

Xiaodong Xu

List of Publications by Year in descending order

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155
papers

37,853
citations

9775

73
h-index

7152

153
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159
all docs

159
docs citations

159
times ranked

22643
citing authors

#	ARTICLE	IF	CITATIONS
1	Coupled Spin and Valley Physics in Monolayers of MoS_2 and Other Group-VI Dichalcogenides. <i>Physical Review Letters</i> , 2012, 108, 196802.	2.9	3,872
2	Layer-dependent ferromagnetism in a van der Waals crystal down to the monolayer limit. <i>Nature</i> , 2017, 546, 270-273.	13.7	3,824
3	Spin and pseudospins in layered transition metal dichalcogenides. <i>Nature Physics</i> , 2014, 10, 343-350.	6.5	2,204
4	Valleytronics in 2D materials. <i>Nature Reviews Materials</i> , 2016, 1, .	23.3	1,712
5	Electrically tunable excitonic light-emitting diodes based on monolayer WSe_2 p-n junctions. <i>Nature Nanotechnology</i> , 2014, 9, 268-272.	15.6	1,434
6	Observation of long-lived interlayer excitons in monolayer MoSe_2 / WSe_2 heterostructures. <i>Nature Communications</i> , 2015, 6, 6242.	5.8	1,252
7	Highly anisotropic and robust excitons in monolayer black phosphorus. <i>Nature Nanotechnology</i> , 2015, 10, 517-521.	15.6	1,204
8	Two-dimensional itinerant ferromagnetism in atomically thin Fe_3GeTe_2 . <i>Nature Materials</i> , 2018, 17, 778-782.	13.3	995
9	Electrical control of 2D magnetism in bilayer CrI_3 . <i>Nature Nanotechnology</i> , 2018, 13, 544-548.	15.6	975
10	Lateral heterojunctions within monolayer MoSe_2 / WSe_2 semiconductors. <i>Nature Materials</i> , 2014, 13, 1096-1101.	13.3	872
11	Giant tunneling magnetoresistance in spin-filter van der Waals heterostructures. <i>Science</i> , 2018, 360, 1214-1218.	6.0	871
12	Signatures of moiré-trapped valley excitons in MoSe_2 / WSe_2 heterobilayers. <i>Nature</i> , 2019, 567, 66-70.	13.7	842
13	Single quantum emitters in monolayer semiconductors. <i>Nature Nanotechnology</i> , 2015, 10, 497-502.	15.6	749
14	Monolayer semiconductor nanocavity lasers with ultralow thresholds. <i>Nature</i> , 2015, 520, 69-72.	13.7	713
15	Room-temperature ferroelectricity in CuInP_2S_6 ultrathin flakes. <i>Nature Communications</i> , 2016, 7, 12357.	5.8	637
16	Van der Waals engineering of ferromagnetic semiconductor heterostructures for spin and valleytronics. <i>Science Advances</i> , 2017, 3, e1603113.	4.7	635
17	Valley-polarized exciton dynamics in a 2D semiconductor heterostructure. <i>Science</i> , 2016, 351, 688-691.	6.0	606
18	Ferroelectric switching of a two-dimensional metal. <i>Nature</i> , 2018, 560, 336-339.	13.7	570

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19	Electrical tuning of valley magnetic moment through symmetry control in bilayer MoS ₂ . Nature Physics, 2013, 9, 149-153.	6.5	540
20	Stacking-Dependent Magnetism in Bilayer CrI ₃ . Nano Letters, 2018, 18, 7658-7664.	4.5	475
21	Zeeman-type spin splitting controlled by an electric field. Nature Physics, 2013, 9, 563-569.	6.5	462
22	Edge conduction in monolayer WTe ₂ . Nature Physics, 2017, 13, 677-682.	6.5	457
23	Moiré excitons: From programmable quantum emitter arrays to spin-orbit-coupled artificial lattices. Science Advances, 2017, 3, e1701696.	4.7	427
24	Intrinsic homogeneous linewidth and broadening mechanisms of excitons in monolayer transition metal dichalcogenides. Nature Communications, 2015, 6, 8315.	5.8	408
25	Electrical control of second-harmonic generation in a WSe ₂ monolayer transistor. Nature Nanotechnology, 2015, 10, 407-411.	15.6	406
26	Direct observation of van der Waals stacking-dependent interlayer magnetism. Science, 2019, 366, 983-987.	6.0	377
27	Interlayer valley excitons in heterobilayers of transition metal dichalcogenides. Nature Nanotechnology, 2018, 13, 1004-1015.	15.6	373
28	Switching 2D magnetic states via pressure tuning of layer stacking. Nature Materials, 2019, 18, 1298-1302.	13.3	358
29	Giant nonreciprocal second-harmonic generation from antiferromagnetic bilayer CrI ₃ . Nature, 2019, 572, 497-501.	13.7	309
30	Spin-layer locking effects in optical orientation of exciton spin in bilayer WSe ₂ . Nature Physics, 2014, 10, 130-134.	6.5	297
31	Determination of band offsets, hybridization, and exciton binding in 2D semiconductor heterostructures. Science Advances, 2017, 3, e1601832.	4.7	293
32	Ligand-field helical luminescence in a 2D ferromagnetic insulator. Nature Physics, 2018, 14, 277-281.	6.5	275
33	Ferromagnetism Near Room Temperature in the Cleavable van der Waals Crystal Fe ₅ GeTe ₂ . ACS Nano, 2019, 13, 4436-4442.	7.3	266
34	Dirac cones and Dirac saddle points of bright excitons in monolayer transition metal dichalcogenides. Nature Communications, 2014, 5, 3876.	5.8	262
35	Gate-induced superconductivity in a monolayer topological insulator. Science, 2018, 362, 922-925.	6.0	259
36	Atomically Thin CrCl ₃ : An In-Plane Layered Antiferromagnetic Insulator. Nano Letters, 2019, 19, 3993-3998.	4.5	240

