

# Sophia Haussener

## List of Publications by Citations

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

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	An analysis of the optimal band gaps of light absorbers in integrated tandem photoelectrochemical water-splitting systems. <i>Energy and Environmental Science</i> , <b>2013</b> , 6, 2984	35.4	425
95	Dynamics of photogenerated holes in undoped BiVO <sub>4</sub> photoanodes for solar water oxidation. <i>Chemical Science</i> , <b>2014</b> , 5, 2964-2973	9.4	253
94	Modeling, simulation, and design criteria for photoelectrochemical water-splitting systems. <i>Energy and Environmental Science</i> , <b>2012</b> , 5, 9922	35.4	232
93	Pathways to electrochemical solar-hydrogen technologies. <i>Energy and Environmental Science</i> , <b>2018</b> , 11, 2768-2783	35.4	165
92	Simulations of the irradiation and temperature dependence of the efficiency of tandem photoelectrochemical water-splitting systems. <i>Energy and Environmental Science</i> , <b>2013</b> , 6, 3605	35.4	132
91	Tomography-Based Heat and Mass Transfer Characterization of Reticulate Porous Ceramics for High-Temperature Processing. <i>Journal of Heat Transfer</i> , <b>2010</b> , 132,	1.8	103
90	A thermally synergistic photo-electrochemical hydrogen generator operating under concentrated solar irradiation. <i>Nature Energy</i> , <b>2019</b> , 4, 399-407	62.3	87
89	Modeling, Simulation, and Implementation of Solar-Driven Water-Splitting Devices. <i>Angewandte Chemie - International Edition</i> , <b>2016</b> , 55, 12974-12988	16.4	86
88	Robust production of purified H <sub>2</sub> in a stable, self-regulating, and continuously operating solar fuel generator. <i>Energy and Environmental Science</i> , <b>2014</b> , 7, 297-301	35.4	74
87	Mass transport aspects of electrochemical solar-hydrogen generation. <i>Energy and Environmental Science</i> , <b>2016</b> , 9, 1533-1551	35.4	64
86	Pore-level engineering of macroporous media for increased performance of solar-driven thermochemical fuel processing. <i>International Journal of Heat and Mass Transfer</i> , <b>2014</b> , 78, 688-698	4.9	58
85	Review of Heat Transfer Research for Solar Thermochemical Applications. <i>Journal of Thermal Science and Engineering Applications</i> , <b>2013</b> , 5,	1.9	56
84	Net primary energy balance of a solar-driven photoelectrochemical water-splitting device. <i>Energy and Environmental Science</i> , <b>2013</b> , 6, 2380	35.4	54
83	Tomographic Characterization of a Semitransparent-Particle Packed Bed and Determination of its Thermal Radiative Properties. <i>Journal of Heat Transfer</i> , <b>2009</b> , 131,	1.8	53
82	Holistic design guidelines for solar hydrogen production by photo-electrochemical routes. <i>Energy and Environmental Science</i> , <b>2015</b> , 8, 3614-3628	35.4	52
81	Optical Design of Multisource High-Flux Solar Simulators. <i>Journal of Solar Energy Engineering, Transactions of the ASME</i> , <b>2015</b> , 137,	2.3	52
80	Application of the spatial averaging theorem to radiative heat transfer in two-phase media. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , <b>2010</b> , 111, 253-258	2.1	52

