

# Jonathan A Fan

## List of Publications by Year in descending order

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76  
papers

6,343  
citations

87888

38  
h-index

102487

66  
g-index

79  
all docs

79  
docs citations

79  
times ranked

6459  
citing authors

#	ARTICLE	IF	CITATIONS
1	In Situ TEM tensile testing of bicrystals with tailored misorientation angles. <i>Acta Materialia</i> , 2022, 224, 117505.	7.9	6
2	Ultrahigh-Quality Infrared Polaritonic Resonators Based on Bottom-Up-Synthesized van der Waals Nanoribbons. <i>ACS Nano</i> , 2022, 16, 3027-3035.	14.6	20
3	Multifunctional conformal grayscale electromagnetic metamaterials. , 2022, , .		0
4	Dynamic circular birefringence response with fractured geometric phase metasurface systems. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2022, 119, e2122085119.	7.1	11
5	Ultrahigh quality van der Waals hyperbolic polariton resonators. , 2022, , .		0
6	WaveY-Net: physics-augmented deep-learning for high-speed electromagnetic simulation and optimization. , 2022, , .		5
7	Electrically Driven Hyperbolic Nanophotonic Resonators as High Speed, Spectrally Selective Thermal Radiators. <i>Nano Letters</i> , 2022, 22, 5832-5840.	9.1	4
8	Driving Towards Highly Selective and Coking-Resistant Natural Gas Reforming Through a Hybrid Oxygen Carrier Design. <i>ChemCatChem</i> , 2021, 13, 617-626.	3.7	7
9	Highly Selective Production of Syngas from Chemical Looping Reforming of Methane with CO <sub>2</sub> Utilization on MgO-supported Calcium Ferrite Redox Materials. <i>Applied Energy</i> , 2021, 282, 116111.	10.1	52
10	Deep neural networks for the evaluation and design of photonic devices. <i>Nature Reviews Materials</i> , 2021, 6, 679-700.	48.7	265
11	Codoping Mg-Mn Based Oxygen Carrier with Lithium and Tungsten for Enhanced C <sub>2</sub> Yield in a Chemical Looping Oxidative Coupling of Methane System. <i>ACS Sustainable Chemistry and Engineering</i> , 2021, 9, 2651-2660.	6.7	22
12	Raman spectroscopic study of artificially twisted and non-twisted trilayer graphene. <i>Applied Physics Letters</i> , 2021, 118, .	3.3	3
13	Detection of Trace Impurity Gradients in Noble Metals by the Photothermoelectric Effect. <i>Journal of Physical Chemistry C</i> , 2021, 125, 17509-17517.	3.1	0
14	Optical meta-waveguides for integrated photonics and beyond. <i>Light: Science and Applications</i> , 2021, 10, 235.	16.6	196
15	Tunable Achromatic Circular Waveplates by Shifting Cascaded Metagratings. , 2021, , .		0
16	Freeform grayscale electromagnetic metamaterials. , 2021, , .		1
17	Simulator-based training of generative neural networks for the inverse design of metasurfaces. <i>Nanophotonics</i> , 2020, 9, 1059-1069.	6.0	96
18	Cobalt doping modification for enhanced methane conversion at low temperature in chemical looping reforming systems. <i>Catalysis Today</i> , 2020, 350, 156-164.	4.4	34

