

Werner Lehnert

List of Publications by Year in descending order

Source: <https://exaly.com/author-pdf/5948205/publications.pdf>

Version: 2024-02-01

133
papers

4,084
citations

101543

36
h-index

138484

58
g-index

140
all docs

140
docs citations

140
times ranked

2650
citing authors

#	ARTICLE	IF	CITATIONS
1	OpenPNM: A Pore Network Modeling Package. Computing in Science and Engineering, 2016, 18, 60-74.	1.2	235
2	Cross-sectional insight in the water evolution and transport in polymer electrolyte fuel cells. Applied Physics Letters, 2008, 92, .	3.3	160
3	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.	7.8	127
4	Performance enhancement of PEM electrolyzers through iridium-coated titanium porous transport layers. Electrochemistry Communications, 2018, 97, 96-99.	4.7	123
5	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.	7.8	121
6	Redistribution of phosphoric acid in membrane electrode assemblies for high-temperature polymer electrolyte fuel cells. International Journal of Hydrogen Energy, 2009, 34, 9479-9485.	7.1	98
7	Mechanical failure and mitigation strategies for the membrane in a proton exchange membrane fuel cell. Renewable and Sustainable Energy Reviews, 2019, 113, 109289.	16.4	93
8	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.	10.1	87
9	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.	4.8	79
10	Investigation of water droplet kinetics and optimization of channel geometry for PEM fuel cell cathodes. International Journal of Hydrogen Energy, 2009, 34, 3104-3111.	7.1	78
11	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.	2.9	78
12	Electrical resistance and microstructure of typical gas diffusion layers for proton exchange membrane fuel cell under compression. Applied Energy, 2018, 231, 127-137.	10.1	76
13	In-situ synchrotron X-ray radiography on high temperature polymer electrolyte fuel cells. Electrochemistry Communications, 2010, 12, 1436-1438.	4.7	74
14	Characterization of water exchange and two-phase flow in porous gas diffusion materials by hydrogen-deuterium contrast neutron radiography. Applied Physics Letters, 2008, 92, .	3.3	71
15	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.	7.8	71
16	3D analysis, modeling and simulation of transport processes in compressed fibrous microstructures, using the Lattice Boltzmann method. Electrochimica Acta, 2013, 110, 325-334.	5.2	67
17	Characterization of water transport in gas diffusion media. Journal of Power Sources, 2009, 190, 110-120.	7.8	66
18	Stochastic 3D Modeling of the GDL Structure in PEMFCs Based on Thin Section Detection. Journal of the Electrochemical Society, 2008, 155, B391.	2.9	65

#	ARTICLE	IF	CITATIONS
19	3D modeling of a 200Åcm ² HT-PEFC short stack. International Journal of Hydrogen Energy, 2012, 37, 2430-2439.	7.1	65
20	3D microstructure modeling of compressed fiber-based materials. Journal of Power Sources, 2014, 257, 52-64.	7.8	62
21	Combined local current distribution measurements and high resolution neutron radiography of operating Direct Methanol Fuel Cells. Electrochemistry Communications, 2009, 11, 1606-1609.	4.7	61
22	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.	7.8	61
23	Improving the Efficiency of PEM Electrolyzers through Membrane-Specific Pressure Optimization. Energies, 2020, 13, 612.	3.1	61
24	In operando synchrotron X-ray radiography studies of polymer electrolyte membrane water electrolyzers. Electrochemistry Communications, 2015, 55, 55-59.	4.7	60
25	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.	7.8	60
26	Temperature optimization for improving polymer electrolyte membrane-water electrolysis system efficiency. Applied Energy, 2021, 283, 116270.	10.1	55
27	Raman study of the polybenzimidazole- <i>phosphoric acid</i> interactions in membranes for fuel cells. Physical Chemistry Chemical Physics, 2012, 14, 10022.	2.8	50
28	Stochastic 3D modeling of fiber-based materials. Computational Materials Science, 2012, 59, 75-86.	3.0	50
29	Synchrotron X-ray radiosopic 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.	7.8	49
30	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.	10.1	48
31	Exploring the Interface of Skin- <i>Layered</i> Titanium Fibers for Electrochemical Water Splitting. Advanced Energy Materials, 2021, 11, 2002926.	19.5	48
32	Flow channel design for metallic bipolar plates in proton exchange membrane fuel cells: Experiments. Energy Conversion and Management, 2018, 174, 814-823.	9.2	47
33	Performance analysis of HT-PEFC stacks. International Journal of Hydrogen Energy, 2012, 37, 9171-9181.	7.1	45
34	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.	7.8	44
35	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.	7.8	40
36	Simulation of a Full Fuel Cell Membrane Electrode Assembly Using Pore Network Modeling. Journal of the Electrochemical Society, 2016, 163, F384-F392.	2.9	40

