

Kai Liu

List of Publications by Year in descending order

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128
papers

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129
docs citations

129
times ranked

13931
citing authors

#	ARTICLE	IF	CITATIONS
1	Monolayer behaviour in bulk ReS ₂ due to electronic and vibrational decoupling. Nature Communications, 2014, 5, 3252.	12.8	906
2	Tuning Interlayer Coupling in Large-Area Heterostructures with CVD-Grown MoS ₂ and WS ₂ Monolayers. Nano Letters, 2014, 14, 3185-3190.	9.1	683
3	Elastic Properties of Chemical-Vapor-Deposited Monolayer MoS ₂ , WS ₂ , and Their Bilayer Heterostructures. Nano Letters, 2014, 14, 5097-5103.	9.1	512
4	Flexible, Stretchable, Transparent Conducting Films Made from Superaligned Carbon Nanotubes. Advanced Functional Materials, 2010, 20, 885-891.	14.9	363
5	Recent progresses on physics and applications of vanadium dioxide. Materials Today, 2018, 21, 875-896.	14.2	318
6	Controlled Fabrication of High-Quality Carbon Nanoscrolls from Monolayer Graphene. Nano Letters, 2009, 9, 2565-2570.	9.1	312
7	Anisotropic in-plane thermal conductivity of black phosphorus nanoribbons at temperatures higher than 100 K. Nature Communications, 2015, 6, 8573.	12.8	311
8	Anomalously low electronic thermal conductivity in metallic vanadium dioxide. Science, 2017, 355, 371-374.	12.6	307
9	Controlled Growth of Super-Aligned Carbon Nanotube Arrays for Spinning Continuous Unidirectional Sheets with Tunable Physical Properties. Nano Letters, 2008, 8, 700-705.	9.1	259
10	Fast Adaptive Thermal Camouflage Based on Flexible VO ₂ /Graphene/CNT Thin Films. Nano Letters, 2015, 15, 8365-8370.	9.1	253
11	Scratch-Resistant, Highly Conductive, and High-Strength Carbon Nanotube-Based Composite Yarns. ACS Nano, 2010, 4, 5827-5834.	14.6	243
12	Carbon nanotube yarns with high tensile strength made by a twisting and shrinking method. Nanotechnology, 2010, 21, 045708.	2.6	219
13	Measuring the Work Function of Carbon Nanotubes with Thermionic Method. Nano Letters, 2008, 8, 647-651.	9.1	199
14	An intermediate temperature garnet-type solid electrolyte-based molten lithium battery for grid energy storage. Nature Energy, 2018, 3, 732-738.	39.5	170
15	Giant-Amplitude, High-Work Density Microactuators with Phase Transition Activated Nanolayer Bimorphs. Nano Letters, 2012, 12, 6302-6308.	9.1	158
16	Highly Sensitive Surface-Enhanced Raman Scattering Substrate Made from Superaligned Carbon Nanotubes. Nano Letters, 2010, 10, 1747-1753.	9.1	157
17	Cross-Stacked Superaligned Carbon Nanotube Films for Transparent and Stretchable Conductors. Advanced Functional Materials, 2011, 21, 2721-2728.	14.9	156
18	A growth mark method for studying growth mechanism of carbon nanotube arrays. Carbon, 2005, 43, 2850-2856.	10.3	142

