

Sophia Haussener

List of Publications by Year in descending order

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106
papers

4,478
citations

101384
36
h-index

106150
65
g-index

111
all docs

111
docs citations

111
times ranked

4416
citing authors

#	ARTICLE	IF	CITATIONS
1	An analysis of the optimal band gaps of light absorbers in integrated tandem photoelectrochemical water-splitting systems. <i>Energy and Environmental Science</i> , 2013, 6, 2984.	15.6	497
2	Dynamics of photogenerated holes in undoped BiVO ₄ photoanodes for solar water oxidation. <i>Chemical Science</i> , 2014, 5, 2964-2973.	3.7	317
3	Modeling, simulation, and design criteria for photoelectrochemical water-splitting systems. <i>Energy and Environmental Science</i> , 2012, 5, 9922.	15.6	264
4	Modulating electric field distribution by alkali cations for CO ₂ electroreduction in strongly acidic medium. <i>Nature Catalysis</i> , 2022, 5, 268-276.	16.1	248
5	Pathways to electrochemical solar-hydrogen technologies. <i>Energy and Environmental Science</i> , 2018, 11, 2768-2783.	15.6	238
6	Simulations of the irradiation and temperature dependence of the efficiency of tandem photoelectrochemical water-splitting systems. <i>Energy and Environmental Science</i> , 2013, 6, 3605.	15.6	148
7	A thermally synergistic photo-electrochemical hydrogen generator operating under concentrated solar irradiation. <i>Nature Energy</i> , 2019, 4, 399-407.	19.8	141
8	Modeling, Simulation, and Implementation of Solar-Driven Water-Splitting Devices. <i>Angewandte Chemie - International Edition</i> , 2016, 55, 12974-12988.	7.2	119
9	Tomography-Based Heat and Mass Transfer Characterization of Reticulate Porous Ceramics for High-Temperature Processing. <i>Journal of Heat Transfer</i> , 2010, 132, .	1.2	118
10	Robust production of purified H ₂ in a stable, self-regulating, and continuously operating solar fuel generator. <i>Energy and Environmental Science</i> , 2014, 7, 297-301.	15.6	85
11	Mass transport aspects of electrochemical solar-hydrogen generation. <i>Energy and Environmental Science</i> , 2016, 9, 1533-1551.	15.6	81
12	Optimizing mesostructured silver catalysts for selective carbon dioxide conversion into fuels. <i>Energy and Environmental Science</i> , 2019, 12, 1668-1678.	15.6	74
13	Pore-level engineering of macroporous media for increased performance of solar-driven thermochemical fuel processing. <i>International Journal of Heat and Mass Transfer</i> , 2014, 78, 688-698.	2.5	73
14	Net primary energy balance of a solar-driven photoelectrochemical water-splitting device. <i>Energy and Environmental Science</i> , 2013, 6, 2380.	15.6	69
15	Tomographic Characterization of a Semitransparent-Particle Packed Bed and Determination of its Thermal Radiative Properties. <i>Journal of Heat Transfer</i> , 2009, 131, .	1.2	67
16	Holistic design guidelines for solar hydrogen production by photo-electrochemical routes. <i>Energy and Environmental Science</i> , 2015, 8, 3614-3628.	15.6	67
17	Review of Heat Transfer Research for Solar Thermochemical Applications. <i>Journal of Thermal Science and Engineering Applications</i> , 2013, 5, .	0.8	66
18	Application of the spatial averaging theorem to radiative heat transfer in two-phase media. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 2010, 111, 253-258.	1.1	65