#	ARTICLE	IF	CITATIONS
37	Constructing a Multifunctional Interface between Membrane and Porous Transport Layer for Water Electrolyzers. <i>ACS Applied Materials & Interfaces</i> , 2021, 13, 16182-16196.	8.0	38
38	Cell voltage transients of a gas-fed direct methanol fuel cell. <i>Journal of Power Sources</i> , 2004, 127, 181-186.	7.8	35
39	Stochastic 3D modeling of non-woven materials with wet-proofing agent. <i>International Journal of Hydrogen Energy</i> , 2013, 38, 8448-8460.	7.1	34
40	Review "Challenges and Opportunities for Increased Current Density in Alkaline Electrolysis by Increasing the Operating Temperature. <i>Journal of the Electrochemical Society</i> , 2021, 168, 114501.	2.9	34
41	3D modeling of an HT-PEFC stack using reformat gas. <i>International Journal of Hydrogen Energy</i> , 2012, 37, 12438-12450.	7.1	33
42	Impact of porous transport layer compression on hydrogen permeation in PEM water electrolysis. <i>International Journal of Hydrogen Energy</i> , 2020, 45, 4008-4014.	7.1	32
43	Mechanical characterization and durability of sintered porous transport layers for polymer electrolyte membrane electrolysis. <i>Journal of Power Sources</i> , 2018, 374, 84-91.	7.8	30
44	Review on proton exchange membrane fuel cell stack assembly: Quality evaluation, assembly method, contact behavior and process design. <i>Renewable and Sustainable Energy Reviews</i> , 2021, 152, 111660.	16.4	30
45	Parameter extraction and uncertainty analysis of a proton exchange membrane fuel cell system based on Monte Carlo simulation. <i>International Journal of Hydrogen Energy</i> , 2017, 42, 2309-2326.	7.1	29
46	Contact behavior modelling and its size effect on proton exchange membrane fuel cell. <i>Journal of Power Sources</i> , 2017, 365, 190-200.	7.8	29
47	Apparent contact angles of liquid water droplet breaking through a gas diffusion layer of polymer electrolyte membrane fuel cell. <i>International Journal of Hydrogen Energy</i> , 2018, 43, 6318-6330.	7.1	29
48	Determination of Anion Transference Number and Phosphoric Acid Diffusion Coefficient in High Temperature Polymer Electrolyte Membranes. <i>Journal of the Electrochemical Society</i> , 2018, 165, F863-F869.	2.9	29
49	In-Operando Neutron Radiography Studies of Polymer Electrolyte Membrane Water Electrolyzers. <i>ECS Transactions</i> , 2015, 69, 1135-1140.	0.5	28
50	The influence of water channel geometry and proton mobility on the conductivity of Nafion®. <i>Electrochimica Acta</i> , 2016, 214, 362-369.	5.2	28
51	Water distribution in high temperature polymer electrolyte fuel cells. <i>International Journal of Hydrogen Energy</i> , 2016, 41, 1837-1845.	7.1	28
52	A vibrational spectroscopic and modeling study of poly(2,5-benzimidazole) (ABPBI) " Phosphoric acid interactions in high temperature PEFC membranes. <i>International Journal of Hydrogen Energy</i> , 2014, 39, 2776-2784.	7.1	27
53	Robust control of internal states in a polymer electrolyte membrane fuel cell air-feed system by considering actuator properties. <i>International Journal of Hydrogen Energy</i> , 2017, 42, 13171-13191.	7.1	27
54	Impact of clamping pressure and stress relaxation on the performance of different polymer electrolyte membrane water electrolysis cell designs. <i>International Journal of Hydrogen Energy</i> , 2019, 44, 23556-23567.	7.1	27

