Richard Hanke-Rauschenbach

List of Publications by Year
in descending order

82 papers	2,576 citations	172207 29 h-index	205818 48 g-index
82 all docs	82 docs citations	82 times ranked	1923 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	Hydrogen supply scenarios for a climate neutral energy system in Germany. International Journal of Hydrogen Energy, 2022, 47, 13515-13523.	3.8	14
3	Optimal Design of a Distributed Ship Power System with Solid Oxide Fuel Cells under the Consideration of Component Malfunctions. Applied Energy, 2022, 316, 119052.	5.1	12
4	An engineering perspective on the future role of modelling in proton exchange membrane water electrolysis development. Current Opinion in Chemical Engineering, 2022, 36, 100829.	3.8	3
5	Reference Electrodes in PEM Water Electrolysis â€“ a Review and Experimental Investigation of Oxygen and Hydrogen Evolution Reaction Kinetics. ECS Meeting Abstracts, 2022, MA2022-01, 1372-1372.	0.0	0
6	Energetic Evaluation and Optimization of Hydrogen Generation and Compression Pathways Considering PEM Water Electrolyzers and Electrochemical Hydrogen Compressors. Journal of the Electrochemical Society, 2021, 168, 014504.	1.3	8
7	Evaluating the influence of requirements in fuel cell system design using Design Requirement Maps. Fuel Cells, 2021, 21, 347-362.	1.5	1
8	Is iridium demand a potential bottleneck in the realization of large-scale PEM water electrolysis?. International Journal of Hydrogen Energy, 2021, 46, 23581-23590.	3.8	153
9	Optimal Design of Power Gradient Limited Solid Oxide Fuel Cell Systems with Hybrid Storage Support for Ship Applications. Energy Conversion and Management, 2021, 243, 114396.	4.4	21
10	Communicationâ€"Proving the Importance of Pt-Interlayer Position in PEMWE Membranes for the Effective Reduction of the Anodic Hydrogen Content. Journal of the Electrochemical Society, 2021, 168, 094509.	1.3	6
11	Model-Based Analysis of Low Stoichiometry Operation in Proton Exchange Membrane Water Electrolysis. Membranes, 2021, 11, 696.	1.4	1
12	Evaluation of the Efficiency of an Elevated Temperature Proton Exchange Membrane Water Electrolysis System. Journal of the Electrochemical Society, 2021, 168, 094504.	1.3	15
13	Techno-economic and Environmental Comparison of Internal Combustion Engines and Solid Oxide Fuel Cells for Ship Applications. Journal of Power Sources, 2021, 508, 230328.	4.0	24
14	Investigation of Temperature and Pressure Behaviour of Constrained Lithium Ion Cell under Lithium Plating Conditions. Journal of the Electrochemical Society, 2020, 167, 110540.	1.3	9
15	Electrical energy storage for industrial grid fee reduction â€“ A large scale analysis. Energy Conversion and Management, 2020, 208, 112539.	4.4	28
16	Femtosecond laser-induced surface structuring of the porous transport layers in proton exchange membrane water electrolysis. Journal of Materials Chemistry A, 2020, 8, 4898-4910.	5.2	24
17	Modeling Overpotentials Related to Mass Transport Through Porous Transport Layers of PEM Water Electrolysis Cells. Journal of the Electrochemical Society, 2020, 167, 114511.	1.3	31
18	Development of an Oxygen Mass Transport Coefficient Measurement and Separation Method for Proton Exchange Membrane Fuel Cells. ECS Transactions, 2020, 98, 153-162.	0.3	1

