Felix Bchi

List of Publications by Year in Descending Order

127 papers	4,804 citations	41 h-index	65 g-index
136 ext. papers	5,525 ext. citations	5.4 avg, IF	5.82 L-index

#	Paper	IF	Citations
127	A model based investigation of evaporative cooling for polymer electrolyte fuel cells stack level analysis. *Journal of Power Sources*, **2022**, 517, 230706	8.9	0
126	On the role of porous transport layer thickness in polymer electrolyte water electrolysis. *Journal of Power Sources Advances*, **2022**, 15, 100095	3.3	0
125	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	5.1	0
124	Determination of the porosity and its heterogeneity of fuel cell microporous layers by X-ray tomographic microscopy. *Journal of Power Sources*, **2022**, 539, 231612	8.9	1
123	Does the thermal conductivity of gas diffusion layer matter in polymer electrolyte fuel cells?. *Journal of Power Sources*, **2022**, 540, 231539	8.9	0
122	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	3.9	0
121	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	9.5	5
120	Investigation of the transient freeze start behavior of polymer electrolyte fuel cells. *Journal of Power Sources*, **2021**, 489, 229447	8.9	6
119	Temperature dependent water transport mechanism in gas diffusion layers revealed by subsecond operando X-ray tomographic microscopy. *Journal of Power Sources*, **2021**, 490, 229492	8.9	8
118	Mass Transport Limitations of Water Evaporation in Polymer Electrolyte Fuel Cell Gas Diffusion Layers. *Energies*, **2021**, 14, 2967	3.1	5
117	Liquid Pressure Determination in Polymer Electrolyte Fuel Cells. *ACS Applied Materials & Interfaces*, **2021**, 13, 34003-34011	9.5	5
116	Electrolyzer modeling and real-time control for optimized production of hydrogen gas. *Applied Energy*, **2021**, 281, 116031	10.7	9
115	Gas Diffusion Layers with Deterministic Structure for High Performance Polymer Electrolyte Fuel Cells. *ACS Applied Materials & Interfaces*, **2021**, 13, 9908-9918	9.5	7
114	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	3.9	8
113	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	4.9	0
112	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	3.9	3
111	Deep learning based classification of dynamic processes in time-resolved X-ray tomographic microscopy.. *Scientific Reports*, **2021**, 11, 24174	4.9	2

110	Towards a generic understanding of oxygen evolution reaction kinetics in polymer electrolyte water electrolysis. *Energy and Environmental Science*, **2020**, 13, 2153-2166	35.4	39
109	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	3.9	18
108	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	3.9	7
107	Water Electrolysis: Hierarchically Structured Porous Transport Layers for Polymer Electrolyte Water Electrolysis (Adv. Energy Mater. 2/2020). *Advanced Energy Materials*, **2020**, 10, 2070009	21.8	1
106	Droplet and Percolation Network Interactions in a Fuel Cell Gas Diffusion Layer. *Journal of the Electrochemical Society*, **2020**, 167, 084506	3.9	10
105	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	4.1	9
104	Hierarchically Structured Porous Transport Layers for Polymer Electrolyte Water Electrolysis. *Advanced Energy Materials*, **2020**, 10, 1903216	21.8	47
103	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	3.9	50
102	Wetting properties of porous high temperature polymer electrolyte fuel cells materials with phosphoric acid. *Physical Chemistry Chemical Physics*, **2019**, 21, 13126-13134	3.6	10
101	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	3.9	44
100	Improving water management in fuel cells through microporous layer modifications: Fast operando tomographic imaging of liquid water. *Journal of Power Sources*, **2019**, 435, 226809	8.9	44
99	High-numerical-aperture macroscope optics for time-resolved experiments. *Journal of Synchrotron Radiation*, **2019**, 26, 1161-1172	2.4	28
98	(Invited) Exploring Sub-Second and Sub-Micron X-Ray Tomographic Imaging of Liquid Water in PEFC Gas Diffusion Layers. *ECS Transactions*, **2019**, 92, 11-21	1	9
97	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	4.9	6
96	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
95	Determination of Water Evaporation Rates in Gas Diffusion Layers of Fuel Cells. *Journal of the Electrochemical Society*, **2018**, 165, F652-F661	3.9	13
94	Breaking through the Cracks: On the Mechanism of Phosphoric Acid Migration in High Temperature Polymer Electrolyte Fuel Cells. *Journal of the Electrochemical Society*, **2018**, 165, F1176-F1183	3.9	15
93	Comparing the kinetic activation energy of the oxygen evolution and reduction reactions. *Electrochimica Acta*, **2018**, 281, 466-471	6.7	21