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37	Tuning Ising superconductivity with layer and spin-orbit coupling in two-dimensional transition-metal dichalcogenides. Nature Communications, 2018, 9, 1427.	5.8	230
38	Superconductivity in metallic twisted bilayer graphene stabilized by WSe ₂ . Nature, 2020, 583, 379-384.	13.7	225
39	Magnetic behavior and spin-lattice coupling in cleavable van der Waals layered CrCl ₃ crystals. Physical Review Materials, 2017, 1, .	13.3	213
40	Emergent phenomena and proximity effects in two-dimensional magnets and heterostructures. Nature Materials, 2020, 19, 1276-1289.	13.3	213
41	Van der Waals epitaxial growth of air-stable CrSe ₂ nanosheets with thickness-tunable magnetic order. Nature Materials, 2021, 20, 818-825.	13.3	206
42	Topological mosaics in moiré superlattices of van der Waals heterobilayers. Nature Physics, 2017, 13, 356-362.	6.5	205
43	Probing the Influence of Dielectric Environment on Excitons in Monolayer WSe ₂ : Insight from High Magnetic Fields. Nano Letters, 2016, 16, 7054-7060.	4.5	198
44	Anomalous Light Cones and Valley Optical Selection Rules of Interlayer Excitons in Twisted Heterobilayers. Physical Review Letters, 2015, 115, 187002.	2.9	194
45	Excitonic luminescence upconversion in a two-dimensional semiconductor. Nature Physics, 2016, 12, 323-327.	6.5	187
46	Radiative control of dark excitons at room temperature by nano-optical antenna-tip Purcell effect. Nature Nanotechnology, 2018, 13, 59-64.	15.6	186
47	Electrically tunable correlated and topological states in twisted monolayer-bilayer graphene. Nature Physics, 2021, 17, 374-380.	6.5	173
48	Excitons in strain-induced one-dimensional moiré potentials at transition metal dichalcogenide heterojunctions. Nature Materials, 2020, 19, 1068-1073.	13.3	169
49	Layer-resolved magnetic proximity effect in van der Waals heterostructures. Nature Nanotechnology, 2020, 15, 187-191.	15.6	169
50	Hybrid Tip-Enhanced Nanospectroscopy and Nanoimaging of Monolayer WSe ₂ with Local Strain Control. Nano Letters, 2016, 16, 2621-2627.	4.5	165
51	Trion formation dynamics in monolayer transition metal dichalcogenides. Physical Review B, 2016, 93, .	1.1	159
52	Direct visualization of magnetic domains and moiré magnetism in twisted 2D magnets. Science, 2021, 374, 1140-1144.	6.0	144
53	Symmetry breaking in twisted double bilayer graphene. Nature Physics, 2021, 17, 26-30.	6.5	141
54	Magnetic Order and Symmetry in the 2D Semiconductor CrSBr. Nano Letters, 2021, 21, 3511-3517.	4.5	141

