Jonathan A Fan

List of Publications by Year
in descending order

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	Fractal design concepts for stretchable electronics. Nature Communications, 2014, 5, 3266.	12.8	821
2	Large-Angle, Multifunctional Metagratings Based on Freeform Multimode Geometries. Nano Letters, 2017, 17, 3752-3757.	9.1	398
3	Spectrally selective chiral silicon metasurfaces based on infrared Fano resonances. Nature Communications, 2014, 5, 3892.	12.8	397
4	Metal oxide redox chemistry for chemical looping processes. Nature Reviews Chemistry, 2018, 2, 349-364.	30.2	352
5	Experimental and Theoretical Studies of Serpentine Microstructures Bonded To Prestrained Elastomers for Stretchable Electronics. Advanced Functional Materials, 2014, 24, 2028-2037.	14.9	273
6	Deep neural networks for the evaluation and design of photonic devices. Nature Reviews Materials, 2021, 6, 679-700.	48.7	265
7	Global Optimization of Dielectric Metasurfaces Using a Physics-Driven Neural Network. Nano Letters, 2019, 19, 5366-5372.	9.1	258
8	Large-area MRI-compatible epidermal electronic interfaces for prosthetic control and cognitive monitoring. Nature Biomedical Engineering, 2019, 3, 194-205.	22.5	253
9	Free-Form Diffractive Metagrating Design Based on Generative Adversarial Networks. ACS Nano, 2019, 13, 8872-8878.	14.6	243
10	Review of numerical optimization techniques for meta-device design [Invited]. Optical Materials Express, 2019, 9, 1842.	3.0	213
11	High-efficiency, large-area, topology-optimized metasurfaces. Light: Science and Applications, 2019, 8, 48.	16.6	207
12	Optical meta-waveguides for integrated photonics and beyond. Light: Science and Applications, 2021, 10, 235.	16.6	196
13	Inâ€Plane Deformation Mechanics for Highly Stretchable Electronics. Advanced Materials, 2017, 29, 1604989.	21.0	141
14	Periodic Dielectric Metasurfaces with Highâ€Efficiency, Multiwavelength Functionalities. Advanced Optical Materials, 2017, 5, 1700645.	7.3	105
15	Enhanced methane conversion in chemical looping partial oxidation systems using a copper doping modification. Applied Catalysis B: Environmental, 2018, 235, 143-149.	20.2	103
16	Numerical Optimization Methods for Metasurfaces. Laser and Photonics Reviews, 2020, 14, 1900445.	8.7	100
17	Near 100% CO selectivity in nanoscaled iron-based oxygen carriers for chemical looping methane partial oxidation. Nature Communications, 2019, 10, 5503.	12.8	98
18	Simulator-based training of generative neural networks for the inverse design of metasurfaces. Nanophotonics, 2020, 9, 1059-1069.	6.0	96

