

Qian Niu

List of Publications by Year in descending order

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165
papers

28,499
citations

12303

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166
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166
docs citations

166
times ranked

16537
citing authors

#	ARTICLE	IF	CITATIONS
1	Berry phase effects on electronic properties. <i>Reviews of Modern Physics</i> , 2010, 82, 1959-2007.	16.4	3,479
2	Valley-selective circular dichroism of monolayer molybdenum disulphide. <i>Nature Communications</i> , 2012, 3, 887.	5.8	2,078
3	Valley-Contrasting Physics in Graphene: Magnetic Moment and Topological Transport. <i>Physical Review Letters</i> , 2007, 99, 236809.	2.9	1,730
4	Crossover of the three-dimensional topological insulator Bi ₂ Se ₃ to the two-dimensional limit. <i>Nature Physics</i> , 2010, 6, 584-588.	6.5	1,227
5	Quantized Hall conductance as a topological invariant. <i>Physical Review B</i> , 1985, 31, 3372-3377.	1.1	854
6	Valley-dependent optoelectronics from inversion symmetry breaking. <i>Physical Review B</i> , 2008, 77, .	1.1	845
7	Wave-packet dynamics in slowly perturbed crystals: Gradient corrections and Berry-phase effects. <i>Physical Review B</i> , 1999, 59, 14915-14925.	1.1	771
8	Anomalous Hall Effect in Ferromagnetic Semiconductors. <i>Physical Review Letters</i> , 2002, 88, 207208.	2.9	758
9	First Principles Calculation of Anomalous Hall Conductivity in Ferromagnetic bcc Fe. <i>Physical Review Letters</i> , 2004, 92, 037204.	2.9	715
10	Quantum anomalous Hall effect in graphene from Rashba and exchange effects. <i>Physical Review B</i> , 2010, 82, .	1.1	567
11	Anomalous Hall Effect Arising from Noncollinear Antiferromagnetism. <i>Physical Review Letters</i> , 2014, 112, 017205.	2.9	552
12	Superconductivity Modulated by Quantum Size Effects. <i>Science</i> , 2004, 306, 1915-1917.	6.0	540
13	Massive Dirac fermions and spin physics in an ultrathin film of topological insulator. <i>Physical Review B</i> , 2010, 81, .	1.1	511
14	Berry phase, hyperorbits, and the Hofstadter spectrum: Semiclassical dynamics in magnetic Bloch bands. <i>Physical Review B</i> , 1996, 53, 7010-7023.	1.1	444
15	Berry Phase Correction to Electron Density of States in Solids. <i>Physical Review Letters</i> , 2005, 95, 137204.	2.9	416
16	Finite Size Effects on Helical Edge States in a Quantum Spin-Hall System. <i>Physical Review Letters</i> , 2008, 101, 246807.	2.9	405
17	Berry-Phase Effect in Anomalous Thermoelectric Transport. <i>Physical Review Letters</i> , 2006, 97, 026603.	2.9	396
18	Spontaneous Quantum Hall States in Chirally Stacked Few-Layer Graphene Systems. <i>Physical Review Letters</i> , 2011, 106, 156801.	2.9	393

