Haoran Xu

List of Publications by Year
in descending order

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121 papers	4,040 citations	109321 35 h-index	144013 57 g-index
121 all docs	121 docs citations	121 times ranked	3108 citing authors

#	Article	IF	Citations
1	Flexible Znâ€“ and Liâ€“air batteries: recent advances, challenges, and future perspectives. Energy and Environmental Science, 2017, 10, 2056-2080.	30.8	477
2	In-situ growth of Co3O4 nanowire-assembled clusters on nickel foam for aqueous rechargeable Zn-Co3O4 and Zn-air batteries. Applied Catalysis B: Environmental, 2019, 241, 104-112.	20.2	167
3	Application of cascading thermoelectric generator and cooler for waste heat recovery from solid oxide fuel cells. Energy Conversion and Management, 2017, 148, 1382-1390.	9.2	148
4	Co₃O₄ Nanosheets as Active Material for Hybrid Zn Batteries. Small, 2018, 14, e1800225.	10.0	131
5	Performance characteristics of a direct carbon fuel cell/thermoelectric generator hybrid system. Energy Conversion and Management, 2015, 89, 683-689.	9.2	99
6	A high-performance Zn battery based on self-assembled nanostructured NiCo2O4 electrode. Journal of Power Sources, 2019, 421, 6-13.	7.8	87
7	Two-stage thermoelectric generators for waste heat recovery from solid oxide fuel cells. Energy, 2017, 132, 280-288.	8.8	86
8	Modeling of all porous solid oxide fuel cells. Applied Energy, 2018, 219, 105-113.	10.1	84
9	Modeling of direct carbon solid oxide fuel cell for CO and electricity cogeneration. Applied Energy, 2016, 178, 353-362.	10.1	77
10	A-site deficient/excessive effects of LaMnO3 perovskite as bifunctional oxygen catalyst for zinc-air batteries. Electrochimica Acta, 2020, 333, 135566.	5.2	71
11	Performance assessment of a hybrid system integrating a molten carbonate fuel cell and a thermoelectric generator. Energy, 2016, 112, 520-527.	8.8	70
12	Integration of Znâ€“Ag and Znâ€“Air Batteries: A Hybrid Battery with the Advantages of Both. ACS Applied Materials & Interfaces, 2018, 10, 36873-36881.	8.0	70
13	Performance analysis and multi-objective optimization of a new molten carbonate fuel cell system. International Journal of Hydrogen Energy, 2011, 36, 4015-4021.	7.1	68
14	Modelling of SOEC-FT reactor: Pressure effects on methanation process. Applied Energy, 2017, 185, 814-824.	10.1	66
15	Modeling of CH4-assisted SOEC for H2O/CO2 co-electrolysis. International Journal of Hydrogen Energy, 2016, 41, 21839-21849.	7.1	65
16	Towards online optimisation of solid oxide fuel cell performance: Combining deep learning with multi-physics simulation. Energy and AI, 2020, 1, 100003.	10.6	61
17	Performance analyzes of an integrated phosphoric acid fuel cell and thermoelectric device system for power and cooling cogeneration. International Journal of Refrigeration, 2018, 89, 61-69.	3.4	59
18	Performance evaluation of an alkaline fuel cell/thermoelectric generator hybrid system. International Journal of Hydrogen Energy, 2014, 39, 11756-11762.	7.1	56