#	ARTICLE	IF	CITATIONS
19	Sequential Cascade Electrocatalytic Conversion of Carbon Dioxide to C-C Coupled Products. ACS Applied Energy Materials, 2019, 2, 4551-4559.	2.5	64
20	Degradation in photoelectrochemical devices: review with an illustrative case study. Journal Physics D: Applied Physics, 2017, 50, 124002.	1.3	63
21	Effective Heat and Mass Transport Properties of Anisotropic Porous Ceria for Solar Thermochemical Fuel Generation. Materials, 2012, 5, 192-209.	1.3	60
22	Experimental and numerical characterization of a new 45 kW _{el} multisource high-flux solar simulator. Optics Express, 2016, 24, A1360.	1.7	60
23	Discrete vs. continuum-scale simulation of radiative transfer in semitransparent two-phase media. Journal of Quantitative Spectroscopy and Radiative Transfer, 2011, 112, 1450-1459.	1.1	58
24	Optical Design of Multisource High-Flux Solar Simulators. Journal of Solar Energy Engineering, Transactions of the ASME, 2015, 137, .	1.1	58
25	An Integrated Device View on Photo-Electrochemical Solar-Hydrogen Generation. Annual Review of Chemical and Biomolecular Engineering, 2015, 6, 13-34.	3.3	58
26	Practical challenges in the development of photoelectrochemical solar fuels production. Sustainable Energy and Fuels, 2020, 4, 985-995.	2.5	58
27	Buoyancy-driven melting and solidification heat transfer analysis in encapsulated phase change materials. International Journal of Heat and Mass Transfer, 2021, 164, 120525.	2.5	56
28	Solar fuel processing efficiency for ceria redox cycling using alternative oxygen partial pressure reduction methods. Energy, 2015, 88, 667-679.	4.5	55
29	High-flux optical systems for solar thermochemistry. Solar Energy, 2017, 156, 133-148.	2.9	52
30	Modelling of solar thermochemical reaction systems. Solar Energy, 2017, 156, 149-168.	2.9	52
31	Utilizing modeling, experiments, and statistics for the analysis of water-splitting photoelectrodes. Journal of Materials Chemistry A, 2016, 4, 3100-3114.	5.2	51
32	Techno-economic modeling and optimization of solar-driven high-temperature electrolysis systems. Solar Energy, 2017, 155, 1389-1402.	2.9	48
33	Continuum radiative heat transfer modeling in media consisting of optically distinct components in the limit of geometrical optics. Journal of Quantitative Spectroscopy and Radiative Transfer, 2010, 111, 2474-2480.	1.1	42
34	Design guidelines for concentrated photo-electrochemical water splitting devices based on energy and greenhouse gas yield ratios. Energy and Environmental Science, 2015, 8, 3069-3082.	15.6	41
35	Modeling and design guidelines for direct steam generation solar receivers. Applied Energy, 2018, 216, 761-776.	5.1	40
36	Tomography-based determination of permeability and Dupuit-Forchheimer coefficient of characteristic snow samples. Journal of Glaciology, 2011, 57, 811-816.	1.1	39

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37	Charge Transport in Two-Photon Semiconducting Structures for Solar Fuels. ChemSusChem, 2016, 9, 2878-2904.	3.6	39
38	Design of Compact Photoelectrochemical Cells for Water Splitting. Oil and Gas Science and Technology, 2015, 70, 877-889.	1.4	33
39	Modeling of a Multitube High-Temperature Solar Thermochemical Reactor for Hydrogen Production. Journal of Solar Energy Engineering, Transactions of the ASME, 2009, 131, .	1.1	29
40	Solar Hydrogen Reaching Maturity. Oil and Gas Science and Technology, 2015, 70, 863-876.	1.4	29
41	Kinetic Competition between Water-Splitting and Photocorrosion Reactions in Photoelectrochemical Devices. ChemSusChem, 2019, 12, 1984-1994.	3.6	29
42	Tomography-Based Analysis of Radiative Transfer in Reacting Packed Beds Undergoing a Solid-Gas Thermochemical Transformation. Journal of Heat Transfer, 2010, 132, .	1.2	28
43	Radiative characterization of random fibrous media with long cylindrical fibers: Comparison of single- and multi-RTE approaches. Journal of Quantitative Spectroscopy and Radiative Transfer, 2017, 202, 220-232.	1.1	28
44	Determination of the macroscopic optical properties of snow based on exact morphology and direct pore-level heat transfer modeling. Journal of Geophysical Research, 2012, 117, .	3.3	27
45	Combined Experimental-Numerical Analysis of Transient Phenomena in a Photoelectrochemical Water Splitting Cell. Journal of Physical Chemistry C, 2016, 120, 3705-3714.	1.5	26
46	Transport characteristics of saturated gas diffusion layers treated with hydrophobic coatings. Chemical Engineering Science, 2018, 176, 503-514.	1.9	25
47	Tetrahedral mesh generation based on space indicator functions. International Journal for Numerical Methods in Engineering, 2013, 93, 1040-1056.	1.5	24
48	Integrated Photo-Electrochemical Solar Fuel Generators under Concentrated Irradiation. Journal of the Electrochemical Society, 2016, 163, H988-H998.	1.3	24
49	Prospects and challenges in designing photocatalytic particle suspension reactors for solar fuel processing. Chemical Science, 2021, 12, 9866-9884.	3.7	22
50	Integrated microfluidic test-bed for energy conversion devices. Physical Chemistry Chemical Physics, 2013, 15, 7050.	1.3	20
51	Mitigating voltage losses in photoelectrochemical cell scale-up. Sustainable Energy and Fuels, 2020, 4, 2734-2740.	2.5	20
52	Integrated Photo-Electrochemical Solar Fuel Generators under Concentrated Irradiation. Journal of the Electrochemical Society, 2016, 163, H999-H1007.	1.3	18
53	Linking morphology and multi-physical transport in structured photoelectrodes. Sustainable Energy and Fuels, 2018, 2, 2661-2673.	2.5	17
54	Early-stage oxidation behavior at high temperatures of SiSiC cellular architectures in a porous burner. Ceramics International, 2016, 42, 16255-16261.	2.3	16