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55	Excitons and emergent quantum phenomena in stacked 2D semiconductors. Nature, 2021, 599, 383-392.	13.7	136
56	Exciton dynamics in monolayer transition metal dichalcogenides. Journal of the Optical Society of America B: Optical Physics, 2016, 33, C39.	0.9	135
57	Visualizing electrostatic gating effects in two-dimensional heterostructures. Nature, 2019, 572, 220-223.	13.7	135
58	Dirac line nodes and effect of spin-orbit coupling in the nonsymmorphic critical semimetals <math display="block">M\text{SiS}_2 <math display="block">M\text{Hf}_2\text{Te}_4	1.1	131
59	Review Voltage Control of a van der Waals Spin-Filter Magnetic Tunnel Junction. Nano Letters, 2019, 19, 915-920.	4.5	129
60	Valley phonons and exciton complexes in a monolayer semiconductor. Nature Communications, 2020, 11, 618.	5.8	128
61	Layered Antiferromagnetism Induces Large Negative Magnetoresistance in the van der Waals Semiconductor CrSBr. Advanced Materials, 2020, 32, e2003240.	11.1	116
62	Imaging quantum spin Hall edges in monolayer WTe ₂ . Science Advances, 2019, 5, eaat8799.	4.7	113
63	Coherent Electronic Coupling in Atomically Thin MoSe ₂ . Physical Review Letters, 2014, 112, .	2.9	108
64	Directional interlayer spin-valley transfer in two-dimensional heterostructures. Nature Communications, 2016, 7, 13747.	5.8	106
65	Direct observation of two-dimensional magnons in atomically thin CrI ₃ . Nature Physics, 2021, 17, 20-25.	6.5	106
66	Interlayer electronic coupling on demand in a 2D magnetic semiconductor. Nature Materials, 2021, 20, 1657-1662.	13.3	94
67	Reversible strain-induced magnetic phase transition in a van der Waals magnet. Nature Nanotechnology, 2022, 17, 256-261.	15.6	93
68	Intertwined Topological and Magnetic Orders in Atomically Thin Chern Insulator MnBi ₂ Te ₄ . Nano Letters, 2021, 21, 2544-2550.	4.5	92
69	Tuning inelastic light scattering via symmetry control in the two-dimensional magnet CrI ₃ . Nature Nanotechnology, 2020, 15, 212-216.	15.6	90
70	Unusual Exciton-Phonon Interactions at van der Waals Engineered Interfaces. Nano Letters, 2017, 17, 1194-1199.	4.5	81
71	Nonlinear Valley and Spin Currents from Fermi Pocket Anisotropy in 2D Crystals. Physical Review Letters, 2014, 113, 156603.	2.9	80
72	Evolution of the Valley Position in Bulk Transition-Metal Chalcogenides and Their Monolayer Limit. Nano Letters, 2016, 16, 4738-4745.	4.5	80

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73	Optical generation of high carrier densities in 2D semiconductor heterobilayers. Science Advances, 2019, 5, eaax0145.	4.7	80
74	Highly anisotropic excitons and multiple phonon bound states in a van der Waals antiferromagnetic insulator. Nature Nanotechnology, 2021, 16, 655-660.	15.6	72
75	Magnetic domains and domain wall pinning in atomically thin CrBr ₃ revealed by nanoscale imaging. Nature Communications, 2021, 12, 1989.	5.8	68
76	Phase engineering of Cr ₅ Te ₈ with colossal anomalous Hall effect. Nature Electronics, 2022, 5, 224-232.	13.1	68
77	Valley-splitting and valley-dependent inter-Landau-level optical transitions in monolayer MoS ₂ quantum Hall systems. Physical Review B, 2014, 90, .	1.1	67
78	Light-induced ferromagnetism in moiré superlattices. Nature, 2022, 604, 468-473.	13.7	61
79	Spin-orbit-coupled quantum wires and Majorana fermions on zigzag edges of monolayer transition-metal dichalcogenides. Physical Review B, 2014, 89, .	1.1	60
80	Stacking Domain Wall Magnons in Twisted van der Waals Magnets. Physical Review Letters, 2020, 125, 247201.	2.9	58
81	Ultrathin van der Waals Metalenses. Nano Letters, 2018, 18, 6961-6966.	4.5	55
82	Evidence for equilibrium exciton condensation in monolayer WTe ₂ . Nature Physics, 2022, 18, 94-99.	6.5	55
83	Magnetic proximity and nonreciprocal current switching in a monolayer WTe ₂ helical edge. Nature Materials, 2020, 19, 503-507.	13.3	53
84	Vapor-transport growth of high optical quality WSe ₂ monolayers. APL Materials, 2014, 2, .	2.2	52
85	Experimental realization of all-angle negative refraction in acoustic gradient metasurface. Applied Physics Letters, 2017, 111, .	1.5	51
86	Phonon-assisted oscillatory exciton dynamics in monolayer MoSe ₂ . Npj 2D Materials and Applications, 2017, 1, .	3.9	50
87	Moiré trions in MoSe ₂ /WSe ₂ heterobilayers. Nature Nanotechnology, 2021, 16, 1208-1213.	15.6	50
88	Dynamic Optical Tuning of Interlayer Interactions in the Transition Metal Dichalcogenides. Nano Letters, 2017, 17, 7761-7766.	4.5	46
89	Systematic Doping Control of CVD Graphene Transistors with Functionalized Aromatic Self-Assembled Monolayers. Advanced Functional Materials, 2014, 24, 3464-3470.	7.8	45
90	Metasurface Integrated Monolayer Exciton Polariton. Nano Letters, 2020, 20, 5292-5300.	4.5	44

