Han Wang

List of Publications by Year
in descending order

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135	18,162	50566 48	15253 130
papers	citations	h-index	g-index

138	138	138	22622
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Rediscovering black phosphorus as an anisotropic layered material for optoelectronics and electronics. Nature Communications, 2014, 5, 4458.	5.8	2,866
2	Two-dimensional material nanophotonics. Nature Photonics, 2014, 8, 899-907.	15.6	2,362
3	Integrated Circuits Based on Bilayer MoS₂ Transistors. Nano Letters, 2012, 12, 4674-4680.	4.5	1,526
4	Highly anisotropic and robust excitons in monolayer black phosphorus. Nature Nanotechnology, 2015, 10, 517-521.	15.6	1,204
5	The renaissance of black phosphorus. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 4523-4530.	3.3	1,143
6	Black Phosphorus Mid-Infrared Photodetectors with High Gain. Nano Letters, 2016, 16, 4648-4655.	4.5	616
7	Synthesis and Transfer of Single-Layer Transition Metal Disulfides on Diverse Surfaces. Nano Letters, 2013, 13, 1852-1857.	4.5	612
8	Tunable optical properties of multilayer black phosphorus thin films. Physical Review B, 2014, 90, .	1.1	592
9	Plasmons and Screening in Monolayer and Multilayer Black Phosphorus. Physical Review Letters, 2014, 113, 106802.	2.9	515
10	Black Arsenicâ€“Phosphorus: Layered Anisotropic Infrared Semiconductors with Highly Tunable Compositions and Properties. Advanced Materials, 2015, 27, 4423-4429.	11.1	378
11	Black Phosphorus Radio-Frequency Transistors. Nano Letters, 2014, 14, 6424-6429.	4.5	307
12	Anisotropic Black Phosphorus Synaptic Device for Neuromorphic Applications. Advanced Materials, 2016, 28, 4991-4997.	11.1	281
13	Giant optical anisotropy in a quasi-one-dimensional crystal. Nature Photonics, 2018, 12, 392-396.	15.6	269
14	Two-dimensional MoS2-enabled flexible rectenna for Wi-Fi-band wireless energy harvesting. Nature, 2019, 566, 368-372.	13.7	266
15	Efficient electrical control of thin-film black phosphorus bandgap. Nature Communications, 2017, 8, 14474.	5.8	249
16	Recent Progress on Stability and Passivation of Black Phosphorus. Advanced Materials, 2018, 30, e1704749.	11.1	248
17	Black phosphorus and its isoelectronic materials. Nature Reviews Physics, 2019, 1, 306-317.	11.9	196
18	Optoelectronic devices based on two-dimensional transition metal dichalcogenides. Nano Research, 2016, 9, 1543-1560.	5.8	186

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19	Interlayer interactions in anisotropic atomically thin rhenium diselenide. Nano Research, 2015, 8, 3651-3661.	5.8	159
20	High tunnelling electroresistance in a ferroelectric van der Waals heterojunction via giant barrier height modulation. Nature Electronics, 2020, 3, 466-472.	13.1	150
21	Atomically Thin Femtojoule Memristive Device. Advanced Materials, 2017, 29, 1703232.	11.1	147
22	Vertical Ga₂O₃Schottky Barrier Diodes With Small-Angle Beveled Field Plates: A Baligaâ€™s Figure-of-Merit of 0.6 GW/cm². IEEE Electron Device Letters, 2019, 40, 1399-1402.	2.2	139
23	Aligned Carbon Nanotube Synaptic Transistors for Large-Scale Neuromorphic Computing. ACS Nano, 2018, 12, 7352-7361.	7.3	128
24	Impact of Graphene Interface Quality on Contact Resistance and RF Device Performance. IEEE Electron Device Letters, 2011, 32, 1008-1010.	2.2	126