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19	Comprehensive study of the metal-insulator transition in pulsed laser deposited epitaxial VO ₂ thin films. <i>Journal of Applied Physics</i> , 2013, 113, .	2.5	134
20	Probing Local Strain at MX ₂ Metal Boundaries with Surface Plasmon-Enhanced Raman Scattering. <i>Nano Letters</i> , 2014, 14, 5329-5334.	9.1	118
21	Ultra-long, free-standing, single-crystalline vanadium dioxide micro/nanowires grown by simple thermal evaporation. <i>Applied Physics Letters</i> , 2012, 100, .	3.3	103
22	Substrate induced changes in atomically thin 2-dimensional semiconductors: Fundamentals, engineering, and applications. <i>Applied Physics Reviews</i> , 2017, 4, 011301.	11.3	97
23	Axially Engineered Metal-Insulator Phase Transition by Graded Doping VO ₂ Nanowires. <i>Journal of the American Chemical Society</i> , 2013, 135, 4850-4855.	13.7	96
24	Chemical and structural stability of 2D layered materials. <i>2D Materials</i> , 2019, 6, 042001.	4.4	94
25	Fast High-Temperature Response of Carbon Nanotube Film and Its Application as an Incandescent Display. <i>Advanced Materials</i> , 2009, 21, 3563-3566.	21.0	91
26	In Situ TEM observation of the gasification and growth of carbon nanotubes using iron catalysts. <i>Nano Research</i> , 2011, 4, 767-779.	10.4	91
27	Flexible, All-Inorganic Actuators Based on Vanadium Dioxide and Carbon Nanotube Bimorphs. <i>Nano Letters</i> , 2017, 17, 421-428.	9.1	89
28	New-Type Planar Field Emission Display with Superaligned Carbon Nanotube Yarn Emitter. <i>Nano Letters</i> , 2012, 12, 2391-2396.	9.1	87
29	Mechanical properties of two-dimensional materials and heterostructures. <i>Journal of Materials Research</i> , 2016, 31, 832-844.	2.6	84
30	Strain engineering in functional 2-dimensional materials. <i>Journal of Applied Physics</i> , 2019, 125, .	2.5	79
31	Powerful, Multifunctional Torsional Micromuscles Activated by Phase Transition. <i>Advanced Materials</i> , 2014, 26, 1746-1750.	21.0	76
32	A Lithography-Free and Field-Programmable Photonic Metacanvas. <i>Advanced Materials</i> , 2018, 30, 1703878.	21.0	75
33	Field-effect modulation of conductance in VO ₂ nanobeam transistors with HfO ₂ as the gate dielectric. <i>Applied Physics Letters</i> , 2011, 99, .	3.3	70
34	Elastic Properties and Fracture Behaviors of Biaxially Deformed, Polymorphic MoTe ₂ . <i>Nano Letters</i> , 2019, 19, 761-769.	9.1	67
35	Solution processed lead-free cesium titanium halide perovskites and their structural, thermal and optical characteristics. <i>Journal of Materials Chemistry C</i> , 2020, 8, 1591-1597.	5.5	67
36	Performance Limits of Microactuation with Vanadium Dioxide as a Solid Engine. <i>ACS Nano</i> , 2013, 7, 2266-2272.	14.6	66