79	Effective Heat and Mass Transport Properties of Anisotropic Porous Ceria for Solar Thermochemical Fuel Generation. <i>Materials</i> , <b>2012</b> , 5, 192-209	3.5	51
78	Degradation in photoelectrochemical devices: review with an illustrative case study. <i>Journal Physics D: Applied Physics</i> , <b>2017</b> , 50, 124002	3	49
77	An Integrated Device View on Photo-Electrochemical Solar-Hydrogen Generation. <i>Annual Review of Chemical and Biomolecular Engineering</i> , <b>2015</b> , 6, 13-34	8.9	48
76	Discrete vs. continuum-scale simulation of radiative transfer in semitransparent two-phase media. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , <b>2011</b> , 112, 1450-1459	2.1	46
75	Optimizing mesostructured silver catalysts for selective carbon dioxide conversion into fuels. <i>Energy and Environmental Science</i> , <b>2019</b> , 12, 1668-1678	35.4	45
74	Experimental and numerical characterization of a new 45 kWel multisource high-flux solar simulator. <i>Optics Express</i> , <b>2016</b> , 24, A1360-A1373	3.3	44
73	Utilizing modeling, experiments, and statistics for the analysis of water-splitting photoelectrodes. <i>Journal of Materials Chemistry A</i> , <b>2016</b> , 4, 3100-3114	13	40
72	Solar fuel processing efficiency for ceria redox cycling using alternative oxygen partial pressure reduction methods. <i>Energy</i> , <b>2015</b> , 88, 667-679	7.9	39
71	Continuum radiative heat transfer modeling in media consisting of optically distinct components in the limit of geometrical optics. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , <b>2010</b> , 111, 2474-2480	2.1	39
70	High-flux optical systems for solar thermochemistry. <i>Solar Energy</i> , <b>2017</b> , 156, 133-148	6.8	38
69	Sequential Cascade Electrocatalytic Conversion of Carbon Dioxide to C <sub>1</sub> Coupled Products. <i>ACS Applied Energy Materials</i> , <b>2019</b> , 2, 4551-4559	6.1	36
68	Modelling of solar thermochemical reaction systems. <i>Solar Energy</i> , <b>2017</b> , 156, 149-168	6.8	35
67	Charge Transport in Two-Photon Semiconducting Structures for Solar Fuels. <i>ChemSusChem</i> , <b>2016</b> , 9, 2878-2904	3.3	33
66	Tomography-based determination of permeability and Dupuit-Borchheimer coefficient of characteristic snow samples. <i>Journal of Glaciology</i> , <b>2011</b> , 57, 811-816	3.4	32
65	Practical challenges in the development of photoelectrochemical solar fuels production. <i>Sustainable Energy and Fuels</i> , <b>2020</b> , 4, 985-995	5.8	31
64	Modeling and design guidelines for direct steam generation solar receivers. <i>Applied Energy</i> , <b>2018</b> , 216, 761-776	10.7	28
63	Design guidelines for concentrated photo-electrochemical water splitting devices based on energy and greenhouse gas yield ratios. <i>Energy and Environmental Science</i> , <b>2015</b> , 8, 3069-3082	35.4	28
62	Modulating electric field distribution by alkali cations for CO <sub>2</sub> electroreduction in strongly acidic medium. <i>Nature Catalysis</i> ,	36.5	25

61	Techno-economic modeling and optimization of solar-driven high-temperature electrolysis systems. <i>Solar Energy</i> , <b>2017</b> , 155, 1389-1402	6.8	24
60	Design of Compact Photoelectrochemical Cells for Water Splitting. <i>Oil and Gas Science and Technology</i> , <b>2015</b> , 70, 877-889	1.9	24
59	Modeling of a Multitube High-Temperature Solar Thermochemical Reactor for Hydrogen Production. <i>Journal of Solar Energy Engineering, Transactions of the ASME</i> , <b>2009</b> , 131,	2.3	24
58	Solar Hydrogen Reaching Maturity. <i>Oil and Gas Science and Technology</i> , <b>2015</b> , 70, 863-876	1.9	23
57	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> , <b>2012</b> , 117, n/a-n/a		22
56	Tomography-Based Analysis of Radiative Transfer in Reacting Packed Beds Undergoing a Solid-Gas Thermochemical Transformation. <i>Journal of Heat Transfer</i> , <b>2010</b> , 132,	1.8	22
55	Transport characteristics of saturated gas diffusion layers treated with hydrophobic coatings. <i>Chemical Engineering Science</i> , <b>2018</b> , 176, 503-514	4.4	21
54	Tetrahedral mesh generation based on space indicator functions. <i>International Journal for Numerical Methods in Engineering</i> , <b>2013</b> , 93, 1040-1056	2.4	21
53	Radiative characterization of random fibrous media with long cylindrical fibers: Comparison of single- and multi-RTE approaches. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , <b>2017</b> , 202, 220-232	2.1	20
52	Integrated Photo-Electrochemical Solar Fuel Generators under Concentrated Irradiation. <i>Journal of the Electrochemical Society</i> , <b>2016</b> , 163, H988-H998	3.9	20
51	Buoyancy-driven melting and solidification heat transfer analysis in encapsulated phase change materials. <i>International Journal of Heat and Mass Transfer</i> , <b>2021</b> , 164, 120525	4.9	20
50	Combined Experimental-Numerical Analysis of Transient Phenomena in a Photoelectrochemical Water Splitting Cell. <i>Journal of Physical Chemistry C</i> , <b>2016</b> , 120, 3705-3714	3.8	19
49	Kinetic Competition between Water-Splitting and Photocorrosion Reactions in Photoelectrochemical Devices. <i>ChemSusChem</i> , <b>2019</b> , 12, 1984-1994	8.3	18
48	Integrated microfluidic test-bed for energy conversion devices. <i>Physical Chemistry Chemical Physics</i> , <b>2013</b> , 15, 7050-4	3.6	14
47	Integrated Photo-Electrochemical Solar Fuel Generators under Concentrated Irradiation. <i>Journal of the Electrochemical Society</i> , <b>2016</b> , 163, H999-H1007	3.9	13
46	Linking morphology and multi-physical transport in structured photoelectrodes. <i>Sustainable Energy and Fuels</i> , <b>2018</b> , 2, 2661-2673	5.8	13
45	Mitigating voltage losses in photoelectrochemical cell scale-up. <i>Sustainable Energy and Fuels</i> , <b>2020</b> , 4, 2734-2740	5.8	12
44	Tomography-Based Determination of Effective Transport Properties for Reacting Porous Media. <i>Journal of Heat Transfer</i> , <b>2012</b> , 134,	1.8	12

