Sophia Haussener

List of Publications by Year in Descending Order

96 papers	3,225 citations	31 h-index	55 g-index
111 ext. papers	3,763 ext. citations	9.3 avg, IF	5.88 L-index

#	Paper	IF	Citations
96	Solar Hydrogen Production. *Energy Technology*, **2022**, 10, 2101021	3.5	0
95	Multi-configuration evaluation of a megajoule-scale high-temperature latent thermal energy storage test-bed. *Applied Thermal Engineering*, **2022**, 118697	5.8	
94	Solar Fuels Devices: Multi-Scale Modeling and Device Design Guidelines. *Springer Handbooks*, **2022**, 965-983	1.3	
93	Numerical optimization of evaporative cooling in artificial gas diffusion layers. *Applied Thermal Engineering*, **2021**, 186, 116460	5.8	2
92	Dynamic system modeling of thermally-integrated concentrated PV-electrolysis. *International Journal of Hydrogen Energy*, **2021**, 46, 10666-10681	6.7	4
91	Buoyancy-driven melting and solidification heat transfer analysis in encapsulated phase change materials. *International Journal of Heat and Mass Transfer*, **2021**, 164, 120525	4.9	20
90	Modeling and design guidelines of high-temperature photoelectrochemical devices. *Sustainable Energy and Fuels*, **2021**, 5, 2169-2180	5.8	1
89	Prospects and challenges in designing photocatalytic particle suspension reactors for solar fuel processing. *Chemical Science*, **2021**, 12, 9866-9884	9.4	6
88	Design and optimization of a high-temperature latent heat storage unit. *Applied Energy*, **2020**, 261, 114330	10.7	9
87	Mitigating voltage losses in photoelectrochemical cell scale-up. *Sustainable Energy and Fuels*, **2020**, 4, 2734-2740	5.8	12
86	Pressure Drop and Convective Heat Transfer in Different SiSiC Structures Fabricated by Indirect Additive Manufacturing. *Journal of Heat Transfer*, **2020**, 142,	1.8	7
85	Design guidelines for Al-12%Si latent heat storage encapsulations to optimize performance and mitigate degradation. *Applied Surface Science*, **2020**, 505, 143684	6.7	7
84	Practical challenges in the development of photoelectrochemical solar fuels production. *Sustainable Energy and Fuels*, **2020**, 4, 985-995	5.8	31
83	Optimizing and Implementing Light Trapping in Thin-Film, Mesostructured Photoanodes. *ACS Applied Materials & Interfaces*, **2020**, 12, 5739-5749	9.5	7
82	Sodium plating and stripping from Na-β-alumina ceramics beyond 1000 mA/cm2. *Materials Today Energy*, **2020**, 18, 100515	7	4
81	Theoretical maximum photogeneration efficiency and performance characterization of InxGa1−xN/Si tandem water-splitting photoelectrodes. *APL Materials*, **2020**, 8, 071111	5.7	3
80	Effective conductivity of porous ceramics in a radiative environment. *Ceramics International*, **2020**, 46, 2805-2815	5.1	4

79	Inverse Analysis of Radiative Flux Maps for the Characterization of High Flux Sources. *Journal of Solar Energy Engineering, Transactions of the ASME*, **2019**, 141,	2.3	1
78	Demonstrator devices for artificial photosynthesis: general discussion. *Faraday Discussions*, **2019**, 215, 345-363	3.6	1
77	Synthetic approaches to artificial photosynthesis: general discussion. *Faraday Discussions*, **2019**, 215, 242-281	3.6	4
76	Sequential Cascade Electrocatalytic Conversion of Carbon Dioxide to C□ Coupled Products. *ACS Applied Energy Materials*, **2019**, 2, 4551-4559	6.1	36
75	A thermally synergistic photo-electrochemical hydrogen generator operating under concentrated solar irradiation. *Nature Energy*, **2019**, 4, 399-407	62.3	87
74	Optimizing mesostructured silver catalysts for selective carbon dioxide conversion into fuels. *Energy and Environmental Science*, **2019**, 12, 1668-1678	35.4	45
73	Controlling strategies to maximize reliability of integrated photo-electrochemical devices exposed to realistic disturbances. *Sustainable Energy and Fuels*, **2019**, 3, 1297-1306	5.8	5
72	Rapid Performance Optimization Method for Photoelectrodes. *Journal of Physical Chemistry C*, **2019**, 123, 21838-21851	3.8	8
71	Majority Charge Carrier Transport in Particle-Based Photoelectrodes. *Journal of Physical Chemistry C*, **2019**, 123, 26082-26094	3.8	2
70	Unsteady Radiative Heat Transfer Model of a Ceria Particle Suspension Undergoing Solar Thermochemical Reduction. *Journal of Thermophysics and Heat Transfer*, **2019**, 33, 63-77	1.3	5
69	Kinetic Competition between Water-Splitting and Photocorrosion Reactions in Photoelectrochemical Devices. *ChemSusChem*, **2019**, 12, 1984-1994	8.3	18
68	Modeling and design guidelines for direct steam generation solar receivers. *Applied Energy*, **2018**, 216, 761-776	10.7	28
67	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	2.1	5
66	Transport characteristics of saturated gas diffusion layers treated with hydrophobic coatings. *Chemical Engineering Science*, **2018**, 176, 503-514	4.4	21
65	Determination and optimization of material parameters of particle-based LaTiO2N photoelectrodes. *Journal of Materials Chemistry A*, **2018**, 6, 17337-17352	13	9
64	Atomic layer deposition of TiO2 for stabilization of Pt nanoparticle oxygen reduction reaction catalysts. *Journal of Applied Electrochemistry*, **2018**, 48, 973-984	2.6	10
63	Pathways to electrochemical solar-hydrogen technologies. *Energy and Environmental Science*, **2018**, 11, 2768-2783	35.4	165
62	Linking morphology and multi-physical transport in structured photoelectrodes. *Sustainable Energy and Fuels*, **2018**, 2, 2661-2673	5.8	13