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19	Achieving high energy density and efficiency through integration: progress in hybrid zinc batteries. Journal of Materials Chemistry A, 2019, 7, 15564-15574.	10.3	54
20	Toward a new generation of low cost, efficient, and durable metalâ€“air flow batteries. Journal of Materials Chemistry A, 2019, 7, 26744-26768.	10.3	51
21	Thermo-economic modeling and analysis of an NG-fueled SOFC-WGS-TSA-PEMFC hybrid energy conversion system for stationary electricity power generation. Energy, 2020, 192, 116613.	8.8	50
22	A comprehensive review on high-temperature fuel cells with carbon capture. Applied Energy, 2020, 275, 115342.	10.1	50
23	Parametric study of a hybrid system integrating a phosphoric acid fuel cell with an absorption refrigerator for cooling purposes. International Journal of Hydrogen Energy, 2016, 41, 3579-3590.	7.1	49
24	Modeling of direct carbon solid oxide fuel cells withÂH2O and CO2 as gasification agents. International Journal of Hydrogen Energy, 2017, 42, 15641-15651.	7.1	48
25	Performance analysis of a direct carbon fuel cell with molten carbonate electrolyte. Energy, 2014, 68, 292-300.	8.8	45
26	Syngas/power cogeneration from proton conducting solid oxide fuel cells assisted by dry methane reforming: A thermal-electrochemical modelling study. Energy Conversion and Management, 2018, 167, 37-44.	9.2	44
27	A new hybrid system composed of high-temperature proton exchange fuel cell and two-stage thermoelectric generator with Thomson effect: Energy and exergy analyses. Energy, 2020, 195, 117000.	8.8	43
28	Investigation on the electrode design of hybrid Zn-Co3O4/air batteries for performance improvements. Electrochimica Acta, 2018, 283, 1028-1036.	5.2	42
29	Advancing the multiscale understanding on solid oxide electrolysis cells via modelling approaches: A review. Renewable and Sustainable Energy Reviews, 2021, 141, 110863.	16.4	42
30	Thermal modelling of ethanol-fuelled Solid Oxide Fuel Cells. Applied Energy, 2019, 237, 476-486.	10.1	39
31	Experimental and modeling study of high performance direct carbon solid oxide fuel cell with in situ catalytic steam-carbon gasification reaction. Journal of Power Sources, 2018, 382, 135-143.	7.8	38
32	A direct carbon solid oxide fuel cell fueled with char from wheat straw. International Journal of Energy Research, 2019, 43, 2468-2477.	4.5	38
33	Performance improvement of a direct carbon solid oxide fuel cell system by combining with a Stirling cycle. Energy, 2017, 140, 979-987.	8.8	37
34	The thermal effect in direct carbon solid oxide fuel cells. Applied Thermal Engineering, 2017, 118, 652-662.	6.0	36
35	Performance assessment of an advanced triple-cycle system based upon solid oxide fuel cells, vacuum thermionic generators and absorption refrigerators. Energy Conversion and Management, 2019, 193, 64-73.	9.2	36
36	Nanoporous NiO/Ni(OH)₂Plates Incorporated with Carbon Nanotubes as Active Materials of Rechargeable Hybrid Zinc Batteries for Improved Energy Efficiency and High-Rate Capability. Journal of the Electrochemical Society, 2018, 165, A2119-A2126.	2.9	35

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37	Optimization of catalyst layer thickness for achieving high performance and low cost of high temperature proton exchange membrane fuel cell. Applied Energy, 2021, 294, 117012.	10.1	35
38	Modeling of Direct Carbon-Assisted Solid Oxide Electrolysis Cell (SOEC) for Syngas Production at Two Different Electrodes. Journal of the Electrochemical Society, 2016, 163, F3029-F3035.	2.9	33
39	Performance assessment of an integrated molten carbonate fuel cell-thermoelectric devices hybrid system for combined power and cooling purposes. International Journal of Hydrogen Energy, 2017, 42, 30156-30165.	7.1	33
40	Performance improvement of a direct carbon solid oxide fuel cell through integrating an Otto heat engine. Energy Conversion and Management, 2018, 165, 761-770.	9.2	33
41	Electrochemical performance characteristics andÂoptimum design strategies of a solid oxideÂelectrolysis cell system for carbon dioxideÂreduction. International Journal of Hydrogen Energy, 2013, 38, 9609-9618.	7.1	32
42	Performance analysis and parametric study of a solid oxide fuel cell fueled by carbon monoxide. International Journal of Hydrogen Energy, 2013, 38, 16354-16364.	7.1	32
43	Performance analyses of a combined system consisting of high-temperature polymer electrolyte membrane fuel cells and thermally regenerative electrochemical cycles. Energy, 2020, 193, 116720.	8.8	32
44	Achieving a stable zinc electrode with ultralong cycle life by implementing a flowing electrolyte. Journal of Power Sources, 2020, 453, 227856.	7.8	31
45	Plastic waste fuelled solid oxide fuel cell system for power and carbon nanotube cogeneration. International Journal of Hydrogen Energy, 2019, 44, 1867-1876.	7.1	30
46	Modelling of finger-like channelled anode support for SOFCs application. Science Bulletin, 2016, 61, 1324-1332.	9.0	29
47	Growth of Al and Co co-doped NiO nanosheets on carbon cloth as the air electrode for Zn-air batteries with high cycling stability. Electrochimica Acta, 2018, 290, 21-29.	5.2	29
48	Porous Co3O4 nanoplates as the active material for rechargeable Zn-air batteries with high energy efficiency and cycling stability. Energy, 2019, 166, 1241-1248.	8.8	29
49	Thermodynamic assessment of an integrated molten carbonate fuel cell and absorption refrigerator hybrid system for combined power and cooling applications. International Journal of Refrigeration, 2016, 70, 1-12.	3.4	28
50	Combined methane reforming by carbon dioxide and steam in proton conducting solid oxide fuel cells for syngas/power co-generation. International Journal of Hydrogen Energy, 2019, 44, 15313-15321.	7.1	28
51	Modeling of all-porous solid oxide fuel cells with a focus on the electrolyte porosity design. Applied Energy, 2019, 235, 602-611.	10.1	28
52	Modelling of One-Step Methanation Process Combining SOECs and Fischer-Tropsch-like Reactor. Journal of the Electrochemical Society, 2016, 163, F3001-F3008.	2.9	27
53	Dynamic modeling and operation strategy of natural gas fueled SOFC-Engine hybrid power system with hydrogen addition by metal hydride for vehicle applications. ETransportation, 2020, 5, 100074.	14.8	27
54	Techno-economic evaluation and technology roadmap of the MWe-scale SOFC-PEMFC hybrid fuel cell system for clean power generation. Journal of Cleaner Production, 2020, 255, 120225.	9.3	26