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19	Multiple Tunable Hyperbolic Resonances in Broadband Infrared Carbon-Nanotube Metamaterials. <i>Physical Review Applied</i> , 2020, 14, .	3.8	17
20	Cyclic redox scheme towards shale gas reforming: a review and perspectives. <i>Reaction Chemistry and Engineering</i> , 2020, 5, 2204-2220.	3.7	17
21	Mechanistic Insight into Hydrogen-Assisted Carbon Dioxide Reduction with Ilmenite. <i>Energy &amp; Fuels</i> , 2020, 34, 15370-15378.	5.1	7
22	Numerical Optimization Methods for Metasurfaces. <i>Laser and Photonics Reviews</i> , 2020, 14, 1900445.	8.7	100
23	Design Space Reparameterization Enforces Hard Geometric Constraints in Inverse-Designed Nanophotonic Devices. <i>ACS Photonics</i> , 2020, 7, 3141-3151.	6.6	29
24	Thermoelectric response from grain boundaries and lattice distortions in crystalline gold devices. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2020, 117, 23350-23355.	7.1	10
25	SBA-16-Mediated Nanoparticles Enabling Accelerated Kinetics in Cyclic Methane Conversion to Syngas at Low Temperatures. <i>ACS Applied Energy Materials</i> , 2020, 3, 9833-9840.	5.1	12
26	Robust Freeform Metasurface Design Based on Progressively Growing Generative Networks. <i>ACS Photonics</i> , 2020, 7, 2098-2104.	6.6	62
27	Freeform metasurface design based on topology optimization. <i>MRS Bulletin</i> , 2020, 45, 196-201.	3.5	57
28	Mid-IR and UV-Vis-NIR Mueller matrix ellipsometry characterization of tunable hyperbolic metamaterials based on self-assembled carbon nanotubes. <i>Journal of Vacuum Science and Technology B: Nanotechnology and Microelectronics</i> , 2020, 38, 014015.	1.2	14
29	3D Electromagnetic Reconfiguration Enabled by Soft Continuum Robots. <i>IEEE Robotics and Automation Letters</i> , 2020, 5, 1704-1711.	5.1	12
30	MetaNet: a new paradigm for data sharing in photonics research. <i>Optics Express</i> , 2020, 28, 13670.	3.4	35
31	Multiobjective and categorical global optimization of photonic structures based on ResNet generative neural networks. <i>Nanophotonics</i> , 2020, 10, 361-369.	6.0	34
32	Highly confined plasmons in individual single-walled carbon nanotube nanoantennas. , 2020, , .		0
33	Reparameterization to Enforce Constraints in the Inverse Design of Metasurfaces. , 2020, , .		0
34	Broadband Mid-Infrared Resonances in Aligned Carbon Nanotube Films. , 2020, , .		0
35	Free-Form Diffractive Metagrating Design Based on Generative Adversarial Networks. <i>ACS Nano</i> , 2019, 13, 8872-8878.	14.6	243
36	Global Optimization of Dielectric Metasurfaces Using a Physics-Driven Neural Network. <i>Nano Letters</i> , 2019, 19, 5366-5372.	9.1	258

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37	High-throughput Growth of Microscale Gold Bicrystals for Single-grain Boundary Studies. <i>Advanced Materials</i> , 2019, 31, 1902189.	21.0	6
38	High-efficiency, large-area, topology-optimized metasurfaces. <i>Light: Science and Applications</i> , 2019, 8, 48.	16.6	207
39	Ternary content-addressable memory with MoS <sub>2</sub> transistors for massively parallel data search. <i>Nature Electronics</i> , 2019, 2, 108-114.	26.0	83
40	Tunable Hyperbolic Metamaterials Based on Self-Assembled Carbon Nanotubes. <i>Nano Letters</i> , 2019, 19, 3131-3137.	9.1	56
41	Large-area MRI-compatible epidermal electronic interfaces for prosthetic control and cognitive monitoring. <i>Nature Biomedical Engineering</i> , 2019, 3, 194-205.	22.5	253
42	Near 100% CO selectivity in nanoscaled iron-based oxygen carriers for chemical looping methane partial oxidation. <i>Nature Communications</i> , 2019, 10, 5503.	12.8	98
43	Robust design of topology-optimized metasurfaces. <i>Optical Materials Express</i> , 2019, 9, 469.	3.0	68
44	Review of numerical optimization techniques for meta-device design [Invited]. <i>Optical Materials Express</i> , 2019, 9, 1842.	3.0	213
45	Generating high performance, topologically-complex metasurfaces with neural networks. , 2019, , .		2
46	Realization of Topology-Optimized Multilayer Metasurfaces. , 2019, , .		0
47	High-performance axicon lenses based on high-contrast, multilayer gratings. <i>APL Photonics</i> , 2018, 3, 011302.	5.7	6
48	A Tip-Extending Soft Robot Enables Reconfigurable and Deployable Antennas. <i>IEEE Robotics and Automation Letters</i> , 2018, 3, 949-956.	5.1	66
49	Single-crystal metal growth on amorphous insulating substrates. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2018, 115, 685-689.	7.1	12
50	Ultra-High-Efficiency Anomalous Refraction with Dielectric Metasurfaces. <i>ACS Photonics</i> , 2018, 5, 2402-2407.	6.6	86
51	Freeform Metagratings Based on Complex Light Scattering Dynamics for Extreme, High Efficiency Beam Steering. <i>Annalen Der Physik</i> , 2018, 530, 1700302.	2.4	61
52	Metal oxide redox chemistry for chemical looping processes. <i>Nature Reviews Chemistry</i> , 2018, 2, 349-364.	30.2	352
53	C <sub>2</sub> Selectivity Enhancement in Chemical Looping Oxidative Coupling of Methane over a Mg-Mn Composite Oxygen Carrier by Li-Doping-Induced Oxygen Vacancies. <i>ACS Energy Letters</i> , 2018, 3, 1730-1736.	17.4	75
54	Understanding Interlayer Coupling in TMD-hBN Heterostructure by Raman Spectroscopy. <i>IEEE Transactions on Electron Devices</i> , 2018, 65, 4059-4067.	3.0	26

