

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	Solar Hydrogen Production. <i>Energy Technology</i> , 2022, 10, .	1.8	4
2	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
3	Multi-configuration evaluation of a megajoule-scale high-temperature latent thermal energy storage test-bed. <i>Applied Thermal Engineering</i> , 2022, , 118697.	3.0	0
4	Solar Fuels Devices: Multi-Scale Modeling and Device Design Guidelines. <i>Springer Handbooks</i> , 2022, , 965-983.	0.3	1
5	Photoelectrochemical Conversion of CO ₂ Under Concentrated Sunlight Enables Combination of High Reaction Rate and Efficiency. <i>Advanced Energy Materials</i> , 2022, 12, .	10.2	12
6	Buoyancy-driven melting and solidification heat transfer analysis in encapsulated phase change materials. <i>International Journal of Heat and Mass Transfer</i> , 2021, 164, 120525.	2.5	56
7	Modeling and design guidelines of high-temperature photoelectrochemical devices. <i>Sustainable Energy and Fuels</i> , 2021, 5, 2169-2180.	2.5	4
8	Prospects and challenges in designing photocatalytic particle suspension reactors for solar fuel processing. <i>Chemical Science</i> , 2021, 12, 9866-9884.	3.7	22
9	Numerical optimization of evaporative cooling in artificial gas diffusion layers. <i>Applied Thermal Engineering</i> , 2021, 186, 116460.	3.0	8
10	Dynamic system modeling of thermally-integrated concentrated PV-electrolysis. <i>International Journal of Hydrogen Energy</i> , 2021, 46, 10666-10681.	3.8	15
11	Effective conductivity of porous ceramics in a radiative environment. <i>Ceramics International</i> , 2020, 46, 2805-2815.	2.3	11
12	Design guidelines for Al-12%Si latent heat storage encapsulations to optimize performance and mitigate degradation. <i>Applied Surface Science</i> , 2020, 505, 143684.	3.1	10
13	Practical challenges in the development of photoelectrochemical solar fuels production. <i>Sustainable Energy and Fuels</i> , 2020, 4, 985-995.	2.5	58
14	Optimizing and Implementing Light Trapping in Thin-Film, Mesoporous Photoanodes. <i>ACS Applied Materials & Interfaces</i> , 2020, 12, 5739-5749.	4.0	14
15	Sodium plating and stripping from Na ⁺ -alumina ceramics beyond 1000 Åm/cm ² . <i>Materials Today Energy</i> , 2020, 18, 100515.	2.5	14
16	Theoretical maximum photogeneration efficiency and performance characterization of In _x Ga _{1-x} N/Si tandem water-splitting photoelectrodes. <i>APL Materials</i> , 2020, 8, 071111.	2.2	5
17	Design and optimization of a high-temperature latent heat storage unit. <i>Applied Energy</i> , 2020, 261, 114330.	5.1	14
18	Mitigating voltage losses in photoelectrochemical cell scale-up. <i>Sustainable Energy and Fuels</i> , 2020, 4, 2734-2740.	2.5	20

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19	Pressure Drop and Convective Heat Transfer in Different SiSiC Structures Fabricated by Indirect Additive Manufacturing. <i>Journal of Heat Transfer</i> , 2020, 142, .	1.2	14
20	Rapid Performance Optimization Method for Photoelectrodes. <i>Journal of Physical Chemistry C</i> , 2019, 123, 21838-21851.	1.5	8
21	Majority Charge Carrier Transport in Particle-Based Photoelectrodes. <i>Journal of Physical Chemistry C</i> , 2019, 123, 26082-26094.	1.5	4
22	Inverse Analysis of Radiative Flux Maps for the Characterization of High Flux Sources. <i>Journal of Solar Energy Engineering, Transactions of the ASME</i> , 2019, 141, .	1.1	1
23	Steam gasification of carbonaceous feedstocks via a 1.5 kWth hybrid solar/autothermal reactor. <i>AIP Conference Proceedings</i> , 2019, . .	0.3	0
24	Demonstrator devices for artificial photosynthesis: general discussion. <i>Faraday Discussions</i> , 2019, 215, 345-363.	1.6	2
25	Synthetic approaches to artificial photosynthesis: general discussion. <i>Faraday Discussions</i> , 2019, 215, 242-281.	1.6	5
26	Sequential Cascade Electrocatalytic Conversion of Carbon Dioxide to C-C Coupled Products. <i>ACS Applied Energy Materials</i> , 2019, 2, 4551-4559.	2.5	64
27	A thermally synergistic photo-electrochemical hydrogen generator operating under concentrated solar irradiation. <i>Nature Energy</i> , 2019, 4, 399-407.	19.8	141
28	Optimizing mesostructured silver catalysts for selective carbon dioxide conversion into fuels. <i>Energy and Environmental Science</i> , 2019, 12, 1668-1678.	15.6	74
29	Controlling strategies to maximize reliability of integrated photo-electrochemical devices exposed to realistic disturbances. <i>Sustainable Energy and Fuels</i> , 2019, 3, 1297-1306.	2.5	9
30	Unsteady Radiative Heat Transfer Model of a Ceria Particle Suspension Undergoing Solar Thermochemical Reduction. <i>Journal of Thermophysics and Heat Transfer</i> , 2019, 33, 63-77.	0.9	9
31	Kinetic Competition between Water-Splitting and Photocorrosion Reactions in Photoelectrochemical Devices. <i>ChemSusChem</i> , 2019, 12, 1984-1994.	3.6	29
32	Modeling and design guidelines for direct steam generation solar receivers. <i>Applied Energy</i> , 2018, 216, 761-776.	5.1	40
33	Optical characterization of multi-scale morphologically complex heterogeneous media – Application to snow with soot impurities. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 2018, 206, 378-391.	1.1	7
34	Transport characteristics of saturated gas diffusion layers treated with hydrophobic coatings. <i>Chemical Engineering Science</i> , 2018, 176, 503-514.	1.9	25
35	Linking morphology and multi-physical transport in structured photoelectrodes. <i>Sustainable Energy and Fuels</i> , 2018, 2, 2661-2673.	2.5	17
36	An integrated concentrated solar fuel generator utilizing a tubular solid oxide electrolysis cell as solar absorber. <i>Journal of Power Sources</i> , 2018, 400, 592-604.	4.0	15