61	An integrated concentrated solar fuel generator utilizing a tubular solid oxide electrolysis cell as solar absorber. *Journal of Power Sources*, **2018**, 400, 592-604	8.9	7
60	Reliable Performance Characterization of Mediated Photocatalytic Water-Splitting Half Reactions. *ChemSusChem*, **2017**, 10, 2158-2166	8.3	6
59	Degradation in photoelectrochemical devices: review with an illustrative case study. *Journal Physics D: Applied Physics*, **2017**, 50, 124002	3	49
58	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	4.9	10
57	Tomography-based radiative characterisation of decomposing carbonaceous heat shield materials. *Carbon*, **2017**, 122, 451-461	10.4	4
56	Techno-economic modeling and optimization of solar-driven high-temperature electrolysis systems. *Solar Energy*, **2017**, 155, 1389-1402	6.8	24
55	High-flux optical systems for solar thermochemistry. *Solar Energy*, **2017**, 156, 133-148	6.8	38
54	Modelling of solar thermochemical reaction systems. *Solar Energy*, **2017**, 156, 149-168	6.8	35
53	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	2.1	20
52	Modellierung, Simulation und Implementierung von Zellen f□ die solargetriebene Wasserspaltung. *Angewandte Chemie*, **2016**, 128, 13168-13183	3.6	7
51	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	3.8	11
50	Charge Transport in Two-Photon Semiconducting Structures for Solar Fuels. *ChemSusChem*, **2016**, 9, 2878-2904	7.3	33
49	Modeling, Simulation, and Implementation of Solar-Driven Water-Splitting Devices. *Angewandte Chemie - International Edition*, **2016**, 55, 12974-12988	16.4	86
48	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	
47	Combined Experimental-Numerical Analysis of Transient Phenomena in a Photoelectrochemical Water Splitting Cell. *Journal of Physical Chemistry C*, **2016**, 120, 3705-3714	3.8	19
46	Utilizing modeling, experiments, and statistics for the analysis of water-splitting photoelectrodes. *Journal of Materials Chemistry A*, **2016**, 4, 3100-3114	13	40
45	High-flux solar simulator technology **2016**,		5
44	Experimental and numerical characterization of a new 45 kWel multisource high-flux solar simulator. *Optics Express*, **2016**, 24, A1360-A1373	3.3	44

43	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	
42	Integrated Photo-Electrochemical Solar Fuel Generators under Concentrated Irradiation. *Journal of the Electrochemical Society*, **2016**, 163, H988-H998	3.9	20
41	Modeling of Concurrent CO2 and Water Splitting by Practical Photoelectrochemical Devices. *Journal of the Electrochemical Society*, **2016**, 163, H1008-H1018	3.9	7
40	Integrated Photo-Electrochemical Solar Fuel Generators under Concentrated Irradiation. *Journal of the Electrochemical Society*, **2016**, 163, H999-H1007	3.9	13
39	Mass transport aspects of electrochemical solar-hydrogen generation. *Energy and Environmental Science*, **2016**, 9, 1533-1551	35.4	64
38	Early-stage oxidation behavior at high temperatures of SiSiC cellular architectures in a porous burner. *Ceramics International*, **2016**, 42, 16255-16261	5.1	10
37	Solar fuel processing efficiency for ceria redox cycling using alternative oxygen partial pressure reduction methods. *Energy*, **2015**, 88, 667-679	7.9	39
36	Holistic design guidelines for solar hydrogen production by photo-electrochemical routes. *Energy and Environmental Science*, **2015**, 8, 3614-3628	35.4	52
35	Phase Change Material Systems for High Temperature Heat Storage. *Chimia*, **2015**, 69, 780-783	1.3	1
34	Design of Compact Photoelectrochemical Cells for Water Splitting. *Oil and Gas Science and Technology*, **2015**, 70, 877-889	1.9	24
33	Solar Hydrogen Reaching Maturity. *Oil and Gas Science and Technology*, **2015**, 70, 863-876	1.9	23
32	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	35.4	28
31	Optical Design of Multisource High-Flux Solar Simulators. *Journal of Solar Energy Engineering, Transactions of the ASME*, **2015**, 137,	2.3	52
30	An Integrated Device View on Photo-Electrochemical Solar-Hydrogen Generation. *Annual Review of Chemical and Biomolecular Engineering*, **2015**, 6, 13-34	8.9	48
29	Robust production of purified H2 in a stable, self-regulating, and continuously operating solar fuel generator. *Energy and Environmental Science*, **2014**, 7, 297-301	35.4	74
28	Pore-level engineering of macroporous media for increased performance of solar-driven thermochemical fuel processing. *International Journal of Heat and Mass Transfer*, **2014**, 78, 688-698	4.9	58
27	Dynamics of photogenerated holes in undoped BiVO4 photoanodes for solar water oxidation. *Chemical Science*, **2014**, 5, 2964-2973	9.4	253
26	A 45 kWe Multi-Source High-Flux Solar Simulator **2014**,		2