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37	A soft non-porous separator and its effectiveness in stabilizing Li metal anodes cycling at 10 mA cm ⁻² observed in situ in a capillary cell. <i>Journal of Materials Chemistry A</i> , 2017, 5, 4300-4307.	10.3	66
38	Pressure-Temperature Phase Diagram of Vanadium Dioxide. <i>Nano Letters</i> , 2017, 17, 2512-2516.	9.1	65
39	Ultrafast self-heating synthesis of robust heterogeneous nanocarbides for high current density hydrogen evolution reaction. <i>Nature Communications</i> , 2022, 13, .	12.8	62
40	Direct Identification of Metallic and Semiconducting Single-Walled Carbon Nanotubes in Scanning Electron Microscopy. <i>Nano Letters</i> , 2012, 12, 4095-4101.	9.1	61
41	A lightly Fe-doped (NiS ₂ /MoS ₂)/carbon nanotube hybrid electrocatalyst film with laser-drilled micropores for stabilized overall water splitting and pH-universal hydrogen evolution reaction. <i>Journal of Materials Chemistry A</i> , 2020, 8, 17527-17536.	10.3	59
42	Dense Electron System from Gate-Controlled Surface Metal-Insulator Transition. <i>Nano Letters</i> , 2012, 12, 6272-6277.	9.1	57
43	High-purity electrolytic lithium obtained from low-purity sources using solid electrolyte. <i>Nature Sustainability</i> , 2020, 3, 386-390.	23.7	54
44	Grain-Boundary Engineering of Monolayer MoS ₂ for Energy-Efficient Lateral Synaptic Devices. <i>Advanced Materials</i> , 2021, 33, e2102435.	21.0	53
45	Electric and Light Dual-Gate Tunable MoS ₂ Memtransistor. <i>ACS Applied Materials & Interfaces</i> , 2019, 11, 43344-43350.	8.0	51
46	Bifunctional NbS ₂ -Based Asymmetric Heterostructure for Lateral and Vertical Electronic Devices. <i>ACS Nano</i> , 2020, 14, 175-184.	14.6	51
47	Phase-transition modulated, high-performance dual-mode photodetectors based on WSe ₂ /VO ₂ heterojunctions. <i>Applied Physics Reviews</i> , 2019, 6, 041407.	11.3	50
48	Self-Assembly and Horizontal Orientation Growth of VO ₂ Nanowires. <i>Scientific Reports</i> , 2014, 4, 5456.	3.3	49
49	MOFs-derived ZnCo-Fe core-shell nanocages with remarkable oxygen evolution reaction performance. <i>Journal of Materials Chemistry A</i> , 2019, 7, 17299-17305.	10.3	47
50	Mechanically modulated tunneling resistance in monolayer MoS ₂ . <i>Applied Physics Letters</i> , 2013, 103, .	3.3	43
51	Substrate modified thermal stability of mono- and few-layer MoS ₂ . <i>Nanoscale</i> , 2018, 10, 3540-3546.	5.6	43
52	Monolayer MoS ₂ Synaptic Transistors for High-Temperature Neuromorphic Applications. <i>Nano Letters</i> , 2021, 21, 10400-10408.	9.1	41
53	Cycling of a Lithium-Ion Battery with a Silicon Anode Drives Large Mechanical Actuation. <i>Advanced Materials</i> , 2016, 28, 10236-10243.	21.0	40
54	A Vapor-Liquid-Solid Model for Chemical Vapor Deposition Growth of Carbon Nanotubes. <i>Journal of Nanoscience and Nanotechnology</i> , 2007, 7, 1494-1504.	0.9	39

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55	Two-dimensional transition-metal dichalcogenides for electrochemical hydrogen evolution reaction. FlatChem, 2019, 18, 100140.	5.6	39
56	Bioelectronics-Related 2D Materials Beyond Graphene: Fundamentals, Properties, and Applications. Advanced Functional Materials, 2020, 30, 2003732.	14.9	39
57	LaB6 tip-modified multiwalled carbon nanotube as high quality field emission electron source. Applied Physics Letters, 2006, 89, 203112.	3.3	38
58	Controlled Termination of the Growth of Vertically Aligned Carbon Nanotube Arrays. Advanced Materials, 2007, 19, 975-978.	21.0	37
59	Direct Observation of Nanoscale Peltier and Joule Effects at Metal-Insulator Domain Walls in Vanadium Dioxide Nanobeams. Nano Letters, 2014, 14, 2394-2400.	9.1	37
60	A polarized infrared thermal detector made from super-aligned multiwalled carbon nanotube films. Nanotechnology, 2011, 22, 025502.	2.6	36
61	Fabrication and processing of high-strength densely packed carbon nanotube yarns without solution processes. Nanoscale, 2012, 4, 3389.	5.6	36
62	Photo-driven nanoactuators based on carbon nanocoils and vanadium dioxide bimorphs. Nanoscale, 2018, 10, 11158-11164.	5.6	35
63	Periodically striped films produced from super-aligned carbon nanotube arrays. Nanotechnology, 2009, 20, 335705.	2.6	34
64	Free-Standing, Binder-Free Titania/Super-Aligned Carbon Nanotube Anodes for Flexible and Fast-Charging Li-Ion Batteries. ACS Sustainable Chemistry and Engineering, 2018, 6, 3426-3433.	6.7	34
65	Optically Induced Phase Change for Magnetoresistance Modulation. Advanced Quantum Technologies, 2020, 3, 1900104.	3.9	34
66	Thermal Analysis Study of the Growth Kinetics of Carbon Nanotubes and Epitaxial Graphene Layers on Them. Journal of Physical Chemistry C, 2009, 113, 9623-9631.	3.1	32
67	SWCNT-MoS ₂ -SWCNT Vertical Point Heterostructures. Advanced Materials, 2017, 29, 1604469.	21.0	32
68	Vibrational spectrum renormalization by enforced coupling across the van der Waals gap between MoS ₂ and SWCNT. ACS Nano, 2017, 11, 10000-10008.	3.2	30
69	Modulating Photoluminescence of Monolayer Molybdenum Disulfide by Metal-Insulator Phase Transition in Active Substrates. Small, 2016, 12, 3976-3984.	10.0	30
70	Observation of Charge Generation and Transfer during CVD Growth of Carbon Nanotubes. Nano Letters, 2016, 16, 4102-4109.	9.1	30
71	Highly Efficient Active All-Dielectric Metasurfaces Based on Hybrid Structures Integrated with Phase-Change Materials: From Terahertz to Optical Ranges. ACS Applied Materials & Interfaces, 2019, 11, 14229-14238.	8.0	29
72	Ultrasensitive, Low-Voltage Operational, and Asymmetric Ionic Sensing Hydrogel for Multipurpose Applications. Advanced Functional Materials, 2020, 30, 1909616.	14.9	29