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37	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
38	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
39	Pathways to electrochemical solar-hydrogen technologies. Energy and Environmental Science, 2018, 11, 2768-2783.	15.6	238
40	Reliable Performance Characterization of Mediated Photocatalytic Water-Splitting Half Reactions. ChemSusChem, 2017, 10, 2158-2166.	3.6	8
41	Degradation in photoelectrochemical devices: review with an illustrative case study. Journal Physics D: Applied Physics, 2017, 50, 124002.	1.3	63
42	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
43	Tomography-based radiative characterisation of decomposing carbonaceous heat shield materials. Carbon, 2017, 122, 451-461.	5.4	7
44	Techno-economic modeling and optimization of solar-driven high-temperature electrolysis systems. Solar Energy, 2017, 155, 1389-1402.	2.9	48
45	High-flux optical systems for solar thermochemistry. Solar Energy, 2017, 156, 133-148.	2.9	52
46	Modelling of solar thermochemical reaction systems. Solar Energy, 2017, 156, 149-168.	2.9	52
47	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
48	High-flux solar simulator technology. , 2016, , .		9
49	Experimental and numerical characterization of a new 45 kW _{el} multisource high-flux solar simulator. Optics Express, 2016, 24, A1360.	1.7	60
50	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
51	Integrated Photo-Electrochemical Solar Fuel Generators under Concentrated Irradiation. Journal of the Electrochemical Society, 2016, 163, H988-H998.	1.3	24
52	Modeling of Concurrent CO ₂ and Water Splitting by Practical Photoelectrochemical Devices. Journal of the Electrochemical Society, 2016, 163, H1008-H1018.	1.3	10
53	Integrated Photo-Electrochemical Solar Fuel Generators under Concentrated Irradiation. Journal of the Electrochemical Society, 2016, 163, H999-H1007.	1.3	18
54	Mass transport aspects of electrochemical solar-hydrogen generation. Energy and Environmental Science, 2016, 9, 1533-1551.	15.6	81

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55	Early-stage oxidation behavior at high temperatures of SiSiC cellular architectures in a porous burner. <i>Ceramics International</i> , 2016, 42, 16255-16261.	2.3	16
56	Modellierung, Simulation und Implementierung von Zellen für die solarbetriebene Wasserspaltung. <i>Angewandte Chemie</i> , 2016, 128, 13168-13183.	1.6	10
57	Minimization of Ionic Transport Resistance in Porous Monoliths for Application in Integrated Solar Water Splitting Devices. <i>Journal of Physical Chemistry C</i> , 2016, 120, 21242-21247.	1.5	11
58	Charge Transport in Two-Photon Semiconducting Structures for Solar Fuels. <i>ChemSusChem</i> , 2016, 9, 2878-2904.	3.6	39
59	Modeling, Simulation, and Implementation of Solar-Driven Water-Splitting Devices. <i>Angewandte Chemie - International Edition</i> , 2016, 55, 12974-12988.	7.2	119
60	Methodology for optical characterization of multi-scale morphologically complex heterogeneous media - Application to snow with soot impurities. <i>Journal of Physics: Conference Series</i> , 2016, 676, 012003.	0.3	0
61	Combined Experimental-Numerical Analysis of Transient Phenomena in a Photoelectrochemical Water Splitting Cell. <i>Journal of Physical Chemistry C</i> , 2016, 120, 3705-3714.	1.5	26
62	Utilizing modeling, experiments, and statistics for the analysis of water-splitting photoelectrodes. <i>Journal of Materials Chemistry A</i> , 2016, 4, 3100-3114.	5.2	51
63	Phase Change Material Systems for High Temperature Heat Storage. <i>Chimia</i> , 2015, 69, 780-783.	0.3	1
64	Design of Compact Photoelectrochemical Cells for Water Splitting. <i>Oil and Gas Science and Technology</i> , 2015, 70, 877-889.	1.4	33
65	Solar Hydrogen Reaching Maturity. <i>Oil and Gas Science and Technology</i> , 2015, 70, 863-876.	1.4	29
66	Design guidelines for concentrated photo-electrochemical water splitting devices based on energy and greenhouse gas yield ratios. <i>Energy and Environmental Science</i> , 2015, 8, 3069-3082.	15.6	41
67	Optical Design of Multisource High-Flux Solar Simulators. <i>Journal of Solar Energy Engineering, Transactions of the ASME</i> , 2015, 137, .	1.1	58
68	An Integrated Device View on Photo-Electrochemical Solar-Hydrogen Generation. <i>Annual Review of Chemical and Biomolecular Engineering</i> , 2015, 6, 13-34.	3.3	58
69	Solar fuel processing efficiency for ceria redox cycling using alternative oxygen partial pressure reduction methods. <i>Energy</i> , 2015, 88, 667-679.	4.5	55
70	Holistic design guidelines for solar hydrogen production by photo-electrochemical routes. <i>Energy and Environmental Science</i> , 2015, 8, 3614-3628.	15.6	67
71	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
72	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