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55	Atomic layer deposition of TiO ₂ for stabilization of Pt nanoparticle oxygen reduction reaction catalysts. Journal of Applied Electrochemistry, 2018, 48, 973-984.	1.5	16
56	Numerical quantification of coupling effects for radiation-conduction heat transfer in participating macroporous media: Investigation of a model geometry. International Journal of Heat and Mass Transfer, 2017, 112, 387-400.	2.5	15
57	An integrated concentrated solar fuel generator utilizing a tubular solid oxide electrolysis cell as solar absorber. Journal of Power Sources, 2018, 400, 592-604.	4.0	15
58	Dynamic system modeling of thermally-integrated concentrated PV-electrolysis. International Journal of Hydrogen Energy, 2021, 46, 10666-10681.	3.8	15
59	Optimizing and Implementing Light Trapping in Thin-Film, Mesoporous Photoanodes. ACS Applied Materials & Interfaces, 2020, 12, 5739-5749.	4.0	14
60	Sodium plating and stripping from Na ⁺ -alumina ceramics beyond 1000 Åm/cm ² . Materials Today Energy, 2020, 18, 100515.	2.5	14
61	Design and optimization of a high-temperature latent heat storage unit. Applied Energy, 2020, 261, 114330.	5.1	14
62	Pressure Drop and Convective Heat Transfer in Different SiSiC Structures Fabricated by Indirect Additive Manufacturing. Journal of Heat Transfer, 2020, 142, .	1.2	14
63	Determination and optimization of material parameters of particle-based LaTiO ₂ N photoelectrodes. Journal of Materials Chemistry A, 2018, 6, 17337-17352.	5.2	13
64	Tomography-Based Determination of Effective Transport Properties for Reacting Porous Media. Journal of Heat Transfer, 2012, 134, .	1.2	12
65	Photoelectrochemical Conversion of CO ₂ Under Concentrated Sunlight Enables Combination of High Reaction Rate and Efficiency. Advanced Energy Materials, 2022, 12, .	10.2	12
66	Minimization of Ionic Transport Resistance in Porous Monoliths for Application in Integrated Solar Water Splitting Devices. Journal of Physical Chemistry C, 2016, 120, 21242-21247.	1.5	11
67	Effective conductivity of porous ceramics in a radiative environment. Ceramics International, 2020, 46, 2805-2815.	2.3	11
68	Modeling of Concurrent CO ₂ and Water Splitting by Practical Photoelectrochemical Devices. Journal of the Electrochemical Society, 2016, 163, H1008-H1018.	1.3	10
69	Modellierung, Simulation und Implementierung von Zellen für die solarbetriebene Wasserspaltung. Angewandte Chemie, 2016, 128, 13168-13183.	1.6	10
70	Design guidelines for Al-12%Si latent heat storage encapsulations to optimize performance and mitigate degradation. Applied Surface Science, 2020, 505, 143684.	3.1	10
71	Morphology Engineering of Porous Media for Enhanced Solar Fuel and Power Production. Jom, 2013, 65, 1702-1709.	0.9	9
72	High-flux solar simulator technology. , 2016, , .		9