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73	Probing Evolution of Local Strain at MoS ₂ -Metal Boundaries by Surface-Enhanced Raman Scattering. ACS Applied Materials & Interfaces, 2018, 10, 40246-40254.	8.0	28
74	TiO ₂ -based solar cells sensitized by chemical-bath-deposited few-layer MoS ₂ . Journal of Power Sources, 2015, 275, 943-949.	7.8	27
75	Sintering behavior of garnet-type Li _{6.4} La ₃ Zr _{1.4} Ta _{0.6} O ₁₂ in Li ₂ CO ₃ atmosphere and its electrochemical property. International Journal of Applied Ceramic Technology, 2017, 14, 921-927.	2.1	27
76	Effect of carbon deposits on the reactor wall during the growth of multi-walled carbon nanotube arrays. Carbon, 2007, 45, 2379-2387.	10.3	26
77	Mesoporous TiO ₂ Spheres as Advanced Anodes for Low-Cost, Safe, and High-Areal-Capacity Lithium-Ion Full Batteries. ACS Applied Nano Materials, 2020, 3, 1019-1027.	5.0	25
78	Flexible and free-standing hetero-electrocatalyst of high-valence-cation doped MoS ₂ /MoO ₃ /CNT foam with synergistically enhanced hydrogen evolution reaction catalytic activity. Journal of Materials Chemistry A, 2020, 8, 14944-14954.	10.3	25
79	Enhanced photoresponse of TiO ₂ /MoS ₂ heterostructure phototransistors by the coupling of interface charge transfer and photogating. Nano Research, 2021, 14, 982-991.	10.4	25
80	A new opportunity for the emerging tellurium semiconductor: making resistive switching devices. Nature Communications, 2021, 12, 6081.	12.8	25
81	Anisotropic interfacial friction of inclined multiwall carbon nanotube array surface. Carbon, 2012, 50, 5372-5379.	10.3	24
82	Self-Passivation of Defects: Effects of High-Energy Particle Irradiation on the Elastic Modulus of Multilayer Graphene. Advanced Materials, 2015, 27, 6841-6847.	21.0	24
83	Watching Dynamic Self-Assembly of Web Buckles in Strained MoS ₂ Thin Films. ACS Nano, 2019, 13, 3106-3116.	14.6	24
84	Wafer-scale freestanding vanadium dioxide film. Science Advances, 2021, 7, eabk3438.	10.3	24
85	Langmuir-Blodgett self-assembly of ultrathin graphene quantum dot films with modulated optical properties. Nanoscale, 2018, 10, 19612-19620.	5.6	23
86	Directly Metering Light Absorption and Heat Transfer in Single Nanowires Using Metal-Insulator Transition in VO ₂ . Advanced Optical Materials, 2015, 3, 336-341.	7.3	21
87	High-Responsivity Photovoltaic Photodetectors Based on MoTe ₂ /MoSe ₂ van der Waals Heterojunctions. Crystals, 2019, 9, 315.	2.2	21
88	Infrared micro-detectors with high sensitivity and high response speed using VO ₂ -coated helical carbon nanocoils. Journal of Materials Chemistry C, 2019, 7, 12095-12103.	5.5	21
89	Direct laser patterning of two-dimensional lateral transition metal disulfide-oxide-disulfide heterostructures for ultrasensitive sensors. Nano Research, 2020, 13, 2035-2043.	10.4	21
90	Multiple Regulation over Growth Direction, Band Structure, and Dimension of Monolayer WS ₂ by a Quartz Substrate. Chemistry of Materials, 2020, 32, 2508-2517.	6.7	21