92	Critical Review: Identifying Critical Gaps for Polymer Electrolyte Water Electrolysis Development. *Journal of the Electrochemical Society*, **2017**, 164, F387-F399	3.9	219
91	High pressure polymer electrolyte water electrolysis: Test bench development and electrochemical analysis. *International Journal of Hydrogen Energy*, **2017**, 42, 12076-12086	6.7	34
90	Operando Properties of Gas Diffusion Layers: Saturation and Liquid Permeability. *Journal of the Electrochemical Society*, **2017**, 164, F115-F126	3.9	61
89	Electrochemical Hydrogen Compression: Efficient Pressurization Concept Derived from an Energetic Evaluation. *Journal of the Electrochemical Society*, **2017**, 164, F1187-F1195	3.9	30
88	Influence of Operating Conditions and Material Properties on the Mass Transport Losses of Polymer Electrolyte Water Electrolysis. *Journal of the Electrochemical Society*, **2017**, 164, F973-F980	3.9	53
87	Experimental and pore-level numerical investigation of water evaporation in gas diffusion layers of polymer electrolyte fuel cells. *International Journal of Heat and Mass Transfer*, **2017**, 115, 238-249	4.9	26
86	Fighting the Noise: Towards the Limits of Subsecond X-ray Tomographic Microscopy of PEFC. *ECS Transactions*, **2017**, 80, 395-402	1	8
85	Investigating Evaporation in Gas Diffusion Layers for Fuel Cells with X-ray Computed Tomography. *Journal of Physical Chemistry C*, **2016**, 120, 28701-28711	3.8	62
84	Cell Performance Determining Parameters in High Pressure Water Electrolysis. *Electrochimica Acta*, **2016**, 211, 989-997	6.7	57
83	Operando X-ray Tomographic Microscopy Imaging of HT-PEFC: A Comparative Study of Phosphoric Acid Electrolyte Migration. *Journal of the Electrochemical Society*, **2016**, 163, F842-F847	3.9	31
82	Characterization of Liquid Water Saturation in Gas Diffusion Layers by X-Ray Tomographic Microscopy. *Journal of the Electrochemical Society*, **2016**, 163, F202-F209	3.9	53
81	Advanced Water Management in PEFCs: Diffusion Layers with Patterned Wettability. *Journal of the Electrochemical Society*, **2016**, 163, F1038-F1048	3.9	45
80	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. *Journal of Power Sources*, **2016**, 331, 462-474	8.9	33
79	Investigation of Mass Transport Losses in Polymer Electrolyte Electrolysis Cells. *ECS Transactions*, **2015**, 69, 1141-1148	1	31
78	Imaging Phosphoric Acid Migration in High Temperature Polymer Electrolyte Fuel Cells by X-Ray Tomographic Microscopy. *ECS Transactions*, **2015**, 69, 591-599	1	6
77	Correlating Electrolyte Inventory and Lifetime of HT-PEFC by Accelerated Stress Testing. *Journal of the Electrochemical Society*, **2015**, 162, F1367-F1372	3.9	27
76	Fast X-ray Tomographic Microscopy: Investigating Mechanisms of Performance Drop during Freeze Starts of Polymer Electrolyte Fuel Cells. *ChemElectroChem*, **2015**, 2, 1551-1559	4.3	34
75	Operando Sub-Second Tomographic Imaging of Water in PEFC Gas Diffusion Layers. *ECS Transactions*, **2015**, 69, 523-531	1	21