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55	A feasible way to handle the heat management of direct carbon solid oxide fuel cells. Applied Energy, 2018, 226, 881-890.	10.1	25
56	Achieving a broad-spectrum photovoltaic system by hybridizing a two-stage thermoelectric generator. Energy Conversion and Management, 2020, 211, 112778.	9.2	24
57	A hybrid system using Brayton cycle to harvest the waste heat from a direct carbon solid oxide fuel cell. Applied Thermal Engineering, 2019, 160, 113992.	6.0	23
58	Low carbon fuel production from combined solid oxide CO2 co-electrolysis and Fischer-Tropsch synthesis system: A modelling study. Applied Energy, 2019, 242, 911-918.	10.1	23
59	Energetic, exergetic and ecological evaluations of a hybrid system based on a phosphoric acid fuel cell and an organic Rankine cycle. Energy, 2021, 217, 119365.	8.8	23
60	Enabling thermal-neutral electrolysis for CO2-to-fuel conversions with a hybrid deep learning strategy. Energy Conversion and Management, 2021, 230, 113827.	9.2	23
61	Maximum power density analyses of a novel hybrid system based upon solid oxide fuel cells, vacuum thermionic generators and thermoelectric generators. International Journal of Hydrogen Energy, 2021, 46, 22062-22078.	7.1	23
62	A novel design of solid oxide electrolyser integrated with magnesium hydride bed for hydrogen generation and storage â€“ A dynamic simulation study. Applied Energy, 2017, 200, 260-272.	10.1	22
63	Efficiency evaluation of a coal-fired power plant integrated with chilled ammonia process using an absorption refrigerator. Applied Energy, 2018, 230, 267-276.	10.1	21
64	Exploring oxygen electrocatalytic activity and pseudocapacitive behavior of Co3O4 nanoplates in alkaline solutions. Electrochimica Acta, 2019, 310, 86-95.	5.2	21
65	Thermal effects in H2O and CO2 assisted direct carbon solid oxide fuel cells. International Journal of Hydrogen Energy, 2020, 45, 12459-12475.	7.1	21
66	The thermal effects of all porous solid oxide fuel cells. Journal of Power Sources, 2019, 440, 227102.	7.8	20
67	Synthesis of Fe₂O₃ Nanoparticle-Decorated N-Doped Reduced Graphene Oxide as an Effective Catalyst for Zn-Air Batteries. Journal of the Electrochemical Society, 2019, 166, A616-A622.	2.9	19
68	Methanol to power through high-efficiency hybrid fuel cell system: Thermodynamic, thermo-economic, and techno-economic (3T) analyses in Northwest China. Energy Conversion and Management, 2021, 232, 113899.	9.2	19
69	Regenerable MgO-based sorbents for CO2 capture at elevated temperature and pressure: Experimental and DFT study. Chemical Engineering Journal, 2021, 425, 130675.	12.7	19
70	Elastocaloric cooler for waste heat recovery from proton exchange membrane fuel cells. Energy, 2022, 238, 121789.	8.8	19
71	Elimination of Light-Soaking Effect in Hysteresis-Free Perovskite Solar Cells by Interfacial Modification. Journal of Physical Chemistry C, 2020, 124, 1851-1860.	3.1	18
72	Performance assessment of a combined system consisting of a high-temperature polymer electrolyte membrane fuel cell and a thermoelectric generator. Energy, 2019, 179, 762-770.	8.8	17

