Werner Lehnert

List of Publications by Year
in descending order

133 papers	4,084 citations	101384 36 h-index	138251 58 g-index
140 all docs	140 docs citations	140 times ranked	2650 citing authors

#	Article	IF	Citations
1	The Effect of Cell Compression and Cathode Pressure on Hydrogen Crossover in PEM Water Electrolysis. Journal of the Electrochemical Society, 2022, 169, 014502.	1.3	19
2	Multistep Sulfur Leaching for the Development of a Highly Efficient and Stable NiS_x/Ni(OH)₂/NiOOH Electrocatalyst for Anion Exchange Membrane Water Electrolysis. ACS Applied Materials & Interfaces, 2022, 14, 19397-19408.	4.0	21
3	Working zone for a least-squares support vector machine for modeling polymer electrolyte fuel cell voltage. Applied Energy, 2021, 283, 116191.	5.1	4
4	Temperature optimization for improving polymer electrolyte membrane-water electrolysis system efficiency. Applied Energy, 2021, 283, 116270.	5.1	55
5	Inhomogeneous Distribution of Polytetrafluorethylene in Gas Diffusion Layers of Polymer Electrolyte Fuel Cells. Transport in Porous Media, 2021, 136, 843-862.	1.2	8
6	Exploring the Interface of Skinâ€Layered Titanium Fibers for Electrochemical Water Splitting. Advanced Energy Materials, 2021, 11, 2002926.	10.2	48
7	Constructing a Multifunctional Interface between Membrane and Porous Transport Layer for Water Electrolyzers. ACS Applied Materials & Interfaces, 2021, 13, 16182-16196.	4.0	38
8	An online adaptive model for the nonlinear dynamics of fuel cell voltage. Applied Energy, 2021, 288, 116561.	5.1	3
9	Mechanism of action of polytetrafluoroethylene binder on the performance and durability of high-temperature polymer electrolyte fuel cells. International Journal of Hydrogen Energy, 2021, 46, 14687-14698.	3.8	16
10	The impact of flow field plate misalignment on the gas diffusion layer intrusion and performance of a high-temperature polymer electrolyte fuel cell. Journal of Power Sources, 2021, 501, 230036.	4.0	13
11	An analysis of the imperfections and defects inside composite bipolar plates using X-Ray computer tomography and resistivity simulations. International Journal of Hydrogen Energy, 2021, 46, 25677-25688.	3.8	2
12	Design and Modeling of Metallic Bipolar Plates for a Fuel Cell Range Extender. Energies, 2021, 14, 5484.	1.6	1
13	A novel degradation model of proton exchange membrane fuel cells for state of health estimation and prognostics. International Journal of Hydrogen Energy, 2021, 46, 31353-31361.	3.8	20
14	Review on proton exchange membrane fuel cell stack assembly: Quality evaluation, assembly method, contact behavior and process design. Renewable and Sustainable Energy Reviews, 2021, 152, 111660.	8.2	30
15	Reviewâ€"Challenges and Opportunities for Increased Current Density in Alkaline Electrolysis by Increasing the Operating Temperature. Journal of the Electrochemical Society, 2021, 168, 114501.	1.3	34
16	Impact of porous transport layer compression on hydrogen permeation in PEM water electrolysis. International Journal of Hydrogen Energy, 2020, 45, 4008-4014.	3.8	32
17	A least-squares support vector machine method for modeling transient voltage in polymer electrolyte fuel cells. Applied Energy, 2020, 271, 115092.	5.1	6
18	Anisotropic properties of gas transport in non-woven gas diffusion layers of polymer electrolyte fuel cells. Journal of Power Sources, 2020, 452, 227828.	4.0	10

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19	Improving the Efficiency of PEM Electrolyzers through Membrane-Specific Pressure Optimization. Energies, 2020, 13, 612.	1.6	61
20	Fuel Cell Electrode Characterization Using Neutron Scattering. Materials, 2020, 13, 1474.	1.3	8
