

Qian Niu

List of Publications by Year in descending order

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165
papers

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16537
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#	ARTICLE	IF	CITATIONS
1	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
2	Lattice dynamics with molecular Berry curvature: Chiral optical phonons. <i>Physical Review B</i> , 2022, 105, .	1.1	10
3	DC current generation and power feature in strongly driven Floquet-Bloch systems. <i>Physical Review Research</i> , 2022, 4, .	1.3	1
4	Giant c-axis nonlinear anomalous Hall effect in Td-MoTe ₂ and WTe ₂ . <i>Nature Communications</i> , 2021, 12, 2049.	5.8	41
5	Berry Curvature Effects on Quasiparticle Dynamics in Superconductors. <i>Physical Review Letters</i> , 2021, 126, 187001.	2.9	13
6	Floquet-Bloch Oscillations and Intraband Zener Tunneling in an Oblique Spacetime Crystal. <i>Physical Review Letters</i> , 2021, 127, 036401.	2.9	12
7	Van der Waals heterostructure $\langle \text{mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"} \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:mi} \rangle \text{Pt} \langle \text{mml:mi} \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:mi} \rangle 2 \langle \text{mml:mi} \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:mi} \rangle 2 \langle \text{mml:mi} \rangle$ for topological valleytronics. <i>Physical Review B</i> , 2021, 104, .	2.9	20
8	WKB Estimate of Bilayer Graphene's Magic Twist Angles. <i>Physical Review Letters</i> , 2021, 126, 016404.	2.9	20
9	Thermoelectric generation of orbital magnetization in metals. <i>Physical Review B</i> , 2021, 103, .	1.1	20
10	Phonon Magnetic Moment from Electronic Topological Magnetization. <i>Physical Review Letters</i> , 2021, 127, 186403.	2.9	25
11	Conserved current of nonconserved quantities. <i>Physical Review B</i> , 2021, 104, .	1.1	11
12	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
13	Advances on topological materials. <i>Frontiers of Physics</i> , 2020, 15, 1.	2.4	8
14	Josephson radiation from nonlinear dynamics of Majorana zero modes. <i>Physical Review B</i> , 2020, 101, .	1.1	5
15	Linear magnetoresistance induced by intra-scattering semiclassics of Bloch electrons. <i>Physical Review B</i> , 2020, 101, .	1.1	24
16	Unified bulk semiclassical theory for intrinsic thermal transport and magnetization currents. <i>Physical Review B</i> , 2020, 101, .	1.1	17
17	Manipulating anomalous Hall antiferromagnets with magnetic fields. <i>Physical Review B</i> , 2020, 101, .	1.1	19
18	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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19	Berry Phase Effects in Dipole Density and the Mott Relation. <i>Physical Review Letters</i> , 2020, 124, 066601.	2.9	17
20	Engineering Corner States from Two-Dimensional Topological Insulators. <i>Physical Review Letters</i> , 2020, 124, 166804.	2.9	90
21	Temperature dependence of the side-jump spin Hall conductivity. <i>Physical Review B</i> , 2019, 100, .	1.1	8
22	Valley-contrasting orbital magnetic moment induced negative magnetoresistance. <i>Physical Review B</i> , 2019, 100, .	1.1	12
23	Theory of the phonon side-jump contribution in anomalous Hall effect. <i>Physical Review B</i> , 2019, 99, .	1.1	6
24	Scaling parameters in anomalous and nonlinear Hall effects depend on temperature. <i>Physical Review B</i> , 2019, 100, .	1.1	16
25	Theory of nonlinear Hall effects: Modified semiclassics from quantum kinetics. <i>Physical Review B</i> , 2019, 100, .	1.1	68
26	Magnetic field influenced electron-impurity scattering and magnetotransport. <i>Physical Review B</i> , 2019, 100, .	1.1	0
27	Behavior of superconductivity in a Pb/Ag heterostructure. <i>Physical Review B</i> , 2019, 100, .	1.1	5
28	Chiral phonons in two-dimensional materials. <i>2D Materials</i> , 2019, 6, 012002.	2.0	40
29	Geometrodynamics of electrons in a crystal under position and time-dependent deformation. <i>Physical Review B</i> , 2018, 98, .	1.1	11
30	Hysteresis from nonlinear dynamics of Majorana modes in topological Josephson junctions. <i>Physical Review B</i> , 2018, 98, .	1.1	15
31	Geometric effects in the effective-mass theory and topological optical superlattices. <i>Physical Review A</i> , 2018, 98, .	1.0	0
32	Electronic contribution to the geometric dynamics of magnetization. <i>Physical Review B</i> , 2018, 98, .	1.1	4
33	Chiral anomaly and anomalous finite-size conductivity in graphene. <i>2D Materials</i> , 2017, 4, 035014.	2.0	4
34	Rashba torque beyond the Boltzmann regime. <i>Physical Review B</i> , 2017, 96, .	1.1	7
35	Semiclassical theory of spin-orbit torques in disordered multiband electron systems. <i>Physical Review B</i> , 2017, 96, .	1.1	18
36	Intrinsic relative magnetoconductivity of nonmagnetic metals. <i>Physical Review B</i> , 2017, 95, .	1.1	44