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19	Topological phases in two-dimensional materials: a review. Reports on Progress in Physics, 2016, 79, 066501.	8.1	385
20	Observation of Atomic Wannier-Stark Ladders in an Accelerating Optical Potential. Physical Review Letters, 1996, 76, 4512-4515.	2.9	382
21	Quantum Anomalous Hall Effect in Graphene Proximity Coupled to an Antiferromagnetic Insulator. Physical Review Letters, 2014, 112, 116404.	2.9	361
22	Electronic Growth of Metallic Overlayers on Semiconductor Substrates. Physical Review Letters, 1998, 80, 5381-5384.	2.9	359
23	The Geometric Phase in Quantum Systems. , 2003, , .		346
24	Landau and dynamical instabilities of the superflow of Bose-Einstein condensates in optical lattices. Physical Review A, 2001, 64, .	1.0	339
25	Edge States in Graphene: From Gapped Flat-Band to Gapless Chiral Modes. Physical Review Letters, 2009, 102, 096801.	2.9	328
26	Spin Pumping and Spin-Transfer Torques in Antiferromagnets. Physical Review Letters, 2014, 113, 057601.	2.9	305
27	Superconductivity at the Two-Dimensional Limit. Science, 2009, 324, 1314-1317.	6.0	294
28	Giant and tunable valley degeneracy splitting in MoTe_2 . Physical Review B, 2015, 92, .	2.9	294
29	Coupling the valley degree of freedom to antiferromagnetic order. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 3738-3742.	3.3	263
30	Quantum spin Hall insulators and quantum valley Hall insulators of BiX/SbX ($X=\text{H, F, Cl}$ and Br) monolayers with a record bulk band gap. NPG Asia Materials, 2014, 6, e147-e147.	3.8	242
31	Chiral Phonons at High-Symmetry Points in Monolayer Hexagonal Lattices. Physical Review Letters, 2015, 115, 115502.	2.9	235
32	Bose-Einstein Condensates in an Optical Lattice. Physical Review Letters, 1999, 82, 2022-2025.	2.9	218
33	Engineering quantum anomalous/valley Hall states in graphene via metal-atom adsorption: An <i>ab-initio</i> study. Physical Review B, 2011, 84, .	1.1	217
34	Berry Phase, Hyperorbits, and the Hofstadter Spectrum. Physical Review Letters, 1995, 75, 1348-1351.	2.9	215
35	Quantum anomalous Hall effect in single-layer and bilayer graphene. Physical Review B, 2011, 83, .	1.1	211
36	Nonlinear Evolution of Quantum States in the Adiabatic Regime. Physical Review Letters, 2003, 90, 170404.	2.9	197

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37	Quantum Theory of Orbital Magnetization and Its Generalization to Interacting Systems. Physical Review Letters, 2007, 99, 197202.	2.9	195
38	Field Induced Positional Shift of Bloch Electrons and Its Dynamical Implications. Physical Review Letters, 2014, 112, 166601.	2.9	181
39	Nonlinear Effects in Interference of Bose-Einstein Condensates. Physical Review Letters, 2000, 84, 2294-2297.	2.9	180
40	Experimental evidence for non-exponential decay in quantum tunnelling. Nature, 1997, 387, 575-577.	13.7	178
41	Atomic Landau-Zener Tunneling and Wannier-Stark Ladders in Optical Potentials. Physical Review Letters, 1996, 76, 4504-4507.	2.9	173
42	Linear Magnetization Dependence of the Intrinsic Anomalous Hall Effect. Physical Review Letters, 2006, 96, 037204.	2.9	172
43	Angular Momentum of Phonons and the Einstein-de Haas Effect. Physical Review Letters, 2014, 112, .	2.9	169
44	Universal Electromotive Force Induced by Domain Wall Motion. Physical Review Letters, 2009, 102, 067201.	2.9	163
45	New Light on Quantum Transport. Physics Today, 1997, 50, 30-34.	0.3	160
46	Dynamical Bloch Band Suppression in an Optical Lattice. Physical Review Letters, 1998, 81, 5093-5096.	2.9	156
47	Energy Magnetization and the Thermal Hall Effect. Physical Review Letters, 2011, 107, 236601.	2.9	152
48	Unconventional Quantum Hall Effect and Tunable Spin Hall Effect in Dirac Materials: Application to an Isolated MoS_2 Trilayer. Physical Review Letters, 2013, 110, 066803.	2.9	152
49	Microscopic theory of quantum anomalous Hall effect in graphene. Physical Review B, 2012, 85, .	1.1	147
50	Berry curvature, orbital moment, and effective quantum theory of electrons in electromagnetic fields. Journal of Physics Condensed Matter, 2008, 20, 193202.	0.7	142
51	Anomalous Hall effect in paramagnetic two-dimensional systems. Physical Review B, 2003, 68, .	1.1	131
52	Topological classification of crystalline insulators with space group symmetry. Physical Review B, 2013, 88, .	1.1	128
53	Transverse Force on a Quantized Vortex in a Superfluid. Physical Review Letters, 1996, 76, 3758-3761.	2.9	127
54	Spin-Wave Dynamics in Real Crystals. Physical Review Letters, 1998, 80, 2205-2208.	2.9	123