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73	Selfâ€Assembled Structure Evolution of Mnï¿Fe Oxides for High Temperature Thermochemical Energy Storage. Small, 2021, 17, e2101524.	10.0	17
74	Energetic, exergetic and ecological analyses of a high-temperature proton exchange membrane fuel cell based on a phosphoric-acid-doped polybenzimidazole membrane. Sustainable Energy Technologies and Assessments, 2020, 38, 100671.	2.7	16
75	Performance evaluation of a hybrid alkali metal thermal electric converter-two stage thermoelectric generator system. Applied Thermal Engineering, 2021, 191, 116820.	6.0	16
76	A novel solar assisted vacuum thermionic generator-absorption refrigerator cogeneration system producing electricity and cooling. Energy Conversion and Management, 2019, 187, 83-92.	9.2	15
77	Toward the rational design of cathode and electrolyte materials for aprotic Liâ€CO ₂ batteries: A numerical investigation. International Journal of Energy Research, 2020, 44, 496-507.	4.5	15
78	A new combined system consisting of a molten hydroxide direct carbon fuel cell and an alkali metal thermal electric converter: Energy and exergy analyses. Applied Thermal Engineering, 2021, 185, 116417.	6.0	15
79	Numerical modeling of a cogeneration system based on a direct carbon solid oxide fuel cell and a thermophotovoltaic cell. Energy Conversion and Management, 2018, 171, 279-286.	9.2	14
80	Thermodynamic analysis and performance optimization of solid oxide fuel cell and refrigerator hybrid system based on H2 and CO. Applied Thermal Engineering, 2016, 108, 347-352.	6.0	13
81	Alkali modified P25 with enhanced CO₂ adsorption for CO₂ photoreduction. RSC Advances, 2020, 10, 27989-27994.	3.6	13
82	A novel hybrid system consisting of a dye-sensitized solar cell and an absorption refrigerator for power and cooling cogeneration. International Journal of Refrigeration, 2020, 113, 115-125.	3.4	12
83	Charge Carrier Dynamics in Electron-Transport-Layer-Free Perovskite Solar Cells. ACS Applied Electronic Materials, 2019, 1, 2334-2341.	4.3	11
84	Modelling of a hybrid system for on-site power generation from solar fuels. Applied Energy, 2019, 240, 709-718.	10.1	11
85	An efficient hybrid system using a graphene-based cathode vacuum thermionic energy converter to harvest the waste heat from a molten hydroxide direct carbon fuel cell. Energy, 2021, 223, 120095.	8.8	11
86	Elucidating the mechanism of discharge performance improvement in zinc-air flow batteries: A combination of experimental and modeling investigations. Journal of Energy Storage, 2021, 40, 102779.	8.1	11
87	Performance analysis of a new hybrid system composed of a concentrated photovoltaic cell and a two-stage thermoelectric generator. Sustainable Energy, Grids and Networks, 2021, 27, 100481.	3.9	11
88	High-Property Anode Catalyst Compositing Co-Based Perovskite and NiFe-Layered Double Hydroxide for Alkaline Seawater Splitting. Processes, 2022, 10, 668.	2.8	11
89	An efficient high-temperature PEMFC/membrane distillation hybrid system for simultaneous production of electricity and freshwater. International Journal of Hydrogen Energy, 2022, 47, 11998-12014.	7.1	11
90	Stability in Photoinduced Instability in Mixed-Halide Perovskite Materials and Solar Cells. Journal of Physical Chemistry C, 2021, 125, 21370-21380.	3.1	10