25	Synthesis of thin-film black phosphorus on a flexible substrate. 2D Materials, 2015, 2, 031002.	2.0	124
26	Native defects in second-generation topological insulators: Effect of spin-orbit interaction on Bi<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mrow /><mml:mn>2</mml:mn></mml:msub></mml:math>Se<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:msub><mml:mrow /><mml:mn>3</mml:mn></mml:msub></mml:math>. Physical Review B, 2012, 86, .	1.1	117
27	Low-symmetry two-dimensional materials for electronic and photonic applications. Nano Today, 2016, 11, 763-777.	6.2	113
28	High breakdown electric field in Î²-Ga2O3/graphene vertical barristor heterostructure. Applied Physics Letters, 2018, 112, .	1.5	110
29	Emulating Bilingual Synaptic Response Using a Junction-Based Artificial Synaptic Device. ACS Nano, 2017, 11, 7156-7163.	7.3	106
30	Three-dimensional Pentagon Carbon with a genesis of emergent fermions. Nature Communications, 2017, 8, 15641.	5.8	104
31	Roadmap on emerging hardware and technology for machine learning. Nanotechnology, 2021, 32, 012002.	1.3	104
32	The role of collective motion in the ultrafast charge transfer in van der Waals heterostructures. Nature Communications, 2016, 7, 11504.	5.8	103
33	Tellurene Photodetector with High Gain and Wide Bandwidth. ACS Nano, 2020, 14, 303-310.	7.3	101
34	Two-dimensional materials for nanophotonics application. Nanophotonics, 2015, 4, 128-142.	2.9	97
35	A Dynamically Reconfigurable Ambipolar Black Phosphorus Memory Device. ACS Nano, 2016, 10, 10428-10435.	7.3	97
36	pH sensing properties of graphene solution-gated field-effect transistors. Journal of Applied Physics, 2013, 114, .	1.1	88

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37	High temperature deformability of ductile flash-sintered ceramics via in-situ compression. Nature Communications, 2018, 9, 2063.	5.8	87
38	Monolayer Molybdenum Disulfide Nanoribbons with High Optical Anisotropy. Advanced Optical Materials, 2016, 4, 756-762.	3.6	74
39	Tunable Plasmonâ€“Phonon Polaritons in Layered Grapheneâ€“Hexagonal Boron Nitride Heterostructures. ACS Photonics, 2015, 2, 907-912.	3.2	70
40	Nanoscopy of Black Phosphorus Degradation. Advanced Materials Interfaces, 2016, 3, 1600121.	1.9	67
41	Compact Virtual-Source Currentâ€“Voltage Model for Top- and Back-Gated Graphene Field-Effect Transistors. IEEE Transactions on Electron Devices, 2011, 58, 1523-1533.	1.6	66
42	Multifunctional La_{0.67}Sr_{0.33}MnO₃ (LSMO) Thin Films Integrated on Mica Substrates toward Flexible Spintronics and Electronics. ACS Applied Materials & Interfaces, 2018, 10, 42698-42705.	4.0	62
43	High-voltage vertical Ga2O3 power rectifiers operational at high temperatures up to 600â€‰K. Applied Physics Letters, 2019, 115, .	1.5	58
44	Breakdown Voltage for Superjunction Power Devices With Charge Imbalance: An Analytical Model Valid for Both Punch Through and Non Punch Through Devices. IEEE Transactions on Electron Devices, 2009, 56, 3175-3183.	1.6	57
45	Three-dimensional strain engineering in epitaxial vertically aligned nanocomposite thin films with tunable magnetotransport properties. Materials Horizons, 2018, 5, 536-544.	6.4	57
46	Spatial-Temporal Imaging of Anisotropic Photocarrier Dynamics in Black Phosphorus. Nano Letters, 2017, 17, 3675-3680.	4.5	56