74	Dynamic Operation of HT-PEFC: In-Operando Imaging of Phosphoric Acid Profiles and (Re)distribution. *Journal of the Electrochemical Society*, **2015**, 162, F310-F316	3.9	68
73	Polymer electrolyte fuel cell performance degradation at different synchrotron beam intensities. *Journal of Synchrotron Radiation*, **2014**, 21, 82-8	2.4	23
72	Towards re-electrification of hydrogen obtained from the power-to-gas process by highly efficient H2/O2 polymer electrolyte fuel cells. *RSC Advances*, **2014**, 4, 56139-56146	3.7	23
71	Implications of polymer electrolyte fuel cell exposure to synchrotron radiation on gas diffusion layer water distribution. *Journal of Power Sources*, **2014**, 245, 796-800	8.9	33
70	Quantifying phosphoric acid in high-temperature polymer electrolyte fuel cell components by X-ray tomographic microscopy. *Journal of Synchrotron Radiation*, **2014**, 21, 1319-26	2.4	16
69	A new in-situ spectroelectrochemical setup for FTIR measurements in operating high temperature polymer electrolyte fuel cells. *Electrochemistry Communications*, **2013**, 34, 200-203	5.1	3
68	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	3.8	31
67	Investigation of PEFC Freeze Start by X-ray Tomographic Microscopy. *ECS Transactions*, **2013**, 58, 453-462		11
66	Local Degradation at Membrane Defects in Polymer Electrolyte Fuel Cells. *Journal of the Electrochemical Society*, **2013**, 160, F456-F463	3.9	31
65	Simulation of 3D Porous Media Flows with Application to Polymer Electrolyte Fuel Cells. *Communications in Computational Physics*, **2013**, 13, 851-866	2.4	20
64	Investigation of membrane degradation in polymer electrolyte fuel cells using local gas permeation analysis. *Journal of Power Sources*, **2012**, 212, 139-147	8.9	54
63	Local Catalyst Support Degradation during Polymer Electrolyte Fuel Cell Start-Up and Shutdown. *Journal of the Electrochemical Society*, **2012**, 159, F787-F793	3.9	36
62	Factors determining the gas crossover through pinholes in polymer electrolyte fuel cell membranes. *Electrochimica Acta*, **2012**, 80, 240-247	6.7	42
61	Saturation Dependent Effective Transport Properties of PEFC Gas Diffusion Layers. *Journal of the Electrochemical Society*, **2012**, 159, F536-F544	3.9	94
60	Transient Bi-Domain 1D PEFC Model. *ECS Electrochemistry Letters*, **2012**, 1, F1-F3		3
59	Effects of Synchrotron Radiation on Fuel Cell Materials. *Journal of the Electrochemical Society*, **2012**, 159, F449-F455	3.9	33
58	1D-Modelling and Experimental Study of the PEFC Dynamic Behaviour at Load Increase. *Fuel Cells*, **2011**, 11, 526-536	2.9	1
57	Investigation of liquid water in gas diffusion layers of polymer electrolyte fuel cells using X-ray tomographic microscopy. *Electrochimica Acta*, **2011**, 56, 2254-2262	6.7	111