#	ARTICLE	IF	CITATIONS
55	Development of HT-PEFC stacks in the kW range. International Journal of Hydrogen Energy, 2013, 38, 4705-4713.	7.1	26
56	HT-PEFC Systems Operating with Diesel and Kerosene for APU Application. Energy Procedia, 2012, 29, 541-551.	1.8	25
57	Influence of operating conditions on the degradation mechanism in high-temperature polymer electrolyte fuel cells. Journal of Power Sources, 2019, 439, 227090.	7.8	25
58	Polytetrafluorethylene effects on liquid water flowing through the gas diffusion layer of polymer electrolyte membrane fuel cells. Journal of Power Sources, 2019, 438, 226975.	7.8	24
59	Accelerated Degradation of High-Temperature Polymer Electrolyte Fuel Cells: Discussion and Empirical Modeling. Journal of the Electrochemical Society, 2015, 162, F153-F164.	2.9	22
60	Conceptual Design for an Externally Cooled HT-PEMFC Stack. ECS Transactions, 2008, 12, 113-118.	0.5	21
61	Random geometric graphs for modelling the pore space of fibre-based materials. Journal of Materials Science, 2011, 46, 7745-7759.	3.7	21
62	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
63	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.	7.8	21
64	Parameter extraction of polymer electrolyte membrane fuel cell based on quasi-dynamic model and periphery signals. Energy, 2017, 122, 675-690.	8.8	21
65	Nonlinear observation of internal states of fuel cell cathode utilizing a high-order sliding-mode algorithm. Journal of Power Sources, 2017, 356, 56-71.	7.8	21
66	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.	8.0	21
67	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.	7.1	20
68	Carbon NMR investigation of the polybenzimidazole–dimethylacetamide interactions in membranes for fuel cells. New Journal of Chemistry, 2013, 37, 152-156.	2.8	19
69	Uptake of protic electrolytes by polybenzimidazole-type polymers: absorption isotherms and electrolyte/polymer interactions. Journal of Applied Electrochemistry, 2015, 45, 857-871.	2.9	19
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.	7.1	19
71	The Effect of Cell Compression and Cathode Pressure on Hydrogen Crossover in PEM Water Electrolysis. Journal of the Electrochemical Society, 2022, 169, 014502.	2.9	19
72	The diffusion of lithium through graphite: a Monte Carlo simulation based on electronic structure calculations. Chemical Physics, 1992, 163, 331-337.	1.9	18

#	ARTICLE	IF	CITATIONS
73	Stochastic Aspects of Mass Transport in Gas Diffusion Layers. <i>Transport in Porous Media</i> , 2014, 103, 469-495.	2.6	18
74	Effect of Spiral Flow Field Design on Performance and Durability of HT-PEFCs. <i>Journal of the Electrochemical Society</i> , 2013, 160, F892-F897.	2.9	17
75	Phosphoric Acid and its Interactions with Polybenzimidazole-Type Polymers. , 2016, , 169-194.		17
76	Characterizing membrane electrode assemblies for high temperature polymer electrolyte membrane fuel cells using design of experiments. <i>International Journal of Hydrogen Energy</i> , 2017, 42, 1189-1202.	7.1	16
77	Liquid water breakthrough location distances on a gas diffusion layer of polymer electrolyte membrane fuel cells. <i>Journal of Power Sources</i> , 2018, 389, 56-60.	7.8	16
78	Interactions between a polymer electrolyte membrane fuel cell and boost converter utilizing a multiscale model. <i>Journal of Power Sources</i> , 2018, 395, 237-250.	7.8	16
79	Influence of Stoichiometry on the Two-Phase Flow Behavior of Proton Exchange Membrane Electrolyzers. <i>Energies</i> , 2019, 12, 350.	3.1	16
80	Mechanism of action of polytetrafluoroethylene binder on the performance and durability of high-temperature polymer electrolyte fuel cells. <i>International Journal of Hydrogen Energy</i> , 2021, 46, 14687-14698.	7.1	16
81	EXTRACTION OF CURVED FIBERS FROM 3D DATA. <i>Image Analysis and Stereology</i> , 2013, 32, 57.	0.9	15
82	Evaluation of structural changes of HT-PEFC electrodes from in-situ synchrotron X-ray radiographs. <i>International Journal of Hydrogen Energy</i> , 2014, 39, 9447-9456.	7.1	15
83	Effects of constant load operations on platinum bands formation and cathode degradation in high-temperature polymer electrolyte fuel cells. <i>Electrochimica Acta</i> , 2018, 289, 354-362.	5.2	13
84	The impact of flow field plate misalignment on the gas diffusion layer intrusion and performance of a high-temperature polymer electrolyte fuel cell. <i>Journal of Power Sources</i> , 2021, 501, 230036.	7.8	13
85	Phosphoric Acid Dynamics in High Temperature Polymer Electrolyte Membranes. <i>Journal of the Electrochemical Society</i> , 2020, 167, 134507.	2.9	13
86	Three-dimensional multiscale analysis of degradation of nano- and micro-structure in direct methanol fuel cell electrodes after methanol starvation. <i>Journal of Power Sources</i> , 2016, 327, 481-487.	7.8	12
87	Layer Formation from Polymer Carbon-Black Dispersions. <i>Coatings</i> , 2018, 8, 450.	2.6	11
88	3D printed sample holder for in-operando EPR spectroscopy on high temperature polymer electrolyte fuel cells. <i>Journal of Magnetic Resonance</i> , 2016, 269, 157-161.	2.1	10
89	Design and experimental validation of an HT-PEFC stack with metallic BPP. <i>International Journal of Hydrogen Energy</i> , 2018, 43, 18488-18497.	7.1	10
90	A Transient Behavior Study of Polymer Electrolyte Fuel Cells with Cyclic Current Profiles. <i>Energies</i> , 2019, 12, 2370.	3.1	10