47	Al₂O₃ passivated InAlN/GaN HEMTs on SiC substrate with record current density and transconductance. Physica Status Solidi C: Current Topics in Solid State Physics, 2010, 7, 2440-2444.	0.8	55
48	Emergence of Nontrivial Lowâ€Energy Dirac Fermions in Antiferromagnetic EuCd₂As₂. Advanced Materials, 2020, 32, e1907565.	11.1	51
49	Photoinduced Vacancy Ordering and Phase Transition in MoTe₂. Nano Letters, 2019, 19, 3612-3617.	4.5	43
50	Linear Dichroism Conversion in Quasiâ€1D Perovskite Chalcogenide. Advanced Materials, 2019, 31, e1902118.	11.1	41
51	Lateral p-GaN/2DEG junction diodes by selective-area p-GaN trench-filling-regrowth in AlGaN/GaN. Applied Physics Letters, 2020, 116, .	1.5	41
52	Design and Simulation of GaN Superjunction Transistors With 2-DEG Channels and Fin Channels. IEEE Journal of Emerging and Selected Topics in Power Electronics, 2019, 7, 1475-1484.	3.7	40
53	Revealing electronic state-switching at conical intersections in alkyl iodides by ultrafast XUV transient absorption spectroscopy. Nature Communications, 2020, 11, 4042.	5.8	40
54	Graphene Electronics for RF Applications. IEEE Microwave Magazine, 2012, 13, 114-125.	0.7	39

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55	Nanoscopy reveals surface-metallic black phosphorus. Light: Science and Applications, 2016, 5, e16162-e16162.	7.7	37
56	Stacking Fault Enriching the Electronic and Transport Properties of Few-Layer Phosphorenes and Black Phosphorus. Nano Letters, 2016, 16, 1317-1322.	4.5	37
57	Sculpting Extreme Electromagnetic Field Enhancement in Free Space for Molecule Sensing. Small, 2018, 14, e1801146.	5.2	36
58	Exchange Bias in a La_{0.67}Sr_{0.33}MnO₃/NiO Heterointerface Integrated on a Flexible Mica Substrate. ACS Applied Materials & Interfaces, 2020, 12, 39920-39925.	4.0	36
59	Enhanced Light Emission from the Ridge of Two-Dimensional InSe Flakes. Nano Letters, 2018, 18, 5078-5084.	4.5	35
60	Self-assembled vertically aligned Ni nanopillars in CeO₂ with anisotropic magnetic and transport properties for energy applications. Nanoscale, 2018, 10, 17182-17188.	2.8	34
61	High strength, deformable nanotwinned Alâ€“Co alloys. Materials Research Letters, 2019, 7, 33-39.	4.1	32
62	Role of ALD Al₂O₃ Surface Passivation on the Performance of p-Type Cu₂O Thin Film Transistors. ACS Applied Materials & Interfaces, 2021, 13, 4156-4164.	4.0	31
63	Ultra-strong nanotwinned Alâ€“Ni solid solution alloys with significant plasticity. Nanoscale, 2018, 10, 22025-22034.	2.8	30
64	Two-dimensional heterostructures and their device applications: progress, challenges and opportunitiesâ€”review. Journal Physics D: Applied Physics, 2021, 54, 433001.	1.3	30
65	Vertically Aligned Nanocomposite BaTiO₃:YMnO₃ Thin Films with Room Temperature Multiferroic Properties toward Nanoscale Memory Devices. ACS Applied Nano Materials, 2018, 1, 2509-2514.	2.4	29
66	Tri-gate GaN junction HEMT. Applied Physics Letters, 2020, 117, .	1.5	29
67	A memristor-based hybrid analog-digital computing platform for mobile robotics. Science Robotics, 2020, 5, .	9.9	28
68	Theoretical prediction of a graphene-like structure of indium nitride: A promising excellent material for optoelectronics. Applied Materials Today, 2017, 7, 169-178.	2.3	27
69	Semimetal or Semiconductor: The Nature of High Intrinsic Electrical Conductivity in TiS₂. Journal of Physical Chemistry Letters, 2019, 10, 6996-7001.	2.1	27