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91	Phase-change materials for intelligent temperature regulation. <i>Materials Today Energy</i> , 2022, 23, 100888.	4.7	21
92	Stress compensation for arbitrary curvature control in vanadium dioxide phase transition actuators. <i>Applied Physics Letters</i> , 2016, 109, .	3.3	19
93	Simple synthesis of a double-shell hollow structured $\text{MnO}_2 @ \text{TiO}_2$ composite as an anode material for lithium ion batteries. <i>RSC Advances</i> , 2017, 7, 46263-46270.	3.6	18
94	Interfacing 2D Semiconductors with Functional Oxides: Fundamentals, Properties, and Applications. <i>Crystals</i> , 2017, 7, 265.	2.2	18
95	Fast synthesis of uniform mesoporous titania submicrospheres with high tap densities for high-volumetric performance Li-ion batteries. <i>Science China Materials</i> , 2017, 60, 304-314.	6.3	17
96	Ultrathin two-dimensional metals with fully exposed (111) facets. <i>Chemical Communications</i> , 2018, 54, 160-163.	4.1	17
97	Continuous, Ultra-lightweight, and Multipurpose Super-aligned Carbon Nanotube Tapes Viable over a Wide Range of Temperatures. <i>Nano Letters</i> , 2019, 19, 6756-6764.	9.1	17
98	Ultrafast, Kinetically Limited, Ambient Synthesis of Vanadium Dioxides through Laser Direct Writing on Ultrathin Chalcogenide Matrix. <i>ACS Nano</i> , 2021, 15, 10502-10513.	14.6	17
99	A flexible, multifunctional, active terahertz modulator with an ultra-low triggering threshold. <i>Journal of Materials Chemistry C</i> , 2020, 8, 10213-10220.	5.5	15
100	A Garnet-type Solid-Electrolyte-Based Molten Lithium-Molybdenum-Iron(II) Chloride Battery with Advanced Reaction Mechanism. <i>Advanced Materials</i> , 2020, 32, e2000960.	21.0	14
101	Field emission behavior study of multiwalled carbon nanotube yarn under the influence of adsorbents. <i>Journal of Vacuum Science and Technology B: Nanotechnology and Microelectronics</i> , 2010, 28, 736-739.	1.2	13
102	Crossing Thermal Lubricity and Electronic Effects in Friction: Vanadium Dioxide under the Metal-Insulator Transition. <i>Advanced Materials Interfaces</i> , 2016, 3, 1500388.	3.7	13
103	Few-Layer MoS_2 Nanosheet/Carbon Nanotube Composite Films for Long-Lifetime Lithium Storage and Hydrogen Generation. <i>ACS Applied Nano Materials</i> , 2021, 4, 4754-4762.	5.0	13
104	Excitation of Surface Plasmon Resonance in Composite Structures Based on Single-Layer Superaligned Carbon Nanotube Films. <i>Journal of Physical Chemistry C</i> , 2013, 117, 23190-23197.	3.1	12
105	Recent advances for phase-transition materials for actuators. <i>Journal of Applied Physics</i> , 2020, 128, .	2.5	12
106	Effect of Uniaxial Tensile Strains at Different Orientations on the Characteristics of AlGaIn/GaN High-Electron-Mobility Transistors. <i>IEEE Transactions on Electron Devices</i> , 2020, 67, 449-454.	3.0	12
107	Evolution of local strain in Ag-deposited monolayer MoS_2 modulated by interface interactions. <i>Nanoscale</i> , 2019, 11, 22432-22439.	5.6	12
108	Lateral layered semiconductor multijunctions for novel electronic devices. <i>Chemical Society Reviews</i> , 2022, 51, 4000-4022.	38.1	12