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55	Magnetic control of the valley degree of freedom of massive Dirac fermions with application to transition metal dichalcogenides. <i>Physical Review B</i> , 2013, 88, .	1.1	121
56	Topological Invariants of Metals and the Related Physical Effects. <i>Chinese Physics Letters</i> , 2013, 30, 027101.	1.3	110
57	Geometrical effects in orbital magnetic susceptibility. <i>Physical Review B</i> , 2015, 91, .	1.1	108
58	Multivariable Scaling for the Anomalous Hall Effect. <i>Physical Review Letters</i> , 2015, 114, 217203.	2.9	104
59	Stabilizing Topological Phases in Graphene via Random Adsorption. <i>Physical Review Letters</i> , 2012, 109, 116803.	2.9	101
60	Dc-transport properties of ferromagnetic (Ga,Mn)As semiconductors. <i>Applied Physics Letters</i> , 2003, 83, 320-322.	1.5	98
61	Uncovering edge states and electrical inhomogeneity in MoS ₂ field-effect transistors. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2016, 113, 8583-8588.	3.3	94
62	Magnetoelectric coupling and electric control of magnetization in ferromagnet/ferroelectric/normal-metal superlattices. <i>Physical Review B</i> , 2009, 80, .	1.1	92
63	Mn_3X		

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73	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
74	Transition to instability in a periodically kicked Bose-Einstein condensate on a ring. Physical Review A, 2006, 73, .	1.0	66
75	Current Partition at Topological Channel Intersections. Physical Review Letters, 2014, 112, .	2.9	66
76	Rabi oscillations between Bloch bands. Physical Review B, 1996, 54, R5235-R5238.	1.1	63
77	Single-valley engineering in graphene superlattices. Physical Review B, 2015, 91, .	1.1	57
78	Optical Control of Topological Quantum Transport in Semiconductors. Physical Review Letters, 2007, 99, 047401.	2.9	56
79	Scattering universality classes of side jump in the anomalous Hall effect. Physical Review B, 2011, 83, .	1.1	55
80	Berry Phase Effect on the Exciton Transport and on the Exciton Bose-Einstein Condensate. Physical Review Letters, 2008, 101, 106401.	2.9	54
81	Polarization and Adiabatic Pumping in Inhomogeneous Crystals. Physical Review Letters, 2009, 102, 087602.	2.9	53
82	Spin-polarized and valley helical edge modes in graphene nanoribbons. Physical Review B, 2011, 84, .	1.1	53
83	Dynamics of antiferromagnets driven by spin current. Physical Review B, 2014, 89, .	1.1	53
84	Fidelity for the quantum evolution of a Bose-Einstein condensate. Physical Review A, 2005, 72, .	1.0	52
85	Observation of Rabi oscillations between Bloch bands in an optical potential. Physical Review A, 1998, 58, R2648-R2651.	1.0	51
86	Electron dynamics in slowly varying antiferromagnetic texture. Physical Review B, 2012, 86, .	1.1	51
87	Quantum step heights in hysteresis loops of molecular magnets. Physical Review B, 2002, 65, .	1.1	47
88	Evidence for Berezinskiiâ€“Kosterlitzâ€“Thouless transition in atomically flat two-dimensional Pb superconducting films. Solid State Communications, 2013, 165, 59-63.	0.9	47
89	Topological phases in gated bilayer graphene: Effects of Rashba spin-orbit coupling and exchange field. Physical Review B, 2013, 87, .	1.1	45
90	Intrinsic relative magnetoconductivity of nonmagnetic metals. Physical Review B, 2017, 95, .	1.1	44