56	Fuel cell/battery passive hybrid power source for electric powertrains. *Journal of Power Sources*, **2011**, 196, 5867-5872	8.9	41
55	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	3.9	114
54	Towards Ultra-Fast X-ray Tomographic Microscopy of Liquid Water in PEFC. *ECS Transactions*, **2011**, 41, 387-394	1	11
53	Parameter extraction from experimental PEFC data using an evolutionary optimization algorithm. *EPJ Applied Physics*, **2011**, 54, 23409	1.1	
52	Adapted Flow Field Structures for PEFC. *Journal of the Electrochemical Society*, **2010**, 157, B673	3.9	6
51	Determination of Local GDL Saturation on the Pore Level by In Situ Synchrotron Based X-ray Tomographic Microscopy. *ECS Transactions*, **2010**, 33, 1397-1405	1	3
50	Deciphering complex, functional structures with synchrotron-based absorption and phase contrast tomographic microscopy **2010**,		2
49	Fuel cell/battery passive hybrid powertrain with active power sharing capability **2010**,		4
48	Local online gas analysis in PEFC using tracer gas concepts. *Journal of Power Sources*, **2010**, 195, 1647-1656	8.9	6
47	Investigating the Dynamics of a Direct Parallel Combination of Supercapacitors and Polymer Electrolyte Fuel Cells. *Fuel Cells*, **2010**, 10, 873-878	2.9	6
46	Investigation of Channel-to-Channel Cross Convection in Serpentine Flow Fields. *Fuel Cells*, **2010**, 10, 1040-1049	2.9	22
45	Fuel efficient power management strategy for fuel cell hybrid powertrains. *Control Engineering Practice*, **2010**, 18, 408-417	3.9	79
44	Measuring the Current Distribution with Submillimeter Resolution in PEFCs. *Journal of the Electrochemical Society*, **2009**, 156, B1225	3.9	20
43	Determination of Liquid Water Distribution in Porous Transport Layers. *ECS Transactions*, **2009**, 16, 587-592	1	38
42	Measuring the Current Distribution with Sub-Millimeter Resolution in PEFCs. *Journal of the Electrochemical Society*, **2009**, 156, B301	3.9	37
41	Fuel-Cell Hybrid Powertrain: Toward Minimization of Hydrogen Consumption. *IEEE Transactions on Vehicular Technology*, **2009**, 58, 3168-3176	6.8	85
40	Determination of Material Properties of Gas Diffusion Layers: Experiments and Simulations Using Phase Contrast Tomographic Microscopy. *Journal of the Electrochemical Society*, **2009**, 156, B1175	3.9	138
39	Heterogeneous Cell Ageing in Polymer Electrolyte Fuel Cell Stacks **2009**, 431-439		4

38	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	8
37	Cell Interaction Phenomena in Polymer Electrolyte Fuel Cell Stacks. *Journal of the Electrochemical Society*, **2008**, 155, B704	3.9	24
36	Electrochemical diffusimetry of fuel cell gas diffusion layers. *Journal of Electroanalytical Chemistry*, **2008**, 612, 63-77	4.1	61
35	Anisotropic, effective diffusivity of porous gas diffusion layer materials for PEFC. *Electrochimica Acta*, **2008**, 54, 551-559	6.7	159
34	On the Efficiency of an Advanced Automotive Fuel Cell System. *Fuel Cells*, **2007**, 7, 159-164	2.9	15
33	Consumption and Efficiency of a Passenger Car with a Hydrogen/Oxygen PEFC based Hybrid Electric Drivetrain. *Fuel Cells*, **2007**, 7, 329-335	2.9	16
32	Thermal analysis and optimization of a portable, edge-air-cooled PEFC stack. *Journal of Power Sources*, **2007**, 172, 324-333	8.9	35
31	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	8.9	24
30	Experimental investigation of coupling phenomena in polymer electrolyte fuel cell stacks. *Journal of Power Sources*, **2006**, 161, 1076-1083	8.9	28
29	Measuring the Current Distribution in PEFCs with Sub-Millimeter Resolution. *Journal of the Electrochemical Society*, **2006**, 153, A2158	3.9	62
28	In-Plane Effects in Large-Scale PEMFCs. *Journal of the Electrochemical Society*, **2006**, 153, A396	3.9	45
27	In-Plane Effects in Large-Scale PEFCs. *Journal of the Electrochemical Society*, **2006**, 153, A909	3.9	14
26	Homogenization of the current density in polymer electrolyte fuel cells by in-plane cathode catalyst gradients. *Electrochimica Acta*, **2006**, 51, 5383-5393	6.7	18
25	Expanding current distribution measurement in PEFCs to sub-millimeter resolution. *Electrochemistry Communications*, **2006**, 8, 1435-1438	5.1	17
24	Dependence of current distribution on water management in PEFC of technical size. *Journal of Power Sources*, **2005**, 145, 62-67	8.9	69
23	Modular Stack-Internal Air Humidification Concept-Verification in a 1 kW Stack. *Fuel Cells*, **2004**, 4, 214-218	1.9	11
22	Operational aspects of a large PEFC stack under practical conditions. *Journal of Power Sources*, **2004**, 128, 208-217	8.9	114
21	PEFC: Stacks, Systems, and Applications. *Chimia*, **2004**, 58, 869-878	1.3	2