43	Minimization of Ionic Transport Resistance in Porous Monoliths for Application in Integrated Solar Water Splitting Devices. <i>Journal of Physical Chemistry C</i> , <b>2016</b> , 120, 21242-21247	3.8	11
42	Numerical quantification of coupling effects for radiation-conduction heat transfer in participating macroporous media: Investigation of a model geometry. <i>International Journal of Heat and Mass Transfer</i> , <b>2017</b> , 112, 387-400	4.9	10
41	Atomic layer deposition of TiO <sub>2</sub> for stabilization of Pt nanoparticle oxygen reduction reaction catalysts. <i>Journal of Applied Electrochemistry</i> , <b>2018</b> , 48, 973-984	2.6	10
40	Early-stage oxidation behavior at high temperatures of SiSiC cellular architectures in a porous burner. <i>Ceramics International</i> , <b>2016</b> , 42, 16255-16261	5.1	10
39	Design and optimization of a high-temperature latent heat storage unit. <i>Applied Energy</i> , <b>2020</b> , 261, 114330.7	3.7	9
38	Determination and optimization of material parameters of particle-based LaTiO <sub>2</sub> N photoelectrodes. <i>Journal of Materials Chemistry A</i> , <b>2018</b> , 6, 17337-17352	1.3	9
37	Rapid Performance Optimization Method for Photoelectrodes. <i>Journal of Physical Chemistry C</i> , <b>2019</b> , 123, 21838-21851	3.8	8
36	Modellierung, Simulation und Implementierung von Zellen für die solargetriebene Wasserspaltung. <i>Angewandte Chemie</i> , <b>2016</b> , 128, 13168-13183	3.6	7
35	Pressure Drop and Convective Heat Transfer in Different SiSiC Structures Fabricated by Indirect Additive Manufacturing. <i>Journal of Heat Transfer</i> , <b>2020</b> , 142,	1.8	7
34	Design guidelines for Al-12%Si latent heat storage encapsulations to optimize performance and mitigate degradation. <i>Applied Surface Science</i> , <b>2020</b> , 505, 143684	6.7	7
33	Optimizing and Implementing Light Trapping in Thin-Film, Mesoporous Photoanodes. <i>ACS Applied Materials &amp; Interfaces</i> , <b>2020</b> , 12, 5739-5749	9.5	7
32	Modeling of Concurrent CO <sub>2</sub> and Water Splitting by Practical Photoelectrochemical Devices. <i>Journal of the Electrochemical Society</i> , <b>2016</b> , 163, H1008-H1018	3.9	7
31	An integrated concentrated solar fuel generator utilizing a tubular solid oxide electrolysis cell as solar absorber. <i>Journal of Power Sources</i> , <b>2018</b> , 400, 592-604	8.9	7
30	Reliable Performance Characterization of Mediated Photocatalytic Water-Splitting Half Reactions. <i>ChemSusChem</i> , <b>2017</b> , 10, 2158-2166	8.3	6
29	Morphology Engineering of Porous Media for Enhanced Solar Fuel and Power Production. <i>Jom</i> , <b>2013</b> , 65, 1702-1709	2.1	6
28	Prospects and challenges in designing photocatalytic particle suspension reactors for solar fuel processing. <i>Chemical Science</i> , <b>2021</b> , 12, 9866-9884	9.4	6
27	Controlling strategies to maximize reliability of integrated photo-electrochemical devices exposed to realistic disturbances. <i>Sustainable Energy and Fuels</i> , <b>2019</b> , 3, 1297-1306	5.8	5
26	Optical characterization of multi-scale morphologically complex heterogeneous media □ Application to snow with soot impurities. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , <b>2018</b> , 206, 378-391	2.1	5