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91	Giant c-axis nonlinear anomalous Hall effect in Td-MoTe ₂ and WTe ₂ . Nature Communications, 2021, 12, 2049.	5.8	41
92	Topological electromotive force from domain-wall dynamics in a ferromagnet. Physical Review B, 2010, 82, .	1.1	40
93	Chiral phonons in two-dimensional materials. 2D Materials, 2019, 6, 012002.	2.0	40
94	Superconducting Phase with a Chiral f -Wave Pairing Symmetry and Majorana Fermions Induced in a Hole-Doped Semiconductor. Physical Review Letters, 2011, 106, 157003.	2.9	36
95	THEORY OF THE QUANTIZED ADIABATIC PARTICLE TRANSPORT. Modern Physics Letters B, 1991, 05, 923-931.	1.0	34
96	Shape of the Quantum Diffusion Front. Physical Review Letters, 2001, 86, 2485-2489.	2.9	33
97	Semiclassical dynamics and transport of the Dirac spin. Solid State Communications, 2010, 150, 533-537.	0.9	32
98	Gate-tunable exchange coupling between cobalt clusters on graphene. Physical Review B, 2013, 87, .	1.1	29
99	Anderson Localization from the Berry-Curvature Interchange in Quantum Anomalous Hall Systems. Physical Review Letters, 2016, 117, 056802.	2.9	29
100	Theoretical evidence of the Berry-phase mechanism in anomalous Hall transport: First-principles studies of CuCr ₂ Se ₄ xBr _x . Physical Review B, 2007, 75, .	1.1	27
101	Superlattice valley engineering for designer topological insulators. Scientific Reports, 2014, 4, 6397.	1.6	27
102	Metallic Phase in Quantum Hall Systems due to Inter-Landau-Band Mixing. Physical Review Letters, 2001, 87, 216802.	2.9	26
103	Spontaneous Layer-Pseudospin Domain Walls in Bilayer Graphene. Physical Review Letters, 2014, 113, 116803.	2.9	26
104	Phonon Magnetic Moment from Electronic Topological Magnetization. Physical Review Letters, 2021, 127, 186403.	2.9	25
105	Zero-field magnetic response functions in Landau levels. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 7295-7300.	3.3	24
106	Linear magnetoresistance induced by intra-scattering semiclassics of Bloch electrons. Physical Review B, 2020, 101, .	1.1	24
107	Berry Phase Effects on the Dynamics of Quasiparticles in a Superfluid with a Vortex. Physical Review Letters, 2006, 97, 040401.	2.9	23
108	Minimal field requirement in precessional magnetization switching. Journal of Applied Physics, 2006, 99, 013903.	1.1	23