20	Fuel Cell Modeling and Simulations. *Chimia*, **2004**, 58, 857-868	1.3	16
19	Performance and Operational Characteristics of a Hybrid Vehicle Powered by Fuel Cells and Supercapacitors **2003**,		12
18	Investigation of the Transversal Water Profile in Nafion Membranes in Polymer Electrolyte Fuel Cells. *Journal of the Electrochemical Society*, **2001**, 148, A183	3.9	167
17	Development of Radiation-Grafted Membranes for Fuel Cell Applications Based on Poly(ethylene-alt-tetrafluoroethylene). *ACS Symposium Series*, **1999**, 174-188	0.4	12
16	Operating Proton Exchange Membrane Fuel Cells Without External Humidification of the Reactant Gases: Fundamental Aspects. *Journal of the Electrochemical Society*, **1997**, 144, 2767-2772	3.9	287
15	Microelectrode Investigation of Oxygen Permeation in Perfluorinated Proton Exchange Membranes with Different Equivalent Weights. *Journal of the Electrochemical Society*, **1996**, 143, 927-932	3.9	73
14	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	2.5	43
13	Crosslinked ion exchange membranes by radiation grafting of styrene/divinylbenzene into FEP films. *Journal of Membrane Science*, **1996**, 118, 231-238	9.6	68
12	In-situ resistance measurements of Nafion® 117 membranes in polymer electrolyte fuel cells. *Journal of Electroanalytical Chemistry*, **1996**, 404, 37-43	4.1	95
11	In Situ Membrane Resistance Measurements in Polymer Electrolyte Fuel Cells by Fast Auxiliary Current Pulses. *Journal of the Electrochemical Society*, **1995**, 142, 1895-1901	3.9	60
10	Performance of Differently Cross-Linked, Partially Fluorinated Proton Exchange Membranes in Polymer Electrolyte Fuel Cells. *Journal of the Electrochemical Society*, **1995**, 142, 3044-3048	3.9	69
9	Study of radiation-grafted FEP-G-polystyrene membranes as polymer electrolytes in fuel cells. *Electrochimica Acta*, **1995**, 40, 345-353	6.7	212
8	Cation exchange membranes by pre-irradiation grafting of styrene into FEP films. I. Influence of synthesis conditions. *Journal of Polymer Science Part A*, **1994**, 32, 1931-1938	2.5	117
7	Development of radiation-grafted FEP-g-polystyrene membranes: Some property–structure correlations. *Polymers for Advanced Technologies*, **1994**, 5, 493-498	3.2	52
6	Characterization of perfluorosulfonic acid membranes by conductivity measurements and small-angle x-ray scattering. *Electrochimica Acta*, **1994**, 39, 1303-1307	6.7	131
5	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. *Analyst, The*, **1993**, 118, 973-8	5	42
4	Materials research aspects of organic solid proton conductors. *Solid State Ionics*, **1993**, 61, 213-218	3.3	69
3	Interpretation of the electrochemistry of cytochrome c at macro and micro sized carbon electrodes using a microscopic model based on a partially blocke. *Journal of Electroanalytical Chemistry and Interfacial Electrochemistry*, **1991**, 314, 191-206		36

2	High Performance Gas Diffusion Layers with Added Deterministic Structures. *Energy and Environmental Science*,	35.4	3
1	Unraveling two-phase transport in porous transport layer materials for polymer electrolyte water electrolysis. *Journal of Materials Chemistry A*,	13	2