42	Wetting properties of porous high temperature polymer electrolyte fuel cells materials with phosphoric acid. <i>Physical Chemistry Chemical Physics</i> , 2019 , 21, 13126-13134	3.6	10
41	Droplet and Percolation Network Interactions in a Fuel Cell Gas Diffusion Layer. <i>Journal of the Electrochemical Society</i> , 2020 , 167, 084506	3.9	10
40	The impact of the catalyst layer structure on phosphoric acid migration in HT-PEFC – An operando X-ray tomographic microscopy study. <i>Journal of Electroanalytical Chemistry</i> , 2020 , 859, 113832	4.1	9
39	(Invited) Exploring Sub-Second and Sub-Micron X-Ray Tomographic Imaging of Liquid Water in PEFC Gas Diffusion Layers. <i>ECS Transactions</i> , 2019 , 92, 11-21	1	9

38	Electrolyzer modeling and real-time control for optimized production of hydrogen gas. <i>Applied Energy</i> , 2021 , 281, 116031	10.7	9
37	Fighting the Noise: Towards the Limits of Subsecond X-ray Tomographic Microscopy of PEFC. <i>ECS Transactions</i> , 2017 , 80, 395-402	1	8
36	Measurement of the local membrane resistance in polymer electrolyte fuel cells (PEFC) on the sub-mm scale. <i>Measurement Science and Technology</i> , 2008 , 19, 085702	2	8
35	Temperature dependent water transport mechanism in gas diffusion layers revealed by subsecond operando X-ray tomographic microscopy. <i>Journal of Power Sources</i> , 2021 , 490, 229492	8.9	8
34	Effects of Gas Diffusion Layer Substrates on PEFC Water Management: Part I. Operando Liquid Water Saturation and Gas Diffusion Properties. <i>Journal of the Electrochemical Society</i> , 2021 , 168, 074505	3.9	8
33	Optimal Image Denoising for In Situ X-ray Tomographic Microscopy of Liquid Water in Gas Diffusion Layers of Polymer Electrolyte Fuel Cells. <i>Journal of the Electrochemical Society</i> , 2020 , 167, 104505	3.9	7
32	Gas Diffusion Layers with Deterministic Structure for High Performance Polymer Electrolyte Fuel Cells. <i>ACS Applied Materials & Interfaces</i> , 2021 , 13, 9908-9918	9.5	7
31	Imaging Phosphoric Acid Migration in High Temperature Polymer Electrolyte Fuel Cells by X-Ray Tomographic Microscopy. <i>ECS Transactions</i> , 2015 , 69, 591-599	1	6
30	Adapted Flow Field Structures for PEFC. <i>Journal of the Electrochemical Society</i> , 2010 , 157, B673	3.9	6
29	Local online gas analysis in PEFC using tracer gas concepts. <i>Journal of Power Sources</i> , 2010 , 195, 1647-1656	3.6	6
28	Investigating the Dynamics of a Direct Parallel Combination of Supercapacitors and Polymer Electrolyte Fuel Cells. <i>Fuel Cells</i> , 2010 , 10, 873-878	2.9	6
27	Investigation of the transient freeze start behavior of polymer electrolyte fuel cells. <i>Journal of Power Sources</i> , 2021 , 489, 229447	8.9	6
26	A pore-level direct numerical investigation of water evaporation characteristics under air and hydrogen in the gas diffusion layers of polymer electrolyte fuel cells. <i>International Journal of Heat and Mass Transfer</i> , 2019 , 129, 1250-1262	4.9	6
25	A Method for Spatial Quantification of Water in Microporous Layers of Polymer Electrolyte Fuel Cells by X-ray Tomographic Microscopy. <i>ACS Applied Materials & Interfaces</i> , 2021 , 13, 16227-16237	9.5	5
24	Mass Transport Limitations of Water Evaporation in Polymer Electrolyte Fuel Cell Gas Diffusion Layers. <i>Energies</i> , 2021 , 14, 2967	3.1	5
23	Liquid Pressure Determination in Polymer Electrolyte Fuel Cells. <i>ACS Applied Materials & Interfaces</i> , 2021 , 13, 34003-34011	9.5	5
22	Fuel cell/battery passive hybrid powertrain with active power sharing capability 2010 ,		4
21	Heterogeneous Cell Ageing in Polymer Electrolyte Fuel Cell Stacks 2009 , 431-439		4