25	HycycleS: a project on nuclear and solar hydrogen production by sulphur-based thermochemical cycles. <i>International Journal of Nuclear Hydrogen Production and Applications</i> , <b>2011</b> , 2, 202		5
24	Tomography-Based Determination of Effective Transport Properties for Reacting Porous Media <b>2010</b> ,		5
23	High-flux solar simulator technology <b>2016</b> ,		5
22	Unsteady Radiative Heat Transfer Model of a Ceria Particle Suspension Undergoing Solar Thermochemical Reduction. <i>Journal of Thermophysics and Heat Transfer</i> , <b>2019</b> , 33, 63-77	1.3	5
21	Tomography-based radiative characterisation of decomposing carbonaceous heat shield materials. <i>Carbon</i> , <b>2017</b> , 122, 451-461	10.4	4
20	Synthetic approaches to artificial photosynthesis: general discussion. <i>Faraday Discussions</i> , <b>2019</b> , 215, 242-281	3.6	4
19	Heat Transfer Modeling in Integrated Photoelectrochemical Hydrogen Generators Using Concentrated Irradiation <b>2014</b> ,		4
18	Sodium plating and stripping from Na- $\beta$ -alumina ceramics beyond 1000 mA/cm <sup>2</sup> . <i>Materials Today Energy</i> , <b>2020</b> , 18, 100515	7	4
17	Dynamic system modeling of thermally-integrated concentrated PV-electrolysis. <i>International Journal of Hydrogen Energy</i> , <b>2021</b> , 46, 10666-10681	6.7	4
16	Effective conductivity of porous ceramics in a radiative environment. <i>Ceramics International</i> , <b>2020</b> , 46, 2805-2815	5.1	4
15	Theoretical maximum photogeneration efficiency and performance characterization of InxGa1-xN/Si tandem water-splitting photoelectrodes. <i>APL Materials</i> , <b>2020</b> , 8, 071111	5.7	3
14	Majority Charge Carrier Transport in Particle-Based Photoelectrodes. <i>Journal of Physical Chemistry C</i> , <b>2019</b> , 123, 26082-26094	3.8	2
13	A 45 kWe Multi-Source High-Flux Solar Simulator <b>2014</b> ,		2
12	DISCRETE VS CONTINUUM LEVEL SIMULATION OF RADIATIVE TRANSFER IN SEMITRANSSPARENT TWO-PHASE MEDIA <b>2010</b> ,		2
11	Numerical optimization of evaporative cooling in artificial gas diffusion layers. <i>Applied Thermal Engineering</i> , <b>2021</b> , 186, 116460	5.8	2
10	Inverse Analysis of Radiative Flux Maps for the Characterization of High Flux Sources. <i>Journal of Solar Energy Engineering, Transactions of the ASME</i> , <b>2019</b> , 141,	2.3	1
9	Demonstrator devices for artificial photosynthesis: general discussion. <i>Faraday Discussions</i> , <b>2019</b> , 215, 345-363	3.6	1
8	Phase Change Material Systems for High Temperature Heat Storage. <i>Chimia</i> , <b>2015</b> , 69, 780-783	1.3	1

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| 7 | Modeling and design guidelines of high-temperature photoelectrochemical devices. <i>Sustainable Energy and Fuels</i> , <b>2021</b> , 5, 2169-2180  | 5.8 | 1 |
| 6 | Solar Hydrogen Production. <i>Energy Technology</i> , <b>2022</b> , 10, 2101021  | 3.5 | 0 |
| 5 | Methodology for optical characterization of multi-scale morphologically complex heterogeneous media - Application to snow with soot impurities. <i>Journal of Physics: Conference Series</i> , <b>2016</b> , 676, 012003 | 0.3 |   |
| 4 | Non-uniform porous structures and cycling control for optimized fixed-bed solar thermochemical water splitting. <i>Journal of Solar Energy Engineering, Transactions of the ASME</i> , 1-24                              | 2.3 |   |
| 3 | Continuum radiative heat transfer modeling in multi-component anisotropic media in the limit of geometrical optics. <i>Journal of Physics: Conference Series</i> , <b>2016</b> , 676, 012015                             | 0.3 |   |
| 2 | Multi-configuration evaluation of a megajoule-scale high-temperature latent thermal energy storage test-bed. <i>Applied Thermal Engineering</i> , <b>2022</b> , 118697   | 5.8 |   |
| 1 | Solar Fuels Devices: Multi-Scale Modeling and Device Design Guidelines. <i>Springer Handbooks</i> , <b>2022</b> , 965-983  | 9.3 |   |