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19	Visible Light Metasurfaces Based on Single-Crystal Silicon. ACS Photonics, 2016, 3, 1919-1925.	6.6	93
20	Oxygen vacancy promoted methane partial oxidation over iron oxide oxygen carriers in the chemical looping process. Physical Chemistry Chemical Physics, 2016, 18, 32418-32428.	2.8	88
21	Ultra-High-Efficiency Anomalous Refraction with Dielectric Metasurfaces. ACS Photonics, 2018, 5, 2402-2407.	6.6	86
22	Methane adsorption and dissociation on iron oxide oxygen carriers: the role of oxygen vacancies. Physical Chemistry Chemical Physics, 2016, 18, 16423-16435.	2.8	84
23	Ternary content-addressable memory with MoS2 transistors for massively parallel data search. Nature Electronics, 2019, 2, 108-114.	26.0	83
24	Impact of 1% Lanthanum Dopant on Carbonaceous Fuel Redox Reactions with an Iron-Based Oxygen Carrier in Chemical Looping Processes. ACS Energy Letters, 2017, 2, 70-74.	17.4	77
25	C₂ Selectivity Enhancement in Chemical Looping Oxidative Coupling of Methane over a Mgâ€“Mn Composite Oxygen Carrier by Li-Doping-Induced Oxygen Vacancies. ACS Energy Letters, 2018, 3, 1730-1736.	17.4	75
26	Epidermal radio frequency electronics for wireless power transfer. Microsystems and Nanoengineering, 2016, 2, 16052.	7.0	72
27	Nanostructure formation mechanism and ion diffusion in ironâ€“titanium composite materials with chemical looping redox reactions. Journal of Materials Chemistry A, 2015, 3, 11302-11312.	10.3	68
28	Topology-optimized metasurfaces: impact of initial geometric layout. Optics Letters, 2017, 42, 3161.	3.3	68
29	Robust design of topology-optimized metasurfaces. Optical Materials Express, 2019, 9, 469.	3.0	68
30	A Tip-Extending Soft Robot Enables Reconfigurable and Deployable Antennas. IEEE Robotics and Automation Letters, 2018, 3, 949-956.	5.1	66
31	Robust Freeform Metasurface Design Based on Progressively Growing Generative Networks. ACS Photonics, 2020, 7, 2098-2104.	6.6	62
32	Freeform Metagratings Based on Complex Light Scattering Dynamics for Extreme, High Efficiency Beam Steering. Annalen Der Physik, 2018, 530, 1700302.	2.4	61
33	Analysis of material selection on dielectric metasurface performance. Optics Express, 2017, 25, 23899.	3.4	58
34	Freeform metasurface design based on topology optimization. MRS Bulletin, 2020, 45, 196-201.	3.5	57
35	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
36	Tunable Hyperbolic Metamaterials Based on Self-Assembled Carbon Nanotubes. Nano Letters, 2019, 19, 3131-3137.	9.1	56

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37	Highly Selective Production of Syngas from Chemical Looping Reforming of Methane with CO2 Utilization on MgO-supported Calcium Ferrite Redox Materials. Applied Energy, 2021, 282, 116111.	10.1	52
38	A General Strategy for Stretchable Microwave Antenna Systems using Serpentine Mesh Layouts. Advanced Functional Materials, 2017, 27, 1703059.	14.9	43
39	Improved cyclic redox reactivity of lanthanum modified iron-based oxygen carriers in carbon monoxide chemical looping combustion. Journal of Materials Chemistry A, 2017, 5, 20153-20160.	10.3	38
40	MetaNet: a new paradigm for data sharing in photonics research. Optics Express, 2020, 28, 13670.	3.4	35
41	Cobalt doping modification for enhanced methane conversion at low temperature in chemical looping reforming systems. Catalysis Today, 2020, 350, 156-164.	4.4	34
42	Multiobjective and categorical global optimization of photonic structures based on ResNet generative neural networks. Nanophotonics, 2020, 10, 361-369.	6.0	34
43	Design Space Reparameterization Enforces Hard Geometric Constraints in Inverse-Designed Nanophotonic Devices. ACS Photonics, 2020, 7, 3141-3151.	6.6	29
44	Understanding Interlayer Coupling in TMD-hBN Heterostructure by Raman Spectroscopy. IEEE Transactions on Electron Devices, 2018, 65, 4059-4067.	3.0	26
45	Electrochemically Programmable Plasmonic Antennas. ACS Nano, 2016, 10, 6716-6724.	14.6	25
46	Codoping Mg-Mn Based Oxygen Carrier with Lithium and Tungsten for Enhanced C₂ Yield in a Chemical Looping Oxidative Coupling of Methane System. ACS Sustainable Chemistry and Engineering, 2021, 9, 2651-2660.	6.7	22
47	Ultrahigh-Quality Infrared Polaritonic Resonators Based on Bottom-Up-Synthesized van der Waals Nanoribbons. ACS Nano, 2022, 16, 3027-3035.	14.6	20
48	Strain-Limiting Substrates Based on Nonbuckling, Prestrain-Free Mechanics for Robust Stretchable Electronics. Journal of Applied Mechanics, Transactions ASME, 2017, 84, .	2.2	19
49	Multiple Tunable Hyperbolic Resonances in Broadband Infrared Carbon-Nanotube Metamaterials. Physical Review Applied, 2020, 14, .	3.8	17
50	Cyclic redox scheme towards shale gas reforming: a review and perspectives. Reaction Chemistry and Engineering, 2020, 5, 2204-2220.	3.7	17
51	Mid-IR and UV-Vis-NIR Mueller matrix ellipsometry characterization of tunable hyperbolic metamaterials based on self-assembled carbon nanotubes. Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics, 2020, 38, 014015.	1.2	14
52	Single-crystal metal growth on amorphous insulating substrates. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 685-689.	7.1	12
53	SBA-16-Mediated Nanoparticles Enabling Accelerated Kinetics in Cyclic Methane Conversion to Syngas at Low Temperatures. ACS Applied Energy Materials, 2020, 3, 9833-9840.	5.1	12
54	3D Electromagnetic Reconfiguration Enabled by Soft Continuum Robots. IEEE Robotics and Automation Letters, 2020, 5, 1704-1711.	5.1	12