#	ARTICLE	IF	CITATIONS
91	Anisotropic properties of gas transport in non-woven gas diffusion layers of polymer electrolyte fuel cells. Journal of Power Sources, 2020, 452, 227828.	7.8	10
92	Corrosion and Electrical Properties of SS316L Materials in the Simulated HT-PEFC Environment. Journal of the Electrochemical Society, 2018, 165, C681-C688.	2.9	9
93	Steering and in situ monitoring of drying phenomena during film fabrication. Journal of Coatings Technology Research, 2019, 16, 1213-1221.	2.5	9
94	Time Dependence of the Open Circuit Potential of Platinum Disk Electrodes in Half Cell Experiments. Journal of the Electrochemical Society, 2019, 166, F3098-F3104.	2.9	9
95	Fractal diffusion in high temperature polymer electrolyte fuel cell membranes. Journal of Chemical Physics, 2018, 148, 204906.	3.0	8
96	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.	2.9	8
97	Fuel Cell Electrode Characterization Using Neutron Scattering. Materials, 2020, 13, 1474.	2.9	8
98	Inhomogeneous Distribution of Polytetrafluorethylene in Gas Diffusion Layers of Polymer Electrolyte Fuel Cells. Transport in Porous Media, 2021, 136, 843-862.	2.6	8
99	Setup and experimental validation of a 5ÂkW HT-PEFC stack. International Journal of Hydrogen Energy, 2017, 42, 11596-11604.	7.1	7
100	Irreversible Losses in Fuel Cells. , 2018, , 15-40.		7
101	Investigation of HT-PEFCs by Means of Synchrotron X-ray Radiography and Electrochemical Impedance Spectroscopy. ECS Transactions, 2011, 41, 1413-1422.	0.5	6
102	Study of Cathode Catalyst Layer Parameters for HT-PEMFC Using Electrochemical Impedance Spectroscopy. ECS Transactions, 2017, 80, 27-36.	0.5	6
103	Self-Humidification of a Polymer Electrolyte Membrane Fuel Cell System With Cathodic Exhaust Gas Recirculation. Journal of Electrochemical Energy Conversion and Storage, 2018, 15, .	2.1	6
104	Proton diffusion in the catalytic layer for high temperature polymer electrolyte fuel cells. RSC Advances, 2019, 9, 37768-37777.	3.6	6
105	A least-squares support vector machine method for modeling transient voltage in polymer electrolyte fuel cells. Applied Energy, 2020, 271, 115092.	10.1	6
106	Local Evaluation of Processed Membrane Electrode Assemblies by Scanning Electrochemical Microscopy. Journal of the Electrochemical Society, 2017, 164, F873-F878.	2.9	5
107	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.	2.6	5
108	An Engineering Toolbox for the Evaluation of Metallic Flow Field Plates. ChemEngineering, 2019, 3, 85.	2.4	5