70	Interface depended electronic and magnetic properties of vertical CrI₃/WSe₂ heterostructures. RSC Advances, 2019, 9, 14766-14771.	1.7	27
71	Multifunctional Metalâ€“Oxide Nanocomposite Thin Film with Plasmonic Au Nanopillars Embedded in Magnetic La_{0.67}Sr_{0.33}MnO₃ Matrix. Nano Letters, 2021, 21, 1032-1039.	4.5	26
72	Integration of Hybrid Plasmonic Auâ€“BaTiO₃ Metamaterial on Silicon Substrates. ACS Applied Materials & Interfaces, 2019, 11, 45199-45206.	4.0	25

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73	Study of deformation mechanisms in flash-sintered yttria-stabilized zirconia by in-situ micromechanical testing at elevated temperatures. Materials Research Letters, 2019, 7, 194-202.	4.1	25
74	Microstructure, Magnetic, and Magnetoresistance Properties of La0.7Sr0.3MnO3:CuO Nanocomposite Thin Films. ACS Applied Materials & Interfaces, 2018, 10, 5779-5784.	4.0	24
75	Flash sintering incubation kinetics. Npj Computational Materials, 2020, 6, .	3.5	24
76	Emerging low-dimensional materials for mid-infrared detection. Nano Research, 2021, 14, 1863-1877.	5.8	22
77	Origin of leakage current in vertical GaN devices with nonplanar regrown p-GaN. Applied Physics Letters, 2020, 117, .	1.5	21
78	Temperature effect on mechanical response of flash-sintered ZnO by in-situ compression tests. Acta Materialia, 2020, 200, 699-709.	3.8	21
79	Backbonding contributions to small molecule chemisorption in a metalâ€“organic framework with open copper(<scp>i</scp>) centers. Chemical Science, 2021, 12, 2156-2164.	3.7	21
80	Real-time observation and control of optical chaos. Science Advances, 2021, 7, .	4.7	20
81	Confined Liquid-Phase Growth of Crystalline Compound Semiconductors on Any Substrate. ACS Nano, 2018, 12, 5158-5167.	7.3	19
82	Atomically Thin CBRAM Enabled by 2-D Materials: Scaling Behaviors and Performance Limits. IEEE Transactions on Electron Devices, 2018, 65, 4160-4166.	1.6	19
83	Mid-wave and Long-Wave Infrared Linear Dichroism in a Hexagonal Perovskite Chalcogenide. Chemistry of Materials, 2018, 30, 4897-4901.	3.2	19
84	Mapping wave packet bifurcation at a conical intersection in CH3I by attosecond XUV transient absorption spectroscopy. Journal of Chemical Physics, 2021, 154, 234301.	1.2	18
85	Temperature-Dependent Transport in Ultrathin Black Phosphorus Field-Effect Transistors. Nano Letters, 2019, 19, 482-487.	4.5	17
86	Circuitâ€Level Memory Technologies and Applications based on 2D Materials. Advanced Materials, 2022, 34, .	11.1	17
87	Transport Properties and Device Prospects of Ultrathin Black Phosphorus on Hexagonal Boron Nitride. IEEE Transactions on Electron Devices, 2017, 64, 5163-5171.	1.6	16
88	Probing ultrafast Câ€“Br bond fission in the UV photochemistry of bromoform with core-to-valence transient absorption spectroscopy. Structural Dynamics, 2019, 6, 054304.	0.9	16
89	A Tantalum Disulfide Charge-Density-Wave Stochastic Artificial Neuron for Emulating Neural Statistical Properties. Nano Letters, 2021, 21, 3465-3472.	4.5	15
90	Efficient learning and crossbar operations with atomically-thin 2-D material compound synapses. Journal of Applied Physics, 2018, 124, .	1.1	14

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91	Multiferroic vertically aligned nanocomposite with CoFe2O4 nanocones embedded in layered Bi2WO6 matrix. Materials Research Letters, 2019, 7, 418-425.	4.1	14