#	ARTICLE	IF	CITATIONS
109	Imaging of critical correlations in optical lattices and atomic traps. Physical Review A, 2006, 73, .	1.0	23
110	Oscillatory Nonmetal-Metal Transitions of Ultrathin Sb Overlayers on a GaAs(110) Substrate. Physical Review Letters, 1998, 80, 3582-3585.	2.9	22
111	Manipulation of band electrons with a rectangular-wave electric field. Journal of Physics Condensed Matter, 1999, 11, 4527-4538.	0.7	22
112	Effect of an electric field on a split Bloch band. Physical Review B, 1989, 40, 3625-3637.	1.1	21
113	Van der Waals heterostructure $\langle \text{mml:math} \text{xmlns:mml="http://www.w3.org/1998/Math/MathML"} \rangle \langle \text{mml:msub} \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:mi} \rangle \text{Pt} \langle \text{mml:mi} \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:mi} \rangle 2 \langle \text{mml:mi} \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:mi} \rangle \text{on} \langle \text{mml:mi} \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:mi} \rangle \text{for topological valleytronics. Physical Review B, 2021, 104, .$	2.9	20
114	WKB Estimate of Bilayer Graphene's Magic Twist Angles. Physical Review Letters, 2021, 126, 016404.	2.9	20
115	Thermoelectric generation of orbital magnetization in metals. Physical Review B, 2021, 103, .	1.1	20
116	Electrical generation of spin in crystals with reduced symmetry. Physical Review B, 2005, 72, .	1.1	19
117	Unbalanced edge modes and topological phase transition in gated trilayer graphene. Physical Review B, 2012, 85, .	1.1	19
118	Manipulating anomalous Hall antiferromagnets with magnetic fields. Physical Review B, 2020, 101, .	1.1	19
119	Influence of quantum size effects on Pb island growth and diffusion barrier oscillations. Physical Review B, 2006, 74, .	1.1	18
120	Semiclassical theory of spin-orbit torques in disordered multiband electron systems. Physical Review B, 2017, 96, .	1.1	18
121	Unified bulk semiclassical theory for intrinsic thermal transport and magnetization currents. Physical Review B, 2020, 101, .	1.1	17
122	Berry Phase Effects in Dipole Density and the Mott Relation. Physical Review Letters, 2020, 124, 066601.	2.9	17
123	Scaling parameters in anomalous and nonlinear Hall effects depend on temperature. Physical Review B, 2019, 100, .	1.1	16
124	Hysteresis from nonlinear dynamics of Majorana modes in topological Josephson junctions. Physical Review B, 2018, 98, .	1.1	15
125	Berry Curvature Effects on Quasiparticle Dynamics in Superconductors. Physical Review Letters, 2021, 126, 187001.	2.9	13
126	Tuning into the Kitaev spin liquid phase: A spin model on the honeycomb lattice with two types of Heisenberg exchange couplings. Physical Review B, 2013, 87, .	1.1	12

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127	Valley-contrasting orbital magnetic moment induced negative magnetoresistance. <i>Physical Review B</i> , 2019, 100, .	1.1	12
128	Floquet-Bloch Oscillations and Intraband Zener Tunneling in an Oblique Spacetime Crystal. <i>Physical Review Letters</i> , 2021, 127, 036401.	2.9	12
129	Semiclassical response of disordered conductors: Extrinsic carrier velocity and spin and field-corrected collision integral. <i>Physical Review Research</i> , 2022, 4, .	1.3	12
130	Geometrical phase effects on the Wigner distribution of Bloch electrons. <i>Physical Review B</i> , 2006, 74, .	1.1	11
131	Geometric optics of Bloch waves in a chiral and dissipative medium. <i>Physical Review A</i> , 2010, 81, .	1.0	11
132	Microscopic derivation of spin-transfer torque in ferromagnets. <i>Physical Review B</i> , 2013, 88, .	1.1	11
133	Geometrodynamics of electrons in a crystal under position and time-dependent deformation. <i>Physical Review B</i> , 2018, 98, .	1.1	11
134	Conserved current of nonconserved quantities. <i>Physical Review B</i> , 2021, 104, .	1.1	11
135	Partial entropy in finite-temperature phase transitions. <i>Physical Review B</i> , 2007, 75, .	1.1	10
136	Ultrahigh-fidelity qubits for quantum computing. <i>Physical Review A</i> , 2009, 80, .	1.0	10
137	Lattice dynamics with molecular Berry curvature: Chiral optical phonons. <i>Physical Review B</i> , 2022, 105, .	1.1	10
138	Xiao et al. Reply:. <i>Physical Review Letters</i> , 2006, 96, .	2.9	9
139	Morphological Symmetry Breaking during Epitaxial Growth at Grazing Incidence. <i>Physical Review Letters</i> , 2000, 84, 3895-3898.	2.9	8
140	Quantum stability and magic lengths of metal atom wires. <i>Physical Review B</i> , 2016, 93, .	1.1	8
141	Observation of long phase-coherence length in epitaxial La-doped CdO thin films. <i>Physical Review B</i> , 2017, 96, .	1.1	8
142	Temperature dependence of the side-jump spin Hall conductivity. <i>Physical Review B</i> , 2019, 100, .	1.1	8
143	Advances on topological materials. <i>Frontiers of Physics</i> , 2020, 15, 1.	2.4	8
144	Out-of-plane carrier spin in transition-metal dichalcogenides under electric current. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2020, 117, 16749-16755.	3.3	8