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73	Controlling strategies to maximize reliability of integrated photo-electrochemical devices exposed to realistic disturbances. Sustainable Energy and Fuels, 2019, 3, 1297-1306.	2.5	9
74	Unsteady Radiative Heat Transfer Model of a Ceria Particle Suspension Undergoing Solar Thermochemical Reduction. Journal of Thermophysics and Heat Transfer, 2019, 33, 63-77.	0.9	9
75	Reliable Performance Characterization of Mediated Photocatalytic Water-Splitting Half Reactions. ChemSusChem, 2017, 10, 2158-2166.	3.6	8
76	Rapid Performance Optimization Method for Photoelectrodes. Journal of Physical Chemistry C, 2019, 123, 21838-21851.	1.5	8
77	Numerical optimization of evaporative cooling in artificial gas diffusion layers. Applied Thermal Engineering, 2021, 186, 116460.	3.0	8
78	HycycleS: a project on nuclear and solar hydrogen production by sulphur-based thermochemical cycles. International Journal of Nuclear Hydrogen Production and Applications, 2011, 2, 202.	0.2	7
79	Tomography-based radiative characterisation of decomposing carbonaceous heat shield materials. Carbon, 2017, 122, 451-461.	5.4	7
80	Optical characterization of multi-scale morphologically complex heterogeneous media – Application to snow with soot impurities. Journal of Quantitative Spectroscopy and Radiative Transfer, 2018, 206, 378-391.	1.1	7
81	Tomography-Based Determination of Effective Transport Properties for Reacting Porous Media. , 2010, , .		5
82	Synthetic approaches to artificial photosynthesis: general discussion. Faraday Discussions, 2019, 215, 242-281.	1.6	5
83	Theoretical maximum photogeneration efficiency and performance characterization of In _x Ga _{1-x} N/Si tandem water-splitting photoelectrodes. APL Materials, 2020, 8, 071111.	2.2	5
84	Heat Transfer Modeling in Integrated Photoelectrochemical Hydrogen Generators Using Concentrated Irradiation. , 2014, , .		5
85	Majority Charge Carrier Transport in Particle-Based Photoelectrodes. Journal of Physical Chemistry C, 2019, 123, 26082-26094.	1.5	4
86	Modeling and design guidelines of high-temperature photoelectrochemical devices. Sustainable Energy and Fuels, 2021, 5, 2169-2180.	2.5	4
87	Solar Hydrogen Production. Energy Technology, 2022, 10, .	1.8	4
88	DISCRETE VS CONTINUUM LEVEL SIMULATION OF RADIATIVE TRANSFER IN SEMITRANSSPARENT TWO-PHASE MEDIA. , 2010, , .		3
89	Demonstrator devices for artificial photosynthesis: general discussion. Faraday Discussions, 2019, 215, 345-363.	1.6	2
90	A 45 kWe Multi-Source High-Flux Solar Simulator. , 2014, , .		2

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91	CONTINUUM RADIATIVE HEAT TRANSFER MODELING IN MEDIA CONSISTING OF OPTICALLY DISTINCT COMPONENTS IN THE LIMIT OF GEOMETRICAL OPTICS. , 2010, , .		2
92	Phase Change Material Systems for High Temperature Heat Storage. Chimia, 2015, 69, 780-783.	0.3	1
93	Inverse Analysis of Radiative Flux Maps for the Characterization of High Flux Sources. Journal of Solar Energy Engineering, Transactions of the ASME, 2019, 141, .	1.1	1
94	Non-uniform porous structures and cycling control for optimized fixed-bed solar thermochemical water splitting. Journal of Solar Energy Engineering, Transactions of the ASME, 0, , 1-24.	1.1	1
95	Solar Fuels Devices: Multi-Scale Modeling and Device Design Guidelines. Springer Handbooks, 2022, , 965-983.	0.3	1
96	Continuum radiative heat transfer modeling in multi-component anisotropic media in the limit of geometrical optics. Journal of Physics: Conference Series, 2016, 676, 012015.	0.3	0
97	Methodology for optical characterization of multi-scale morphologically complex heterogeneous media - Application to snow with soot impurities. Journal of Physics: Conference Series, 2016, 676, 012003.	0.3	0
98	Steam gasification of carbonaceous feedstocks via a 1.5 kWth hybrid solar/autothermal reactor. AIP Conference Proceedings, 2019, , .	0.3	0
99	Linking Morphology and Multi-Physical Transport in Porous Copper Electrodes. , 0, , .		0
100	Overcoming Performance Losses in Scaling-up Metal Oxide-based Solar Water Splitting Devices. , 0, , .		0
101	Dynamic process simulation of a kW scale solar hydrogen producing system under concentrated irradiation. , 0, , .		0
102	Electrical double layer model reveals the possibility of electrochemical CO2 reduction in acidic environment. , 0, , .		0
103	Linking Morphology and Multi-Physical Transport in Porous Copper Electrodes. , 0, , .		0
104	Overcoming Performance Losses in Scaling-up Metal Oxide-based Solar Water Splitting Devices. , 0, , .		0
105	Conductive Heat Transfer in Partially Saturated Gas Diffusion Layers with Evaporative Cooling. Journal of the Electrochemical Society, 0, , .	1.3	0
106	Multi-configuration evaluation of a megajoule-scale high-temperature latent thermal energy storage test-bed. Applied Thermal Engineering, 2022, , 118697.	3.0	0