25	Heat Transfer Modeling in Integrated Photoelectrochemical Hydrogen Generators Using Concentrated Irradiation **2014**,		4
24	An analysis of the optimal band gaps of light absorbers in integrated tandem photoelectrochemical water-splitting systems. *Energy and Environmental Science*, **2013**, 6, 2984	35.4	425
23	Net primary energy balance of a solar-driven photoelectrochemical water-splitting device. *Energy and Environmental Science*, **2013**, 6, 2380	35.4	54
22	Review of Heat Transfer Research for Solar Thermochemical Applications. *Journal of Thermal Science and Engineering Applications*, **2013**, 5,	1.9	56
21	Morphology Engineering of Porous Media for Enhanced Solar Fuel and Power Production. *Jom*, **2013**, 65, 1702-1709	2.1	6
20	Simulations of the irradiation and temperature dependence of the efficiency of tandem photoelectrochemical water-splitting systems. *Energy and Environmental Science*, **2013**, 6, 3605	35.4	132
19	Integrated microfluidic test-bed for energy conversion devices. *Physical Chemistry Chemical Physics*, **2013**, 15, 7050-4	3.6	14
18	Tetrahedral mesh generation based on space indicator functions. *International Journal for Numerical Methods in Engineering*, **2013**, 93, 1040-1056	2.4	21
17	Modeling, simulation, and design criteria for photoelectrochemical water-splitting systems. *Energy and Environmental Science*, **2012**, 5, 9922	35.4	232
16	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, n/a-n/a		22
15	Effective Heat and Mass Transport Properties of Anisotropic Porous Ceria for Solar Thermochemical Fuel Generation. *Materials*, **2012**, 5, 192-209	3.5	51
14	Tomography-Based Determination of Effective Transport Properties for Reacting Porous Media. *Journal of Heat Transfer*, **2012**, 134,	1.8	12
13	Tomography-based determination of permeability and Dupuit–Forchheimer coefficient of characteristic snow samples. *Journal of Glaciology*, **2011**, 57, 811-816	3.4	32
12	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		5
11	Discrete vs. continuum-scale simulation of radiative transfer in semitransparent two-phase media. *Journal of Quantitative Spectroscopy and Radiative Transfer*, **2011**, 112, 1450-1459	2.1	46
10	Tomography-Based Determination of Effective Transport Properties for Reacting Porous Media **2010**,		5
9	Tomography-Based Heat and Mass Transfer Characterization of Reticulate Porous Ceramics for High-Temperature Processing. *Journal of Heat Transfer*, **2010**, 132,	1.8	103
8	Tomography-Based Analysis of Radiative Transfer in Reacting Packed Beds Undergoing a Solid-Gas Thermochemical Transformation. *Journal of Heat Transfer*, **2010**, 132,	1.8	22

7	Application of the spatial averaging theorem to radiative heat transfer in two-phase media. *Journal of Quantitative Spectroscopy and Radiative Transfer*, **2010**, 111, 253-258	2.1	52
6	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	2.1	39
5	DISCRETE VS CONTINUUM LEVEL SIMULATION OF RADIATIVE TRANSFER IN SEMITRANSPARENT TWO-PHASE MEDIA **2010**,		2
4	Modeling of a Multitube High-Temperature Solar Thermochemical Reactor for Hydrogen Production. *Journal of Solar Energy Engineering, Transactions of the ASME*, **2009**, 131,	2.3	24
3	Tomographic Characterization of a Semitransparent-Particle Packed Bed and Determination of its Thermal Radiative Properties. *Journal of Heat Transfer*, **2009**, 131,	1.8	53
2	Non-uniform porous structures and cycling control for optimized fixed-bed solar thermochemical water splitting. *Journal of Solar Energy Engineering, Transactions of the ASME*,1-24	2.3	
1	Modulating electric field distribution by alkali cations for CO2 electroreduction in strongly acidic medium. *Nature Catalysis*,	36.5	25