92	Ultrafast processes in photochromic material YHxOy studied by excited-state density functional theory simulation. Science China Materials, 2020, 63, 1579-1587.	3.5	14
93	Reconfigurable Stochastic neurons based on tin oxide/MoS2 hetero-memristors for simulated annealing and the Boltzmann machine. Nature Communications, 2021, 12, 5710.	5.8	14
94	Tri-Gate GaN Junction HEMTs: Physics and Performance Space. IEEE Transactions on Electron Devices, 2021, 68, 4854-4861.	1.6	14
95	Beyond Graphene: Low-Symmetry and Anisotropic 2D Materials. Journal of Applied Physics, 2020, 128, 140401.	1.1	13
96	Carrier Dynamics and Transfer across the CdS/MoS₂ Interface upon Optical Excitation. Journal of Physical Chemistry Letters, 2020, 11, 6544-6550.	2.1	13
97	Integration of highly anisotropic multiferroic BaTiO3â€“Fe nanocomposite thin films on Si towards device applications. Nanoscale Advances, 2020, 2, 4172-4178.	2.2	13
98	Nano-optoelectrodes Integrated with Flexible Multifunctional Fiber Probes by High-Throughput Scalable Fabrication. ACS Applied Materials & Interfaces, 2021, 13, 9156-9165.	4.0	13
99	Ultra-high heating rate effects on the sintering of ceramic nanoparticles: an inÂsitu TEM study. Materials Research Letters, 2021, 9, 373-381.	4.1	13
100	A combined multi-reference pump-probe simulation method with application to XUV signatures of ultrafast methyl iodide photodissociation. Journal of Chemical Physics, 2019, 151, 124106.	1.2	12
101	Defects in Statically Unstable Solids: The Case for Cubic Perovskite Î±-CsPbI₃. Chinese Physics Letters, 2022, 39, 046101.	1.3	12
102	Magnetic anisotropy of iridium dimers on two-dimensional materials. Physical Chemistry Chemical Physics, 2020, 22, 238-244.	1.3	11
103	Fieldâ€assisted heating of Gdâ€doped ceria thin film. Journal of the American Ceramic Society, 2020, 103, 2309-2314.	1.9	11
104	Mechanistic Advantages of Organotin Molecular EUV Photoresists. ACS Applied Materials & Interfaces, 2022, 14, 5514-5524.	4.0	11
105	Conical intersection and coherent vibrational dynamics in alkyl iodides captured by attosecond transient absorption spectroscopy. Journal of Chemical Physics, 2022, 156, 114304.	1.2	10
106	Two-Phase Room-Temperature Multiferroic Nanocomposite with BiMnO3-Tilted Nanopillars in the Bi2W1â€“xMnxO6 Matrix. ACS Applied Materials & Interfaces, 2019, 11, 26261-26267.	4.0	9
107	Superjunction Power Transistors with Interface Charges: A Case Study for GaN. IEEE Journal of the Electron Devices Society, 2019, , 1-1.	1.2	9
108	Defect tolerance in CsPbI₃: reconstruction of the potential energy landscape and band degeneracy in spinâ€“orbit coupling. Journal of Materials Chemistry A, 2022, 10, 3018-3024.	5.2	9

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109	Tailorable Fe nanostructures and magnetic anisotropy in (La0.5Sr0.5FeO3)1-x:Fex thin films integrated on SrTiO3 and silicon substrates. Materials Today Advances, 2020, 8, 100112.	2.5	8
110	Electrical properties and charge compensation mechanisms of Cr-doped rutile, TiO₂. Physical Chemistry Chemical Physics, 2021, 23, 22133-22146.	1.3	8
111	Spinâ€“Phonon Coupling in Ferromagnetic Monolayer Chromium Tribromide. Advanced Materials, 2022, 34, e2108506.	11.1	8
112	Ceramic Material Processing Towards Future Space Habitat: Electric Current-Assisted Sintering of Lunar Regolith Simulant. Materials, 2020, 13, 4128.	1.3	7