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109	Free-standing hybrid films comprising of ultra-dispersed titania nanocrystals and hierarchical conductive network for excellent high rate performance of lithium storage. <i>Nano Research</i> , 2021, 14, 2301-2308.	10.4	10
110	Synthesis, properties, and applications of large-scale two-dimensional materials by polymer-assisted deposition. <i>Journal of Semiconductors</i> , 2019, 40, 061003.	3.7	9
111	Modulation of the resistive switching of BiFO ₃ thin films through electrical stressing. <i>Journal Physics D: Applied Physics</i> , 2020, 53, 115301.	2.8	9
112	Role of the lattice in the light-induced insulator-to-metal transition in vanadium dioxide. <i>Physical Review Research</i> , 2020, 2, .	3.6	9
113	Robust photoluminescence energy of MoS ₂ /graphene heterostructure against electron irradiation. <i>Science China Materials</i> , 2018, 61, 1351-1359.	6.3	8
114	Recent Progress in Two-Dimensional MoTe ₂ Hetero-Phase Homo Junctions. <i>Nanomaterials</i> , 2022, 12, 110.	4.1	8
115	High-order ALE method for the Navier–Stokes equations on a moving hybrid unstructured mesh using flux reconstruction method. <i>International Journal of Computational Fluid Dynamics</i> , 2013, 27, 251-267.	1.2	7
116	Three Dimensional Sculpturing of Vertical Nanowire Arrays by Conventional Photolithography. <i>Scientific Reports</i> , 2016, 6, 18886.	3.3	7
117	A specially designed Li–H ₂ O ₂ semi-fuel cell: A potential choice for electric vehicle propulsion. <i>RSC Advances</i> , 2014, 4, 18894.	3.6	6
118	A Review on Anode Side Interface Stability Micromechanisms and Engineering for Garnet Electrolyte-based Solid-state Batteries. <i>Chemical Research in Chinese Universities</i> , 2020, 36, 351-359.	2.6	6
119	Two-Dimensional Lateral Heterostructures Made by Selective Reaction on a Patterned Monolayer MoS ₂ Matrix. <i>ACS Applied Materials & Interfaces</i> , 2021, 13, 26143-26151.	8.0	5
120	Reconfigurable Photonic Platforms: A Lithography-Free and Field-Programmable Photonic Metacanvas (Adv. Mater. 5/2018). <i>Advanced Materials</i> , 2018, 30, 1870034.	21.0	4
121	Advances in phase-change materials. <i>Journal of Applied Physics</i> , 2021, 130, .	2.5	4
122	Magnetoresistance oscillations in topological insulator Bi ₂ Te ₃ nanoscale antidot arrays. <i>Nanotechnology</i> , 2015, 26, 265301.	2.6	3
123	Reconfigurable Carbon Nanotube Barristor. <i>Advanced Functional Materials</i> , 2022, 32, .	14.9	2
124	Stable freestanding two-dimensional anionic electrons in YCl with extremely weak interlayer interaction. <i>Journal of Materials Chemistry C</i> , 0, , .	5.5	2
125	Possible phonon-induced electronic bi-stability in VO ₂ for ultrafast memory at room temperature. , 2019, , .		1
126	Solid Electrolytes: A Garnet-Type Solid-Electrolyte-Based Molten Lithium–Molybdenum–Iron(II) Chloride Battery with Advanced Reaction Mechanism (Adv. Mater. 32/2020). <i>Advanced Materials</i> , 2020, 32, 2070242.	21.0	1

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127	Ionic Sensing Hydrogels: Ultrasensitive, Low-Voltage Operational, and Asymmetric Ionic Sensing Hydrogel for Multipurpose Applications (Adv. Funct. Mater. 12/2020). Advanced Functional Materials, 2020, 30, 2070080.	14.9	1
128	Grain-Boundary Engineering of Monolayer MoS ₂ for Energy-Efficient Lateral Synaptic Devices (Adv. Mater. 32/2021). Advanced Materials, 2021, 33, 2170251.	21.0	1