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55	Enhanced methane conversion in chemical looping partial oxidation systems using a copper doping modification. <i>Applied Catalysis B: Environmental</i> , 2018, 235, 143-149.	20.2	103
56	Stretchable Electronics: In-plane Deformation Mechanics for Highly Stretchable Electronics (Adv. Tj ETQq0 0 0 rgBT /Overlock 10 Tf 50	21.0	5
57	Large-Angle, Multifunctional Metagratings Based on Freeform Multimode Geometries. <i>Nano Letters</i> , 2017, 17, 3752-3757.	9.1	398
58	In-plane Deformation Mechanics for Highly Stretchable Electronics. <i>Advanced Materials</i> , 2017, 29, 1604989.	21.0	141
59	Impact of 1% Lanthanum Dopant on Carbonaceous Fuel Redox Reactions with an Iron-Based Oxygen Carrier in Chemical Looping Processes. <i>ACS Energy Letters</i> , 2017, 2, 70-74.	17.4	77
60	Periodic Dielectric Metasurfaces with High Efficiency, Multiwavelength Functionalities. <i>Advanced Optical Materials</i> , 2017, 5, 1700645.	7.3	105
61	A General Strategy for Stretchable Microwave Antenna Systems using Serpentine Mesh Layouts. <i>Advanced Functional Materials</i> , 2017, 27, 1703059.	14.9	43
62	Improved cyclic redox reactivity of lanthanum modified iron-based oxygen carriers in carbon monoxide chemical looping combustion. <i>Journal of Materials Chemistry A</i> , 2017, 5, 20153-20160.	10.3	38
63	Analysis of material selection on dielectric metasurface performance. <i>Optics Express</i> , 2017, 25, 23899.	3.4	58
64	Topology-optimized metasurfaces: impact of initial geometric layout. <i>Optics Letters</i> , 2017, 42, 3161.	3.3	68
65	Strain-Limiting Substrates Based on Nonbuckling, Prestrain-Free Mechanics for Robust Stretchable Electronics. <i>Journal of Applied Mechanics, Transactions ASME</i> , 2017, 84, .	2.2	19
66	Visible Light Metasurfaces Based on Single-Crystal Silicon. <i>ACS Photonics</i> , 2016, 3, 1919-1925.	6.6	93
67	Epidermal radio frequency electronics for wireless power transfer. <i>Microsystems and Nanoengineering</i> , 2016, 2, 16052.	7.0	72
68	Oxygen vacancy promoted methane partial oxidation over iron oxide oxygen carriers in the chemical looping process. <i>Physical Chemistry Chemical Physics</i> , 2016, 18, 32418-32428.	2.8	88
69	Electrochemically Programmable Plasmonic Antennas. <i>ACS Nano</i> , 2016, 10, 6716-6724.	14.6	25
70	Methane adsorption and dissociation on iron oxide oxygen carriers: the role of oxygen vacancies. <i>Physical Chemistry Chemical Physics</i> , 2016, 18, 16423-16435.	2.8	84
71	Membranes: Materials and Fractal Designs for 3D Multifunctional Integumentary Membranes with Capabilities in Cardiac Electrotherapy (Adv. Mater. 10/2015). <i>Advanced Materials</i> , 2015, 27, 1730-1730.	21.0	2
72	Nanostructure formation mechanism and ion diffusion in iron-titanium composite materials with chemical looping redox reactions. <i>Journal of Materials Chemistry A</i> , 2015, 3, 11302-11312.	10.3	68

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73	Fractal design concepts for stretchable electronics. Nature Communications, 2014, 5, 3266.	12.8	821
74	Spectrally selective chiral silicon metasurfaces based on infrared Fano resonances. Nature Communications, 2014, 5, 3892.	12.8	397
75	Evolution of nanoscale morphology in single and binary metal oxide microparticles during reduction and oxidation processes. Journal of Materials Chemistry A, 2014, 2, 17511-17520.	10.3	56
76	Experimental and Theoretical Studies of Serpentine Microstructures Bonded To Prestrained Elastomers for Stretchable Electronics. Advanced Functional Materials, 2014, 24, 2028-2037.	14.9	273