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145	Negative differential magnetization in ultrathin Fe on vicinal W(100). <i>Physical Review B</i> , 2003, 67, .	1.1	7
146	Rashba torque beyond the Boltzmann regime. <i>Physical Review B</i> , 2017, 96, .	1.1	7
147	Quasi-energy spectrum of multiband superlattices in dc-ac electric fields. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 1996, 222, 435-439.	0.9	6
148	AC and DC fields in optical lattices: quasienergy band structure. <i>Journal of Optics B: Quantum and Semiclassical Optics</i> , 2000, 2, 618-627.	1.4	6
149	Topological phase transitions in thin films by tuning multivalley boundary-state couplings. <i>Physical Review B</i> , 2017, 95, .	1.1	6
150	Theory of the phonon side-jump contribution in anomalous Hall effect. <i>Physical Review B</i> , 2019, 99, .	1.1	6
151	Behavior of superconductivity in a Pb/Ag heterostructure. <i>Physical Review B</i> , 2019, 100, .	1.1	5
152	Josephson radiation from nonlinear dynamics of Majorana zero modes. <i>Physical Review B</i> , 2020, 101, .	1.1	5
153	Chiral anomaly and anomalous finite-size conductivity in graphene. <i>2D Materials</i> , 2017, 4, 035014.	2.0	4
154	Electronic contribution to the geometric dynamics of magnetization. <i>Physical Review B</i> , 2018, 98, .	1.1	4
155	Screening, Nonadiabaticity, and Quantized Acoustoelectric Current. <i>Journal of Low Temperature Physics</i> , 2000, 118, 571-577.	0.6	3
156	Attractive electron-electron interaction induced by geometric phase in a Bloch band. <i>Science China: Physics, Mechanics and Astronomy</i> , 2020, 63, 1.	2.0	2
157	Coupling of source and drain to a quantum Hall system. <i>Physical Review B</i> , 1986, 33, 3785-3792.	1.1	1
158	PRECISION OF A QUANTUM CHARGE PUMP NEAR THE ADIABATIC REGIME. <i>International Journal of Modern Physics B</i> , 1994, 08, 3987-4006.	1.0	1
159	Electron dynamics in slowly modulated crystals: theorems of power and adiabatic drifting. <i>Physica E: Low-Dimensional Systems and Nanostructures</i> , 2001, 9, 327-332.	1.3	1
160	DC current generation and power feature in strongly driven Floquet-Bloch systems. <i>Physical Review Research</i> , 2022, 4, .	1.3	1
161	CONNECTIONS BETWEEN THE QUANTUM HALL EFFECT AND CONFORMAL FIELD THEORY. <i>Modern Physics Letters A</i> , 1992, 07, 2837-2849.	0.5	0
162	Electron depletion due to bias of a T-shaped field-effect transistor. <i>Journal of Applied Physics</i> , 1995, 78, 640-646.	1.1	0

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163	Geometric effects in the effective-mass theory and topological optical superlattices. Physical Review A, 2018, 98, .	1.0	0
164	Magnetic field influenced electron-impurity scattering and magnetotransport. Physical Review B, 2019, 100, .	1.1	0
165	Quantum Effect in Metal Overlayers on Semiconductor Substrates. Series on Directions in Condensed Matter Physics, 1999, , 149-173.	0.1	0