21	Non-destructive in-operando investigation of catalyst layer degradation for water electrolyzers using synchrotron radiography. Materials Today Energy, 2020, 16, 100394.	2.5	5
22	Phosphoric Acid Dynamics in High Temperature Polymer Electrolyte Membranes. Journal of the Electrochemical Society, 2020, 167, 134507.	1.3	13
23	CrN/Cr-Coated Steel Plates for High-Temperature Polymer Electrolyte Fuel Cells: Performance and Durability. Journal of the Electrochemical Society, 2020, 167, 144507.	1.3	4
24	Development of an Open-Source Solver for Polymer Electrolyte Fuel Cells. ECS Transactions, 2020, 98, 317-329.	0.3	3
25	Combined Two-phase Co-flow and Counter-flow in a Gas Channel/Porous Transport Layer Assembly. ECS Transactions, 2020, 98, 305-315.	0.3	2
26	Statistische Analyse des lokalen Wassertransportes einer Polymerâ€Elektrolytâ€Brennstoffzelle. Chemie-Ingenieur-Technik, 2019, 91, 865-871.	0.4	2
27	Impact of clamping pressure and stress relaxation on the performance of different polymer electrolyte membrane water electrolysis cell designs. International Journal of Hydrogen Energy, 2019, 44, 23556-23567.	3.8	27
28	Polytetrafluorethylene effects on liquid water flowing through the gas diffusion layer of polymer electrolyte membrane fuel cells. Journal of Power Sources, 2019, 438, 226975.	4.0	24
29	Mechanical failure and mitigation strategies for the membrane in a proton exchange membrane fuel cell. Renewable and Sustainable Energy Reviews, 2019, 113, 109289.	8.2	93
30	A Transient Behavior Study of Polymer Electrolyte Fuel Cells with Cyclic Current Profiles. Energies, 2019, 12, 2370.	1.6	10
31	The Electrochemical Behavior of CrN/Cr Coatings with Defects on 316L Stainless Steel in the Simulated Cathodic Environment of an HT-PEFC. Journal of the Electrochemical Society, 2019, 166, C394-C400.	1.3	8
32	Influence of operating conditions on the degradation mechanism in high-temperature polymer electrolyte fuel cells. Journal of Power Sources, 2019, 439, 227090.	4.0	25
33	Steering and in situ monitoring of drying phenomena during film fabrication. Journal of Coatings Technology Research, 2019, 16, 1213-1221.	1.2	9
34	Time Dependence of the Open Circuit Potential of Platinum Disk Electrodes in Half Cell Experiments. Journal of the Electrochemical Society, 2019, 166, F3098-F3104.	1.3	9
35	Influence of Stoichiometry on the Two-Phase Flow Behavior of Proton Exchange Membrane Electrolyzers. Energies, 2019, 12, 350.	1.6	16
36	An Engineering Toolbox for the Evaluation of Metallic Flow Field Plates. ChemEngineering, 2019, 3, 85.	1.0	5

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37	Proton diffusion in the catalytic layer for high temperature polymer electrolyte fuel cells. RSC Advances, 2019, 9, 37768-37777.	1.7	6
38	Apparent contact angles of liquid water droplet breaking through a gas diffusion layer of polymer electrolyte membrane fuel cell. International Journal of Hydrogen Energy, 2018, 43, 6318-6330.	3.8	29
39	Stochastic Analysis of the Gas Flow at the Gas Diffusion Layer/Electrode Interface of a High-Temperature Polymer Electrolyte Fuel Cell. Transport in Porous Media, 2018, 123, 403-420.	1.2	5
40	Self-Humidification of a Polymer Electrolyte Membrane Fuel Cell System With Cathodic Exhaust Gas Recirculation. Journal of Electrochemical Energy Conversion and Storage, 2018, 15, .	1.1	6
41	Design of durability test protocol for vehicular fuel cell systems operated in power-follow mode based on statistical results of on-road data. Journal of Power Sources, 2018, 377, 59-69.	4.0	44
42	Liquid water breakthrough location distances on a gas diffusion layer of polymer electrolyte membrane fuel cells. Journal of Power Sources, 2018, 389, 56-60.	4.0	16