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73	Dynamics of photogenerated holes in undoped BiVO ₄ photoanodes for solar water oxidation. <i>Chemical Science</i> , 2014, 5, 2964-2973.	3.7	317
74	A 45 kWe Multi-Source High-Flux Solar Simulator. , 2014, , .		2
75	Heat Transfer Modeling in Integrated Photoelectrochemical Hydrogen Generators Using Concentrated Irradiation. , 2014, , .		5
76	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
77	Net primary energy balance of a solar-driven photoelectrochemical water-splitting device. <i>Energy and Environmental Science</i> , 2013, 6, 2380.	15.6	69
78	Review of Heat Transfer Research for Solar Thermochemical Applications. <i>Journal of Thermal Science and Engineering Applications</i> , 2013, 5, .	0.8	66
79	Morphology Engineering of Porous Media for Enhanced Solar Fuel and Power Production. <i>Jom</i> , 2013, 65, 1702-1709.	0.9	9
80	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
81	Integrated microfluidic test-bed for energy conversion devices. <i>Physical Chemistry Chemical Physics</i> , 2013, 15, 7050.	1.3	20
82	Tetrahedral mesh generation based on space indicator functions. <i>International Journal for Numerical Methods in Engineering</i> , 2013, 93, 1040-1056.	1.5	24
83	Effective Heat and Mass Transport Properties of Anisotropic Porous Ceria for Solar Thermochemical Fuel Generation. <i>Materials</i> , 2012, 5, 192-209.	1.3	60
84	Tomography-Based Determination of Effective Transport Properties for Reacting Porous Media. <i>Journal of Heat Transfer</i> , 2012, 134, .	1.2	12
85	Modeling, simulation, and design criteria for photoelectrochemical water-splitting systems. <i>Energy and Environmental Science</i> , 2012, 5, 9922.	15.6	264
86	Determination of the macroscopic optical properties of snow based on exact morphology and direct pore-level heat transfer modeling. <i>Journal of Geophysical Research</i> , 2012, 117, .	3.3	27
87	Tomography-based determination of permeability and Dupuit-Forchheimer coefficient of characteristic snow samples. <i>Journal of Glaciology</i> , 2011, 57, 811-816.	1.1	39
88	HycleS: a project on nuclear and solar hydrogen production by sulphur-based thermochemical cycles. <i>International Journal of Nuclear Hydrogen Production and Applications</i> , 2011, 2, 202.	0.2	7
89	Discrete vs. continuum-scale simulation of radiative transfer in semitransparent two-phase media. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 2011, 112, 1450-1459.	1.1	58
90	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

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91	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
92	Tomography-Based Determination of Effective Transport Properties for Reacting Porous Media. , 2010, , .		5
93	Tomography-Based Heat and Mass Transfer Characterization of Reticulate Porous Ceramics for High-Temperature Processing. Journal of Heat Transfer, 2010, 132, .	1.2	118
94	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
95	DISCRETE VS CONTINUUM LEVEL SIMULATION OF RADIATIVE TRANSFER IN SEMITRANSSPARENT TWO-PHASE MEDIA. , 2010, , .		3
96	CONTINUUM RADIATIVE HEAT TRANSFER MODELING IN MEDIA CONSISTING OF OPTICALLY DISTINCT COMPONENTS IN THE LIMIT OF GEOMETRICAL OPTICS. , 2010, , .		2
97	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
98	Tomographic Characterization of a Semitransparent-Particle Packed Bed and Determination of its Thermal Radiative Properties. Journal of Heat Transfer, 2009, 131, .	1.2	67
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	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
104	Linking Morphology and Multi-Physical Transport in Porous Copper Electrodes. , 0, , .		0
105	Overcoming Performance Losses in Scaling-up Metal Oxide-based Solar Water Splitting Devices. , 0, , .		0
106	Conductive Heat Transfer in Partially Saturated Gas Diffusion Layers with Evaporative Cooling. Journal of the Electrochemical Society, 0, , .	1.3	0