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109	Theory of low-power ultra-broadband terahertz sideband generation in bi-layer graphene. Nature Communications, 2014, 5, 4854.	5.8	24
110	Nano-spectroscopy of excitons in atomically thin transition metal dichalcogenides. Nature Communications, 2022, 13, 542.	5.8	23
111	Long-range transport of 2D excitons with acoustic waves. Nature Communications, 2022, 13, 1334.	5.8	23
112	Phase-pure two-dimensional Fe_xGeTe_2 magnets with near-room-temperature TC. Nano Research, 2022, 15, 457-464.	5.8	21
113	All-angle Negative Reflection with An Ultrathin Acoustic Gradient Metasurface: Floquet-Bloch Modes Perspective and Experimental Verification. Scientific Reports, 2017, 7, 13852.	1.6	20
114	Experimental observation of conductive edge states in weak topological insulator candidate HfTe_5 . APL Materials, 2018, 6, .	2.2	19
115	Two-Dimensional van der Waals Nanoplatelets with Robust Ferromagnetism. Nano Letters, 2020, 20, 2100-2106.	4.5	19
116	Single-Crystalline Nanobelts Composed of Transition Metal Ditellurides. Advanced Materials, 2018, 30, e1707260.	11.1	18
117	Strong spin-orbit coupling and Dirac nodal lines in the three-dimensional electronic structure of metallic rutile IrO_2 . Physical Review B, 2019, 99, .	1.1	18
118	Nanocavity Clock Spectroscopy: Resolving Competing Exciton Dynamics in $\text{WSe}_2/\text{MoSe}_2$ Heterobilayers. Nano Letters, 2021, 21, 522-528.	4.5	18
119	Imaging Graphene Moiré Superlattices via Scanning Kelvin Probe Microscopy. Nano Letters, 2021, 21, 3280-3286.	4.5	17
120	Determination of the Spin Axis in Quantum Spin Hall Insulator Candidate Monolayer WTe_2 . Physical Review X, 2021, 11, .	2.8	17
121	Observation of topological surface states and strong electron/hole imbalance in extreme magnetoresistance compound LaBi . Physical Review Materials, 2018, 2, .	0.9	16
122	Quantum oscillations in the field-induced ferromagnetic state of MnBi . Physical Review B, 2021, 103, .	1.1	16
123	Spin photovoltaic effect in magnetic van der Waals heterostructures. Science Advances, 2021, 7, eabg8094.	4.7	15
124	Mechanism of mechanically induced optoelectronic and spintronic phase transitions in 1D graphene spirals: insight into the role of interlayer coupling. Nanoscale, 2017, 9, 9693-9700.	2.8	14
125	Coherent exciton-exciton interactions and exciton dynamics in a MoSe_2 heterostructure. Physical Review B, 2021, 104, .	1.1	14
126	Many-Body Exciton and Intervalley Correlations in Heavily Electron-Doped WSe_2 Monolayers. Nano Letters, 2022, 22, 426-432.	4.5	13