43	In-situ two-phase flow investigation of different porous transport layer for a polymer electrolyte membrane (PEM) electrolyzer with neutron spectroscopy. Journal of Power Sources, 2018, 390, 108-115.	4.0	71
44	Mechanical characterization and durability of sintered porous transport layers for polymer electrolyte membrane electrolysis. Journal of Power Sources, 2018, 374, 84-91.	4.0	30
45	Layer Formation from Polymer Carbon-Black Dispersions. Coatings, 2018, 8, 450.	1.2	11
46	Stochastic Analysis of the Gas Flow at the Gas Diffusion Layer/Channel Interface of a High-Temperature Polymer Electrolyte Fuel Cell. Applied Sciences (Switzerland), 2018, 8, 2536.	1.3	4
47	Electrical resistance and microstructure of typical gas diffusion layers for proton exchange membrane fuel cell under compression. Applied Energy, 2018, 231, 127-137.	5.1	76
48	Performance enhancement of PEM electrolyzers through iridium-coated titanium porous transport layers. Electrochemistry Communications, 2018, 97, 96-99.	2.3	123
49	In Operando Neutron Radiography Analysis of a High-Temperature Polymer Electrolyte Fuel Cell Based on a Phosphoric Acid-Doped Polybenzimidazole Membrane Using the Hydrogen-Deuterium Contrast Method. Energies, 2018, 11, 2214.	1.6	4
50	Effects of constant load operations on platinum bands formation and cathode degradation in high-temperature polymer electrolyte fuel cells. Electrochimica Acta, 2018, 289, 354-362.	2.6	13
51	Design and experimental validation of an HT-PEFC stack with metallic BPP. International Journal of Hydrogen Energy, 2018, 43, 18488-18497.	3.8	10
52	Flow channel design for metallic bipolar plates in proton exchange membrane fuel cells: Experiments. Energy Conversion and Management, 2018, 174, 814-823.	4.4	47
53	Fractal diffusion in high temperature polymer electrolyte fuel cell membranes. Journal of Chemical Physics, 2018, 148, 204906.	1.2	8
54	Corrosion and Electrical Properties of SS316L Materials in the Simulated HT-PEFC Environment. Journal of the Electrochemical Society, 2018, 165, C681-C688.	1.3	9

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55	Irreversible Losses in Fuel Cells. , 2018, , 15-40.		7
56	Electrochemical Behavior of CrN/Cr Coating on 316L Stainless Steel in the Simulated Cathodic Environment of an HT-PEFC. ECS Transactions, 2018, 85, 585-598.	0.3	2
57	Determination of Anion Transference Number and Phosphoric Acid Diffusion Coefficient in High Temperature Polymer Electrolyte Membranes. Journal of the Electrochemical Society, 2018, 165, F863-F869.	1.3	29
58	Nonlinear dynamic mechanism modeling of a polymer electrolyte membrane fuel cell with dead-ended anode considering mass transport and actuator properties. Applied Energy, 2018, 230, 106-121.	5.1	48
59	Interactions between a polymer electrolyte membrane fuel cell and boost converter utilizing a multiscale model. Journal of Power Sources, 2018, 395, 237-250.	4.0	16
60	Proton dynamics of phosphoric acid in HT-PEFCs: Towards â€œoperandoâ€•experiments. AIP Conference Proceedings, 2018, , .	0.3	2
61	Parameter extraction of polymer electrolyte membrane fuel cell based on quasi-dynamic model and periphery signals. Energy, 2017, 122, 675-690.	4.5	21
62	Robust control of internal states in a polymer electrolyte membrane fuel cell air-feed system by considering actuator properties. International Journal of Hydrogen Energy, 2017, 42, 13171-13191.	3.8	27
63	Nonlinear observation of internal states of fuel cell cathode utilizing a high-order sliding-mode algorithm. Journal of Power Sources, 2017, 356, 56-71.	4.0	21
64	Setup and experimental validation of a 5ÂkW HT-PEFC stack. International Journal of Hydrogen Energy, 2017, 42, 11596-11604.	3.8	7