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91	Self-supported metal sulfide electrode for flexible quasi-solid-state zinc-air batteries. Journal of Alloys and Compounds, 2021, 878, 160434.	5.5	10
92	Design and modeling of a honeycomb ceramic thermal energy storage for a solar thermal air-Brayton cycle system. Energy, 2022, 239, 122405.	8.8	10
93	A sliding-bed particle solar receiver with controlling particle flow velocity for high-temperature thermal power generation. Renewable Energy, 2022, 183, 41-50.	8.9	10
94	Al-Modified CuO/Cu₂O for High-Temperature Thermochemical Energy Storage: from Reaction Performance to Modification Mechanism. ACS Applied Materials & Interfaces, 2021, 13, 57274-57284.	8.0	10
95	Multi-objective optimizations of solid oxide co-electrolysis with intermittent renewable power supply via multi-physics simulation and deep learning strategy. Energy Conversion and Management, 2022, 258, 115560.	9.2	9
96	Dependence of the Heterogeneity of Grain Boundaries on Adjacent Grains in Perovskites and Its Impact on Photovoltage. Small, 2022, 18, e2105140.	10.0	9
97	Cation-Substitution-Tuned Oxygen Electrocatalyst of Spinel Cobaltite MCo₂O₄ (M = Fe, Co, and Ni) Hexagonal Nanoplates for Rechargeable Zn-Air Batteries. Journal of the Electrochemical Society, 2019, 166, A3448-A3455.	2.9	8
98	Analysis of effects of meso-scale reactions on multiphysics transport processes in rSOFC fueled with syngas. Energy, 2020, 190, 116379.	8.8	8
99	Optimal design and performance evaluation of a cogeneration system based on a molten carbonate fuel cell and a two-stage thermoelectric generator. International Journal of Ambient Energy, 2022, 43, 1986-1993.	2.5	8
100	A hybrid system using a looped multi-stage thermoacoustically-driven cryocooler to harvest the waste heat from a direct carbon solid oxide fuel cell. International Journal of Heat and Mass Transfer, 2021, 169, 120972.	4.8	8
101	A combined phosphoric acid fuel cell and direct contact membrane distillation hybrid system for electricity generation and seawater desalination. Energy Conversion and Management, 2022, 267, 115916.	9.2	8
102	Regulating thermochemical redox temperature via oxygen defect engineering for protection of solar molten salt receivers. IScience, 2021, 24, 103039.	4.1	7
103	Modeling of a combined CH4-assisted solid oxide co-electrolysis and Fischer-Tropsch synthesis system for low-carbon fuel production. Energy Procedia, 2019, 158, 1666-1671.	1.8	6
104	Performance Analysis of a Hybrid System Consisting of a Molten Carbonate Direct Carbon Fuel Cell and an Absorption Refrigerator. Energies, 2019, 12, 357.	3.1	6
105	Numerical Study on Flow and Heat Transfer Characteristics of Trapezoidal Printed Circuit Heat Exchanger. Micromachines, 2021, 12, 1589.	2.9	6
106	Improved Design of a Thermophotovoltaic Device. IEEE Transactions on Electron Devices, 2020, 67, 4709-4712.	3.0	5
107	Performance improvement of perovskite solar cells via spiro-OMeTAD pre-crystallization. Journal of Materials Science, 2020, 55, 12264-12273.	3.7	5
108	Experimental and Numerical Study on Thermal Hydraulic Performance of Trapezoidal Printed Circuit Heat Exchanger for Supercritical CO2 Brayton Cycle. Energies, 2022, 15, 4940.	3.1	5

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109	Achieving high energy efficiency of alkaline hybrid zinc battery by using the optimized Coâ€“Mn spinel cathode. International Journal of Hydrogen Energy, 2022, 47, 27470-27480.	7.1	5
110	Experimental and numerical investigation on the dynamic characteristics of a lab-scale transcritical CO2 loop. Energy Conversion and Management, 2021, 245, 114384.	9.2	4
111	In Situ Microscopic Observation of Humidity-Induced Degradation in All-Inorganic Perovskite Films. ACS Applied Energy Materials, 2022, 5, 8092-8102.	5.1	4
112	Origination of Anomalous Current Fluctuation in Perovskite Solar Cells. ACS Applied Energy Materials, 2019, 2, 8138-8144.	5.1	3
113	A novel tripleâ€cycle system based on highâ€temperature proton exchange membrane fuel cell, thermoelectric generator, and thermally regenerative electrochemical refrigerator for power and cooling cogeneration. International Journal of Energy Research, 2022, 46, 7529-7541.	4.5	3
114	Performance potential of a new molten hydroxide direct carbon fuel cellâ€“based tripleâ€cycle system for clean and efficient coal use. International Journal of Energy Research, 2022, 46, 14491-14504.	4.5	3
115	Dynamic behavior of high-temperature CO2/H2O co-electrolysis coupled with real fluctuating renewable power. Sustainable Energy Technologies and Assessments, 2022, 52, 102344.	2.7	2
116	Harvesting waste heat from molten carbonate fuel cells for bifunction applications. Journal of Renewable and Sustainable Energy, 2019, 11, 054301.	2.0	1
117	High-temperature electrolysis and co-electrolysis. , 2021, , 51-73.		1
118	A potentially non-contact monitor method for CO2 at the pseudo-critical region using infrared spectrometer. Journal of CO2 Utilization, 2021, 56, 101842.	6.8	1
119	A costâ€efficient path to utilize coal via solid oxide fuel cells and alkali metal thermoelectric converters. International Journal of Energy Research, 2022, 46, 11109-11122.	4.5	1
120	Numerical simulation of hybrid systems based on solid oxide fuel cells. , 2021, , 91-127.		0
121	Thermochemical Energy Storage: Selfâ€Assembled Structure Evolution of Mnï£¿Fe Oxides for High Temperature Thermochemical Energy Storage (Small 29/2021). Small, 2021, 17, 2170149.	10.0	0