#	ARTICLE	IF	CITATIONS
109	Non-destructive in-operando investigation of catalyst layer degradation for water electrolyzers using synchrotron radiography. <i>Materials Today Energy</i> , 2020, 16, 100394.	4.7	5
110	Nanostructure of HT-PEFC Electrodes Investigated with Scattering Methods. <i>ECS Transactions</i> , 2017, 80, 19-25.	0.5	4
111	Stochastic Analysis of the Gas Flow at the Gas Diffusion Layer/Channel Interface of a High-Temperature Polymer Electrolyte Fuel Cell. <i>Applied Sciences (Switzerland)</i> , 2018, 8, 2536.	2.5	4
112	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. <i>Energies</i> , 2018, 11, 2214.	3.1	4
113	Working zone for a least-squares support vector machine for modeling polymer electrolyte fuel cell voltage. <i>Applied Energy</i> , 2021, 283, 116191.	10.1	4
114	CrN/Cr-Coated Steel Plates for High-Temperature Polymer Electrolyte Fuel Cells: Performance and Durability. <i>Journal of the Electrochemical Society</i> , 2020, 167, 144507.	2.9	4
115	Current Density Distribution Measurement in HT-PEFC Stacks Operated with Reformate Gas from Middle Distillates. <i>ECS Transactions</i> , 2011, 41, 1935-1941.	0.5	3
116	An online adaptive model for the nonlinear dynamics of fuel cell voltage. <i>Applied Energy</i> , 2021, 288, 116561.	10.1	3
117	Development of an Open-Source Solver for Polymer Electrolyte Fuel Cells. <i>ECS Transactions</i> , 2020, 98, 317-329.	0.5	3
118	Design and Experimental Investigation of a Heat Pipe Supported External Cooling System for HT-PEFC Fuel Cell Stacks. , 2013, , .		2
119	Electrochemical Behavior of CrN/Cr Coating on 316L Stainless Steel in the Simulated Cathodic Environment of an HT-PEFC. <i>ECS Transactions</i> , 2018, 85, 585-598.	0.5	2
120	Statistische Analyse des lokalen Wassertransportes einer Polymer-Älektrolyt-ÄBrennstoffzelle. <i>Chemie-Ingenieur-Technik</i> , 2019, 91, 865-871.	0.8	2
121	An analysis of the imperfections and defects inside composite bipolar plates using X-Ray computer tomography and resistivity simulations. <i>International Journal of Hydrogen Energy</i> , 2021, 46, 25677-25688.	7.1	2
122	Proton dynamics of phosphoric acid in HT-PEFCs: Towards "operando" experiments. <i>AIP Conference Proceedings</i> , 2018, , .	0.4	2
123	Strukturelle Analyse des Porenraumes von Gasdiffusionslagen in Brennstoffzellen mittels geometrischer 3-D-Graphen. <i>Materialpruefung/Materials Testing</i> , 2010, 52, 736-743.	2.2	2
124	Combined Two-phase Co-flow and Counter-flow in a Gas Channel/Porous Transport Layer Assembly. <i>ECS Transactions</i> , 2020, 98, 305-315.	0.5	2
125	Analysis and Optimization of the Cell Design of a PEMFC-Stack. <i>ECS Transactions</i> , 2009, 17, 305-314.	0.5	1
126	Design and Modeling of Metallic Bipolar Plates for a Fuel Cell Range Extender. <i>Energies</i> , 2021, 14, 5484.	3.1	1

#	ARTICLE	IF	CITATIONS
127	Cooling Methods for High Temperature Polymer Electrolyte Fuel Cell Stacks. , 2012, , .		0
128	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
129	On-Line In-Situ Diagnostics of Processes Within HT-PEM Fuel Cells Membrane by Raman Microscopy. , 2013, , .		0
130	Operational Experience from a 5 kWe HT-PEFC System With Reforming of Diesel and Kerosene. ECS Meeting Abstracts, 2013, , .	0.0	0
131	Stackentwicklung Hochtemperatur-Polymerelektrolyt-Brennstoffzellen. , 2015, , 145-180.		0
132	Hochtemperatur-Polymerelektrolyt-Brennstoffzellen. , 2015, , 101-143.		0
133	Stack Concepts for High Temperature Polymer Electrolyte Membrane Fuel Cells. , 2016, , 441-457.		0