#	Article	IF	Citations
19	OrtsaufgelÃ¶ste Stromdichtemessung in PEMâ€Elektrolyseâ€Zellen. Chemie-Ingenieur-Technik, 2019, 91, 907-918.	0.4	4
20	Degradation of Proton Exchange Membrane (PEM) Water Electrolysis Cells: Looking Beyond the Cell Voltage Increase. Journal of the Electrochemical Society, 2019, 166, F645-F652.	1.3	50
21	Elucidating the Effect of Mass Transport Resistances on Hydrogen Crossover and Cell Performance in PEM Water Electrolyzers by Varying the Cathode Ionomer Content. Journal of the Electrochemical Society, 2019, 166, F465-F471.	1.3	54
22	Understanding Electrical Under- and Overshoots in Proton Exchange Membrane Water Electrolysis Cells. Journal of the Electrochemical Society, 2019, 166, F1200-F1208.	1.3	9
23	Characterisation of batteries with Eâ€“P-curves: Quantifying the impact of operating conditions on battery performance. International Journal of Electrical Power and Energy Systems, 2018, 99, 722-732.	3.3	8
24	Effect of the MEA design on the performance of PEMWE single cells with different sizes. Journal of Applied Electrochemistry, 2018, 48, 701-711.	1.5	29
25	Enhancing PEM water electrolysis efficiency by reducing the extent of Ti gas diffusion layer passivation. Journal of Applied Electrochemistry, 2018, 48, 713-723.	1.5	47
26	Theoretical dimensioning and sizing limits of hybrid energy storage systems. Applied Energy, 2018, 210, 127-137.	5.1	28
27	Experimental characterization of inhomogeneity in current density and temperature distribution along a single-channel PEM water electrolysis cell. Electrochimica Acta, 2018, 260, 582-588.	2.6	45
28	Local Current Density and Electrochemical Impedance Measurements within 50 cm Single-Channel PEM Electrolysis Cell. Journal of the Electrochemical Society, 2018, 165, F1292-F1299.	1.3	39
29	Membrane Interlayer with Pt Recombination Particles for Reduction of the Anodic Hydrogen Content in PEM Water Electrolysis. Journal of the Electrochemical Society, 2018, 165, F1271-F1277.	1.3	51
30	Analysis and Design of Fuel Cell Systems for Aviation. Energies, 2018, 11, 375.	1.6	64
31	Hydrogen Crossover in PEM and Alkaline Water Electrolysis: Mechanisms, Direct Comparison and Mitigation Strategies. Journal of the Electrochemical Society, 2018, 165, F502-F513.	1.3	144
32	Three-dimensional microstructure analysis of a polymer electrolyte membrane water electrolyzer anode. Journal of Power Sources, 2018, 393, 62-66.	4.0	38
33	Modelling and Designing Cryogenic Hydrogen Tanks for Future Aircraft Applications. Energies, 2018, 11, 105.	1.6	90
34	Design Considerations for the Electrical Power Supply of Future Civil Aircraft with Active High-Lift Systems. Energies, 2018, 11, 179.	1.6	13
35	Conceptual Design of Operation Strategies for Hybrid Electric Aircraft. Energies, 2018, 11, 217.	1.6	118
36	Optimal design of a district energy system including supply for fuel cell electric vehicles. Applied Energy, 2018, 226, 129-144.	5.1	22

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37	Current density effect on hydrogen permeation in PEM water electrolyzers. International Journal of Hydrogen Energy, 2017, 42, 14355-14366.	3.8	90
38	Concentration-alternating frequency response: A new method for studying polymer electrolyte membrane fuel cell dynamics. Electrochimica Acta, 2017, 243, 53-64.	2.6	22
39	Understanding PEM fuel cell dynamics: The reversal curve. International Journal of Hydrogen Energy, 2017, 42, 15818-15827.	3.8	27
40	Catalyst Layer Modeling. , 2017, , 259-285.		1
41	Influence of the autonomous oscillations and the CO concentration on the performance of an ECPrOx reactor. Electrochimica Acta, 2017, 251, 602-612.	2.6	2
42	Experimental evidence of increasing oxygen crossover with increasing current density during PEM water electrolysis. Electrochemistry Communications, 2017, 82, 98-102.	2.3	60
43	Diagnostic concept for dynamically operated biogas production plants. Renewable Energy, 2016, 96, 479-489.	4.3	18
44	(Invited) Engineering Modeling of PEM Water Electrolysis: A Survey. ECS Transactions, 2016, 75, 1065-1072.	0.3	9
45	Autonomous Voltage Oscillations in a Direct Methanol Fuel Cell. Electrochimica Acta, 2016, 212, 545-552.	2.6	20
46	Hydrogen Permeation in PEM Electrolyzer Cells Operated at Asymmetric Pressure Conditions. Journal of the Electrochemical Society, 2016, 163, F3164-F3170.	1.3	32
47	Impact of Pressure and Temperature on Hydrogen Permeation in PEM Water Electrolyzers Operated at Asymmetric Pressure Conditions. ECS Transactions, 2016, 75, 1081-1094.	0.3	6
48	Optimal configuration and pressure levels of electrolyzer plants in context of power-to-gas applications. Applied Energy, 2016, 167, 107-124.	5.1	69
49	In-situ measurement of hydrogen crossover in polymer electrolyte membrane water electrolysis. International Journal of Hydrogen Energy, 2014, 39, 49-53.	3.8	52
50	Biological methanation of hydrogen within biogas plants: A model-based feasibility study. Applied Energy, 2014, 134, 413-425.	5.1	66
51	Mathematical Modeling of a Porous Enzymatic Electrode with Direct Electron Transfer Mechanism. Electrochimica Acta, 2014, 137, 616-626.	2.6	27
52	Steady-state analysis of the Anaerobic Digestion Model No. 1 (ADM1). Nonlinear Dynamics, 2013, 73, 535-549.	2.7	36
53	Relating the N-shaped polarization curve of a PEM fuel cell to local oxygen starvation and hydrogen evolution. International Journal of Hydrogen Energy, 2013, 38, 15318-15327.	3.8	16
54	Energetic evaluation of high pressure PEM electrolyzer systems for intermediate storage of renewable energies. Electrochimica Acta, 2013, 110, 570-580.	2.6	76