65	Parameter extraction and uncertainty analysis of a proton exchange membrane fuel cell system based on Monte Carlo simulation. International Journal of Hydrogen Energy, 2017, 42, 2309-2326.	3.8	29
66	Contact behavior modelling and its size effect on proton exchange membrane fuel cell. Journal of Power Sources, 2017, 365, 190-200.	4.0	29
67	Local Evaluation of Processed Membrane Electrode Assemblies by Scanning Electrochemical Microscopy. Journal of the Electrochemical Society, 2017, 164, F873-F878.	1.3	5
68	Nanostructure of HT-PEFC Electrodes Investigated with Scattering Methods. ECS Transactions, 2017, 80, 19-25.	0.3	4
69	Study of Cathode Catalyst Layer Parameters for HT-PEMFC Using Electrochemical Impedance Spectroscopy. ECS Transactions, 2017, 80, 27-36.	0.3	6
70	Methodology of designing durability test protocol for vehicular fuel cell system operated in soft run mode based on statistic results of on-road data. International Journal of Hydrogen Energy, 2017, 42, 29840-29851.	3.8	19
71	Characterizing membrane electrode assemblies for high temperature polymer electrolyte membrane fuel cells using design of experiments. International Journal of Hydrogen Energy, 2017, 42, 1189-1202.	3.8	16
72	Impact of compression on gas transport in non-woven gas diffusion layers of high temperature polymer electrolyte fuel cells. Journal of Power Sources, 2016, 318, 26-34.	4.0	40

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73	The influence of water channel geometry and proton mobility on the conductivity of NafionÂ®. Electrochimica Acta, 2016, 214, 362-369.	2.6	28
74	Three-dimensional multiscale analysis of degradation of nano- and micro-structure in direct methanol fuel cell electrodes after methanol starvation. Journal of Power Sources, 2016, 327, 481-487.	4.0	12
75	Pore network modeling to explore the effects of compression on multiphase transport in polymer electrolyte membrane fuel cell gas diffusion layers. Journal of Power Sources, 2016, 335, 162-171.	4.0	60
76	OpenPNM: A Pore Network Modeling Package. Computing in Science and Engineering, 2016, 18, 60-74.	1.2	235
77	3D printed sample holder for in-operando EPR spectroscopy on high temperature polymer electrolyte fuel cells. Journal of Magnetic Resonance, 2016, 269, 157-161.	1.2	10
78	Water distribution in high temperature polymer electrolyte fuel cells. International Journal of Hydrogen Energy, 2016, 41, 1837-1845.	3.8	28
79	A review of high-temperature polymer electrolyte membrane fuel-cell (HT-PEMFC)-based auxiliary power units for diesel-powered road vehicles. Journal of Power Sources, 2016, 311, 91-102.	4.0	127
80	Simulation of a Full Fuel Cell Membrane Electrode Assembly Using Pore Network Modeling. Journal of the Electrochemical Society, 2016, 163, F384-F392.	1.3	40
81	Phosphoric Acid and its Interactions with Polybenzimidazole-Type Polymers. , 2016, , 169-194.		17
82	Stack Concepts for High Temperature Polymer Electrolyte Membrane Fuel Cells. , 2016, , 441-457.		0
83	In-Operando Neutron Radiography Studies of Polymer Electrolyte Membrane Water Electrolyzers. ECS Transactions, 2015, 69, 1135-1140.	0.3	28
84	Accelerated Degradation of High-Temperature Polymer Electrolyte Fuel Cells: Discussion and Empirical Modeling. Journal of the Electrochemical Society, 2015, 162, F153-F164.	1.3	22
85	Uptake of protic electrolytes by polybenzimidazole-type polymers: absorption isotherms and electrolyte/polymer interactions. Journal of Applied Electrochemistry, 2015, 45, 857-871.	1.5	19
86	In operando synchrotron X-ray radiography studies of polymer electrolyte membrane water electrolyzers. Electrochemistry Communications, 2015, 55, 55-59.	2.3	60