20	A new in-situ spectroelectrochemical setup for FTIR measurements in operating high temperature polymer electrolyte fuel cells. <i>Electrochemistry Communications</i> , 2013 , 34, 200-203	5.1	3
19	Determination of Local GDL Saturation on the Pore Level by In Situ Synchrotron Based X-ray Tomographic Microscopy. <i>ECS Transactions</i> , 2010 , 33, 1397-1405	1	3
18	Transient Bi-Domain 1D PEFC Model. <i>ECS Electrochemistry Letters</i> , 2012 , 1, F1-F3		3
17	High Performance Gas Diffusion Layers with Added Deterministic Structures. <i>Energy and Environmental Science</i> ,	35.4	3
16	Elucidation of Fluid Streamlining in Multi-Layered Porous Transport Layers for Polymer Electrolyte Water Electrolyzers by Operando Neutron Radiography. <i>Journal of the Electrochemical Society</i> , 2021 , 168, 014505	3.9	3
15	Deciphering complex, functional structures with synchrotron-based absorption and phase contrast tomographic microscopy 2010 ,		2
14	PEFC: Stacks, Systems, and Applications. <i>Chimia</i> , 2004 , 58, 869-878	1.3	2
13	Unraveling two-phase transport in porous transport layer materials for polymer electrolyte water electrolysis. <i>Journal of Materials Chemistry A</i> ,	13	2
12	Deep learning based classification of dynamic processes in time-resolved X-ray tomographic microscopy.. <i>Scientific Reports</i> , 2021 , 11, 24174	4.9	2
11	Water Electrolysis: Hierarchically Structured Porous Transport Layers for Polymer Electrolyte Water Electrolysis (Adv. Energy Mater. 2/2020). <i>Advanced Energy Materials</i> , 2020 , 10, 2070009	21.8	1
10	An Ensemble Monte Carlo Simulation Study of Water Distribution in Porous Gas Diffusion Layers for Proton Exchange Membrane Fuel Cells. <i>Journal of Electrochemical Energy Conversion and Storage</i> , 2018 , 15,	2	1
9	1D-Modelling and Experimental Study of the PEFC Dynamic Behaviour at Load Increase. <i>Fuel Cells</i> , 2011 , 11, 526-536	2.9	1
8	Determination of the porosity and its heterogeneity of fuel cell microporous layers by X-ray tomographic microscopy. <i>Journal of Power Sources</i> , 2022 , 539, 231612	8.9	1
7	A model based investigation of evaporative cooling for polymer electrolyte fuel cells [Stack level analysis. <i>Journal of Power Sources</i> , 2022 , 517, 230706	8.9	0
6	Understanding the Effect of Feed Gas Humidity on the Freeze Start Behavior of Polymer Electrolyte Fuel Cells. <i>Journal of the Electrochemical Society</i> , 2021 , 168, 114512	3.9	0
5	Insights on the interaction of serpentine channels and gas diffusion layer in an operating polymer electrolyte fuel cell: Numerical modeling across scales. <i>International Journal of Heat and Mass Transfer</i> , 2021 , 181, 121859	4.9	0
4	On the role of porous transport layer thickness in polymer electrolyte water electrolysis. <i>Journal of Power Sources Advances</i> , 2022 , 15, 100095	3.3	0
3	Polymer electrolyte membrane electrolyzer and fuel cell system characterization for power system frequency control. <i>International Journal of Electrical Power and Energy Systems</i> , 2022 , 141, 108121	5.1	0

- 2 Does the thermal conductivity of gas diffusion layer matter in polymer electrolyte fuel cells?
Journal of Power Sources, **2022**, 540, 231539 8.9 ○
- 1 Parameter extraction from experimental PEFC data using an evolutionary optimization algorithm.
EPJ Applied Physics, **2011**, 54, 23409 1.1