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55	Reactor configurations for biogas plants â€“ a model based analysis. Chemical Engineering Science, 2013, 104, 413-426.	1.9	18
56	The Electro-Oxidation ofH₂,COin a Model PEM Fuel Cell: Oscillations, Chaos, Pulses. Journal of the Electrochemical Society, 2013, 160, F436-F446.	1.3	28
57	Steady-state multiplicity of a biogas production system based on anaerobic digestion. Computer Aided Chemical Engineering, 2012, , 1377-1381.	0.3	1
58	Fuel Cell Power Control Based on a Master-Slave Structure: A Proton Exchange Membrane Fuel Cell Case Study. Journal of Fuel Cell Science and Technology, 2012, 9, .	0.8	1
59	Some reaction engineering challenges in fuel cells: dynamics integration, renewable fuels, enzymes. Current Opinion in Chemical Engineering, 2012, 1, 328-335.	3.8	6
60	On the design of cascades of ECPrOx reactors for deep CO removal from reformate gas. Chemical Engineering Science, 2012, 67, 34-43.	1.9	6
61	Nonlinear frequency response analysis of dehydration phenomena in polymer electrolyte membrane fuel cells. International Journal of Hydrogen Energy, 2012, 37, 7689-7701.	3.8	28
62	Analysis of Spatio-temporal Pattern Formation in a PEM Fuel Cell with Ptâˆ•Ru Anode Exposed to H[sub 2]â^•CO Mixtures. Journal of the Electrochemical Society, 2011, 158, B44.	1.3	21
63	The S-Shaped Negative Differential Resistance during the Electrooxidation of H2/CO in Polymer Electrolyte Membrane Fuel Cells: Modeling and Experimental Proof. Journal of Physical Chemistry C, 2011, 115, 25315-25329.	1.5	19
64	Autonomous potential oscillations at the Pt anode of a polymer electrolyte membrane fuel cell under CO poisoning. Electrochimica Acta, 2011, 56, 10593-10602.	2.6	40
65	Nonlinear frequency response analysis for the diagnosis of carbon monoxide poisoning in PEM fuel cell anodes. Journal of Applied Electrochemistry, 2011, 41, 1021-1032.	1.5	22
66	The gas diffusion layer in polymer electrolyte membrane fuel cells: A process model of the two-phase flow. International Journal of Hydrogen Energy, 2011, 36, 1637-1653.	3.8	10
67	Nonlinear dynamics of fuel cells: a review. Reviews in Chemical Engineering, 2011, 27, .	2.3	39
68	Spatiotemporal pattern formation in an electrochemical membrane reactor during deep CO removal from reformate gas. Computer Aided Chemical Engineering, 2011, 29, 201-205.	0.3	2
69	Temperature and Humidity Control of a Micro PEM Fuel Cell Stack. Fuel Cells, 2010, 10, 949-959.	1.5	9
70	Passivity based control of a distributed PEM fuel cell model. Journal of Process Control, 2010, 20, 292-313.	1.7	24
71	Total harmonic distortion analysis for direct methanol fuel cell anode. Electrochemistry Communications, 2010, 12, 1517-1519.	2.3	33
72	Nonlinear Frequency Response of Electrochemical Methanol Oxidation Kinetics: A Theoretical Analysis. Journal of the Electrochemical Society, 2010, 157, B1279.	1.3	35

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73	Assessment of Methanol Synthesis Utilizing Exhaust CO₂ for Chemical Storage of Electrical Energy. Industrial & Engineering Chemistry Research, 2010, 49, 11073-11078.	1.8	131
74	Oscillations and Pattern Formation in a PEM Fuel Cell with Pt/Ru Anode Exposed to H[sub 2]/CO Mixtures. Journal of the Electrochemical Society, 2010, 157, B1521.	1.3	22
75	Model Simulation and Analysis of Proton Incorporation into the Positive Active Mass of a Lead/Acid Battery. Journal of the Electrochemical Society, 2010, 157, A243.	1.3	1
76	Operating Behavior and Scale-Up of an ECPrOx Unit for CO Removal from Reformate for PEM Fuel Cell Application. Journal of the Electrochemical Society, 2009, 156, B1267.	1.3	24
77	Chemische Speicherung von erneuerbarer Energie durch Reduktion von CO₂. Chemie-Ingenieur-Technik, 2009, 81, 1138-1138.	0.4	0
78	Nonlinear frequency response analysis of PEM fuel cells for diagnosis of dehydration, flooding and CO-poisoning. Journal of Electroanalytical Chemistry, 2009, 630, 19-27.	1.9	78
79	Improved electrochemical CO removal via potential oscillations in serially connected PEM fuel cells with PtRu anodes. Electrochimica Acta, 2009, 54, 1184-1191.	2.6	39
80	Dynamic Behavior of a PEM Fuel Cell During Electrochemical CO Oxidation on a PtRu Anode. Topics in Catalysis, 2008, 51, 89-97.	1.3	35
81	Bifurcation Analysis of a Two-Phase PEMFC Model. Journal of Fuel Cell Science and Technology, 2008, 5, .	0.8	11
82	Modelling and dynamics of an air separation rectification column as part of an IGCC power plant. Separation and Purification Technology, 2006, 49, 136-148.	3.9	41