87	Monitoring the hydrogen distribution in poly(2,5-benzimidazole)-based (ABPBI) membranes in operating high-temperature polymer electrolyte fuel cells by using H-D contrast neutron imaging. Journal of Power Sources, 2015, 299, 125-129.	4.0	21
88	Stackentwicklung Hochtemperatur-Polymerelektrolyt-Brennstoffzellen. , 2015, , 145-180.		0
89	Hochtemperatur-Polymerelektrolyt-Brennstoffzellen. , 2015, , 101-143.		0
90	Design and test of a 5 kW high-temperature polymer electrolyte fuel cell system operated with diesel and kerosene. Applied Energy, 2014, 114, 238-249.	5.1	87

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91	Stochastic Aspects of Mass Transport in Gas Diffusion Layers. Transport in Porous Media, 2014, 103, 469-495.	1.2	18
92	Evaluation of structural changes of HT-PEFC electrodes from in-situ synchrotron X-ray radiographs. International Journal of Hydrogen Energy, 2014, 39, 9447-9456.	3.8	15
93	Synchrotron X-ray radioscopic in situ study of high-temperature polymer electrolyte fuel cells - Effect of operation conditions on structure of membrane. Journal of Power Sources, 2014, 246, 290-298.	4.0	49
94	3D microstructure modeling of compressed fiber-based materials. Journal of Power Sources, 2014, 257, 52-64.	4.0	62
95	A vibrational spectroscopic and modeling study of poly(2,5-benzimidazole) (ABPBI) â€“ Phosphoric acid interactions in high temperature PEFC membranes. International Journal of Hydrogen Energy, 2014, 39, 2776-2784.	3.8	27
96	3D analysis, modeling and simulation of transport processes in compressed fibrous microstructures, using the Lattice Boltzmann method. Electrochimica Acta, 2013, 110, 325-334.	2.6	67
97	Effect of Spiral Flow Field Design on Performance and Durability of HT-PEFCs. Journal of the Electrochemical Society, 2013, 160, F892-F897.	1.3	17
98	Carbon NMR investigation of the polybenzimidazoleâ€“dimethylacetamide interactions in membranes for fuel cells. New Journal of Chemistry, 2013, 37, 152-156.	1.4	19
99	Development of HT-PEFC stacks in the kW range. International Journal of Hydrogen Energy, 2013, 38, 4705-4713.	3.8	26
100	Stochastic 3D modeling of non-woven materials with wet-proofing agent. International Journal of Hydrogen Energy, 2013, 38, 8448-8460.	3.8	34
101	Design and Experimental Investigation of a Heat Pipe Supported External Cooling System for HT-PEFC Stacks. Journal of Fuel Cell Science and Technology, 2013, 10, .	0.8	21
102	On-Line In-Situ Diagnostics of Processes Within HT-PEM Fuel Cells Membrane by Raman Microscopy. , 2013, , .		0
103	EXTRACTION OF CURVED FIBERS FROM 3D DATA. Image Analysis and Stereology, 2013, 32, 57.	0.4	15
104	Design and Experimental Investigation of a Heat Pipe Supported External Cooling System for HT-PEFC Fuel Cell Stacks. , 2013, , .		2
105	Operational Experience from a 5 kWe HT-PEFC System With Reforming of Diesel and Kerosene. ECS Meeting Abstracts, 2013, , .	0.0	0
106	Cooling Methods for High Temperature Polymer Electrolyte Fuel Cell Stacks. , 2012, , .		0
107	Raman study of the polybenzimidazoleâ€“phosphoric acid interactions in membranes for fuel cells. Physical Chemistry Chemical Physics, 2012, 14, 10022.	1.3	50
108	Stochastic 3D modeling of fiber-based materials. Computational Materials Science, 2012, 59, 75-86.	1.4	50

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109	3D modeling of an HT-PEFC stack using reformate gas. International Journal of Hydrogen Energy, 2012, 37, 12438-12450.	3.8	33
110	HT-PEFC Systems Operating with Diesel and Kerosene for APU Application. Energy Procedia, 2012, 29, 541-551.	1.8	25
111	Three-Dimensional Studies on Compressed Gas Diffusion Layers and the Water Distribution in Operating Fuel Cells Using Synchrotron X-ray Imaging. ECS Meeting Abstracts, 2012, , .	0.0	0