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127	Theoretical study of electron tunneling through the spiral molecule junctions along spiral paths. <i>Physical Chemistry Chemical Physics</i> , 2016, 18, 3765-3771.	1.3	12
128	Strong Circularly Polarized Photoluminescence from Multilayer MoS ₂ Through Plasma Driven Direct-Gap Transition. <i>ACS Photonics</i> , 2016, 3, 310-314.	3.2	12
129	Spatial manipulating spin-polarization and tunneling patterns in graphene spirals via periphery structural modification. <i>Carbon</i> , 2017, 113, 325-333.	5.4	12
130	PN/PAs-WSe ₂ van der Waals heterostructures for solar cell and photodetector. <i>Scientific Reports</i> , 2020, 10, 17213.	1.6	12
131	Implementation of Outstanding Electronic Transport in Polar Covalent Boron Nitride Atomic Chains: another Extraordinary Odd-Even Behaviour. <i>Scientific Reports</i> , 2016, 6, 26389.	1.6	11
132	Defect-Induced Magnetic Skyrmion in a Two-Dimensional Chromium Triiodide Monolayer. <i>Jacs Au</i> , 2021, 1, 1362-1367.	3.6	10
133	Double-helix P _n Li _n chains: novel potential nonlinear optical materials. <i>Physical Chemistry Chemical Physics</i> , 2018, 20, 12618-12623.	1.3	8
134	Effect of Hydrogen on Radiation-Induced Displacement Damage in AlGaN/GaN HEMTs. <i>IEEE Transactions on Nuclear Science</i> , 2021, 68, 1258-1264.	1.2	8
135	Introduction to the issue on graphene optoelectronics. <i>IEEE Journal of Selected Topics in Quantum Electronics</i> , 2014, 20, 6-8.	1.9	7
136	Modulation of the electronic band structure of silicene by polar two-dimensional substrates. <i>Physical Chemistry Chemical Physics</i> , 2020, 22, 21412-21420.	1.3	7
137	Separation of the valley exciton-polariton in two-dimensional semiconductors with an anisotropic photonic crystal. <i>Physical Review B</i> , 2020, 101, .	1.1	7
138	Tuning 2D magnetism in Fe ₃ XGeTe ₂ films by element doping. <i>National Science Review</i> , 2022, 9, .	4.6	7
139	Evolution of electronic structure and electron-phonon coupling in ultrathin tetragonal CoSe films. <i>Physical Review Materials</i> , 2018, 2, .	0.9	7
140	Chiral heteronanotubes: arrangement-dominated chiral interface states and conductivities. <i>Nanoscale</i> , 2019, 11, 8699-8705.	2.8	6
141	Giant Out-of-Plane Second Harmonic Generation Susceptibility in Janus Group III Chalcogenide Monolayers. <i>Journal of Physical Chemistry C</i> , 2021, 125, 11285-11293.	1.5	6
142	Monolayer Semiconductor Auger Detector. <i>Nano Letters</i> , 2020, 20, 5538-5543.	4.5	5
143	Observation of Single-Electron Transport and Charging on Individual Point Defects in Atomically Thin WSe ₂ . <i>Journal of Physical Chemistry C</i> , 2021, 125, 14056-14064.	1.5	5
144	Giant and anisotropic second harmonic generation of V ^{IV} binary phosphorene derivative with permanent dipole. <i>Journal of Materials Chemistry C</i> , 2021, 9, 6544-6552.	2.7	5

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145	The Study of Displacement Damage in AlGaIn/GaN High Electron Mobility Transistors Based on Experiment and Simulation Method. IEEE Transactions on Nuclear Science, 2022, 69, 1120-1126.	1.2	5
146	Chemical doping for threshold control and contact resistance reduction in graphene and MoS ₂ field effect transistors. , 2013, , .		4
147	The Potential of Phosphorus Nitride Monolayer for Li-S Battery from the Anchoring and Diffusing Perspective: A First-Principles Study. Advanced Theory and Simulations, 2022, 5, .	1.3	4
148	Insights into hyperbolic phonon polaritons in $h\text{-BN}$ using Raman scattering from encapsulated transition metal dichalcogenide layers. Physical Review B, 2021, 104, .	1.1	3
149	Giant Shift Photovoltaic Current in Group V Binary Nanosheets. Advanced Theory and Simulations, 0, , 2100472.	1.3	3
150	Long Radiation Lifetime and Quasi-Isotropic Excitons in Antioxidant V Binary Phosphorene Allotropes with Intrinsic Dipole. Journal of Physical Chemistry C, 2020, 124, 14787-14796.	1.5	2
151	Field-Dependent Band Structure Measurements in Two-Dimensional Heterostructures. Nano Letters, 2021, , .	4.5	2
152	First-Principles Calculations for the Impact of Hydrogenation on the Electron Behavior and Stability of Borophene Nanosheets: Implications for Boron 2D Electronics. ACS Applied Nano Materials, 2022, 5, 1419-1425.	2.4	2
153	Unveiling 2D Ferroelectricity and Ferromagnetism Interaction in van der Waals Heterobilayers. Journal of Physical Chemistry C, 2021, 125, 27837-27843.	1.5	2
154	Modulating the molecular third-order optical nonlinearity by curved surface of carbon skeleton. Molecular Physics, 2018, 116, 242-250.	0.8	1
155	Graphene-based monoatomic chain spintronics: contact-derived half-metallicity, sp ² vs sp. Physica E: Low-Dimensional Systems and Nanostructures, 2021, 126, 114486.	1.3	0