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55	Dynamic circular birefringence response with fractured geometric phase metasurface systems. Proceedings of the National Academy of Sciences of the United States of America, 2022, 119, e2122085119.	7.1	11
56	Thermoelectric response from grain boundaries and lattice distortions in crystalline gold devices. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 23350-23355.	7.1	10
57	Mechanistic Insight into Hydrogen-Assisted Carbon Dioxide Reduction with Ilmenite. Energy & Fuels, 2020, 34, 15370-15378.	5.1	7
58	Driving Towards Highly Selective and Cokingâ€Resistant Natural Gas Reforming Through a Hybrid Oxygen Carrier Design. ChemCatChem, 2021, 13, 617-626.	3.7	7
59	High-performance axicon lenses based on high-contrast, multilayer gratings. APL Photonics, 2018, 3, 011302.	5.7	6
60	Highâ€Throughput Growth of Microscale Gold Bicrystals for Singleâ€Grainâ€Boundary Studies. Advanced Materials, 2019, 31, 1902189.	21.0	6
61	In Situ TEM tensile testing of bicrystals with tailored misorientation angles. Acta Materialia, 2022, 224, 117505.	7.9	6
62	Stretchable Electronics: Inâ€Plane Deformation Mechanics for Highly Stretchable Electronics (Adv.) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 50	21.0	5
63	WaveY-Net: physics-augmented deep-learning for high-speed electromagnetic simulation and optimization. , 2022, , .		5
64	Electrically Driven Hyperbolic Nanophotonic Resonators as High Speed, Spectrally Selective Thermal Radiators. Nano Letters, 2022, 22, 5832-5840.	9.1	4
65	Raman spectroscopic study of artificially twisted and non-twisted trilayer graphene. Applied Physics Letters, 2021, 118, .	3.3	3
66	Membranes: Materials and Fractal Designs for 3D Multifunctional Integumentary Membranes with Capabilities in Cardiac Electrotherapy (Adv. Mater. 10/2015). Advanced Materials, 2015, 27, 1730-1730.	21.0	2
67	Generating high performance, topologically-complex metasurfaces with neural networks. , 2019, , .		2
68	Freeform grayscale electromagnetic metamaterials. , 2021, , .		1
69	Detection of Trace Impurity Gradients in Noble Metals by the Photothermoelectric Effect. Journal of Physical Chemistry C, 2021, 125, 17509-17517.	3.1	0
70	Realization of Topology-Optimized Multilayer Metasurfaces. , 2019, , .		0
71	Highly confined plasmons in individual single-walled carbon nanotube nanoantennas. , 2020, , .		0
72	Reparameterization to Enforce Constraints in the Inverse Design of Metasurfaces. , 2020, , .		0

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73	Broadband Mid-Infrared Resonances in Aligned Carbon Nanotube Films. , 2020, , .		0
74	Tunable Achromatic Circular Waveplates by Shifting Cascaded Metagratings. , 2021, , .		0
75	Multifunctional conformal grayscale electromagnetic metamaterials. , 2022, , .		0
76	Ultrahigh quality van der Waals hyperbolic polariton resonators. , 2022, , .		0