112	3D modeling of a 200Âcm2 HT-PEFC short stack. International Journal of Hydrogen Energy, 2012, 37, 2430-2439.	3.8	65
113	Performance analysis of HT-PEFC stacks. International Journal of Hydrogen Energy, 2012, 37, 9171-9181.	3.8	45
114	Random geometric graphs for modelling the pore space of fibre-based materials. Journal of Materials Science, 2011, 46, 7745-7759.	1.7	21
115	Current Density Distribution Measurement in HT-PEFC Stacks Operated with Reformate Gas from Middle Distillates. ECS Transactions, 2011, 41, 1935-1941.	0.3	3
116	Investigation of HT-PEFCs by Means of Synchrotron X-ray Radiography and Electrochemical Impedance Spectroscopy. ECS Transactions, 2011, 41, 1413-1422.	0.3	6
117	Stochastic modeling and direct simulation of the diffusion media for polymer electrolyte fuel cells. International Journal of Heat and Mass Transfer, 2010, 53, 1128-1138.	2.5	79
118	The influence of gas diffusion layer wettability on direct methanol fuel cell performance: A combined local current distribution and high resolution neutron radiography study. Journal of Power Sources, 2010, 195, 4765-4771.	4.0	61
119	In-situ synchrotron X-ray radiography on high temperature polymer electrolyte fuel cells. Electrochemistry Communications, 2010, 12, 1436-1438.	2.3	74
120	Strukturelle Analyse des Porenraumes von Gasdiffusionslagen in Brennstoffzellen mittels geometrischer 3-D-Graphen. Materialpruefung/Materials Testing, 2010, 52, 736-743.	0.8	2
121	Analysis and Optimization of the Cell Design of a PEMFC-Stack. ECS Transactions, 2009, 17, 305-314.	0.3	1
122	Membrane electrode assemblies for high-temperature polymer electrolyte fuel cells based on poly(2,5-benzimidazole) membranes with phosphoric acid impregnation via the catalyst layers. Journal of Power Sources, 2009, 192, 258-266.	4.0	121
123	Investigation of water droplet kinetics and optimization of channel geometry for PEM fuel cell cathodes. International Journal of Hydrogen Energy, 2009, 34, 3104-3111.	3.8	78
124	Redistribution of phosphoric acid in membrane electrode assemblies for high-temperature polymer electrolyte fuel cells. International Journal of Hydrogen Energy, 2009, 34, 9479-9485.	3.8	98
125	Characterization of water transport in gas diffusion media. Journal of Power Sources, 2009, 190, 110-120.	4.0	66
126	Combined local current distribution measurements and high resolution neutron radiography of operating Direct Methanol Fuel Cells. Electrochemistry Communications, 2009, 11, 1606-1609.	2.3	61

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127	Local Structural Characteristics of Pore Space in GDLs of PEM Fuel Cells Based on Geometric 3D Graphs. Journal of the Electrochemical Society, 2009, 156, B1339.	1.3	78
128	Stochastic 3D Modeling of the GDL Structure in PEMFCs Based on Thin Section Detection. Journal of the Electrochemical Society, 2008, 155, B391.	1.3	65
129	Conceptual Design for an Externally Cooled HT-PEMFC Stack. ECS Transactions, 2008, 12, 113-118.	0.3	21
130	Characterization of water exchange and two-phase flow in porous gas diffusion materials by hydrogen-deuterium contrast neutron radiography. Applied Physics Letters, 2008, 92, .	1.5	71
131	Cross-sectional insight in the water evolution and transport in polymer electrolyte fuel cells. Applied Physics Letters, 2008, 92, .	1.5	160
132	Cell voltage transients of a gas-fed direct methanol fuel cell. Journal of Power Sources, 2004, 127, 181-186.	4.0	35
133	The diffusion of lithium through graphite: a Monte Carlo simulation based on electronic structure calculations. Chemical Physics, 1992, 163, 331-337.	0.9	18