113	Memristive Device Characteristics Engineering by Controlling the Crystallinity of Switching Layer Materials. ACS Applied Electronic Materials, 2020, 2, 1529-1537.	2.0	7
114	Role of Interlayer in 3D Vertically Aligned Nanocomposite Frameworks with Tunable Magnetotransport Properties. Advanced Materials Interfaces, 2020, 7, 1901990.	1.9	7
115	Epitaxial growth and electrical properties of VO2 on [LaAlO3]0.3[Sr2AlTaO6]0.7 (111) substrate. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2018, 36, .	0.9	6
116	Room-Temperature Ferroelectric LiNb₆Ba₅Ti₄O₃₀ Spinel Phase in a Nanocomposite Thin Film Form for Nonlinear Photonics. ACS Applied Materials & Interfaces, 2020, 12, 23076-23083.	4.0	6
117	Orientation-Controlled Anisotropy in Single Crystals of Quasi-1D BaTiS₃. Chemistry of Materials, 2022, 34, 5680-5689.	3.2	6
118	Strain Effects on the Growth of La_{0.7}Sr_{0.3}MnO₃ (LSMO)â€“NiO Nanocomposite Thin Films via Substrate Control. ACS Omega, 2020, 5, 23793-23798.	1.6	5
119	Effective doping control in Sm-doped BiFeO₃ thin films via deposition temperature. RSC Advances, 2020, 10, 40229-40233.	1.7	5
120	Fluidic Flow Assisted Deterministic Folding of Van der Waals Materials. Advanced Functional Materials, 2020, 30, 1908691.	7.8	5
121	Investigating extreme ultraviolet radiation chemistry with first-principles quantum chemistry calculations. Journal of Micro/ Nanolithography, MEMS, and MOEMS, 2020, 19, .	1.0	4
122	Integration of Self-Assembled BaZrO₃-Co Vertically Aligned Nanocomposites on Mica Substrates toward Flexible Spintronics. Crystal Growth and Design, 2022, 22, 718-725.	1.4	4
123	Activating Thick Buried p-GaN for Device Applications. IEEE Transactions on Electron Devices, 2022, 69, 4224-4230.	1.6	4
124	Monolayer Sc₂CF₂ as a Potential Selective and Sensitive NO₂ Sensor: Insight from First-Principles Calculations. ACS Omega, 2022, 7, 9267-9275.	1.6	3
125	Graphene electronics for RF applications. , 2011, , .		2
126	Black Phosphorous: Nanoscopy of Black Phosphorus Degradation (Adv. Mater. Interfaces 12/2016). Advanced Materials Interfaces, 2016, 3, .	1.9	2

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127	Molecule Sensing: Sculpting Extreme Electromagnetic Field Enhancement in Free Space for Molecule Sensing (Small 33/2018). Small, 2018, 14, 1870152.	5.2	2
128	Linking far-from-equilibrium defect structures in ceramics to electromagnetic driving forces. Journal of Materials Chemistry A, 2021, 9, 8425-8434.	5.2	2
129	Two-dimensional materials for ubiquitous electronics. , 2013, , .		1
130	Novel electronic and photonic properties of low-symmetry two-dimensional materials. , 2016, , .		1
131	Impact Ionization and Interface Trap Generation in 28-nm MOSFETs at Cryogenic Temperatures. IEEE Transactions on Device and Materials Reliability, 2018, 18, 456-462.	1.5	1
132	Investigating EUV radiation chemistry with first principle quantum chemistry calculations. , 2019, , .		1
133	Low voltage control of magnetism in BaFe10.2Sc1.8O19/BaTiO3 bilayer epitaxial thin film at temperatures up to 390â€‰K. Applied Physics Letters, 2022, 120, 062401.	1.5	1
134	Vertical ambipolar barrier transistor based on black phosphorous-tin selenide van der waals heterojunction. , 2016, , .		0
135	Novel electronic devices based on low-symmetry two-dimensional materials. , 2017, , .		0