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37	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
38	Topological phase transitions in thin films by tuning multivalley boundary-state couplings. Physical Review B, 2017, 95, .	1.1	6
39	Observation of long phase-coherence length in epitaxial La-doped CdO thin films. Physical Review B, 2017, 96, .	1.1	8
40	Topological phases in two-dimensional materials: a review. Reports on Progress in Physics, 2016, 79, 066501.	8.1	385
41	Uncovering edge states and electrical inhomogeneity in MoS ₂ field-effect transistors. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 8583-8588.	3.3	94
42	Anderson Localization from the Berry-Curvature Interchange in Quantum Anomalous Hall Systems. Physical Review Letters, 2016, 117, 056802.	2.9	29
43	Quantum stability and magic lengths of metal atom wires. Physical Review B, 2016, 93, .	1.1	8
44	Giant and tunable valley degeneracy splitting in MoTe_2 . Physical Review B, 2015, 92, .	2.9	284
45	Chiral Phonons at High-Symmetry Points in Monolayer Hexagonal Lattices. Physical Review Letters, 2015, 115, 115502.	2.9	235
46	Large magneto-optical Kerr effect in noncollinear antiferromagnets Mn_3X .		

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55	Quantum Anomalous Hall Effect in Graphene Proximity Coupled to an Antiferromagnetic Insulator. Physical Review Letters, 2014, 112, 116404.	2.9	361
56	Spin Pumping and Spin-Transfer Torques in Antiferromagnets. Physical Review Letters, 2014, 113, 057601.	2.9	305
57	Dynamics of antiferromagnets driven by spin current. Physical Review B, 2014, 89, .	1.1	53
58	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
59	Current Partition at Topological Channel Intersections. Physical Review Letters, 2014, 112, .	2.9	66
60	Superlattice valley engineering for designer topological insulators. Scientific Reports, 2014, 4, 6397.	1.6	27
61	Microscopic derivation of spin-transfer torque in ferromagnets. Physical Review B, 2013, 88, .	1.1	11
62	Topological classification of crystalline insulators with space group symmetry. Physical Review B, 2013, 88, .	1.1	128
63	Magnetic control of the valley degree of freedom of massive Dirac fermions with application to transition metal dichalcogenides. Physical Review B, 2013, 88, .	1.1	121
64	Topological phases in gated bilayer graphene: Effects of Rashba spin-orbit coupling and exchange field. Physical Review B, 2013, 87, .	1.1	45
65	Evidence for Berezinskii-“Kosterlitz”-Thouless transition in atomically flat two-dimensional Pb superconducting films. Solid State Communications, 2013, 165, 59-63.	0.9	47
66	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
67	Topological Invariants of Metals and the Related Physical Effects. Chinese Physics Letters, 2013, 30, 027101.	1.3	110
68	Gate-tunable exchange coupling between cobalt clusters on graphene. Physical Review B, 2013, 87, .	1.1	29
69	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
70	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
71	Microscopic theory of quantum anomalous Hall effect in graphene. Physical Review B, 2012, 85, .	1.1	147
72	Electron dynamics in slowly varying antiferromagnetic texture. Physical Review B, 2012, 86, .	1.1	51

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73	Unbalanced edge modes and topological phase transition in gated trilayer graphene. <i>Physical Review B</i> , 2012, 85, .	1.1	19
74	Stabilizing Topological Phases in Graphene via Random Adsorption. <i>Physical Review Letters</i> , 2012, 109, 116803.	2.9	101
75	Transport Properties of Graphene Nanoroads in Boron Nitride Sheets. <i>Nano Letters</i> , 2012, 12, 2936-2940.	4.5	86
76	Valley-selective circular dichroism of monolayer molybdenum disulphide. <i>Nature Communications</i> , 2012, 3, 887.	5.8	2,078
77	Spontaneous Quantum Hall States in Chirally Stacked Few-Layer Graphene Systems. <i>Physical Review Letters</i> , 2011, 106, 156801.	2.9	393
78	Quantum anomalous Hall effect in single-layer and bilayer graphene. <i>Physical Review B</i> , 2011, 83, .	1.1	211
79	Engineering quantum anomalous/valley Hall states in graphene via metal-atom adsorption: An <i>ab-initio</i> study. <i>Physical Review B</i> , 2011, 84, .	1.1	217
80	Scattering universality classes of side jump in the anomalous Hall effect. <i>Physical Review B</i> , 2011, 83, .	1.1	55
81	Spin-polarized and valley helical edge modes in graphene nanoribbons. <i>Physical Review B</i> , 2011, 84, .	1.1	53
82	Energy Magnetization and the Thermal Hall Effect. <i>Physical Review Letters</i> , 2011, 107, 236601.	2.9	152
83	Superconducting Phase with a Chiral $\langle \text{mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline">f \rangle$ Wave Pairing Symmetry and Majorana Fermions Induced in a Hole-Doped Semiconductor. <i>Physical Review Letters</i> , 2011, 106, 157003.	2.9	36
84	Berry phase effects on electronic properties. <i>Reviews of Modern Physics</i> , 2010, 82, 1959-2007.	16.4	3,479
85	Semiclassical dynamics and transport of the Dirac spin. <i>Solid State Communications</i> , 2010, 150, 533-537.	0.9	32
86	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
87	Geometric optics of Bloch waves in a chiral and dissipative medium. <i>Physical Review A</i> , 2010, 81, .	1.0	11
88	Massive Dirac fermions and spin physics in an ultrathin film of topological insulator. <i>Physical Review B</i> , 2010, 81, .	1.1	511
89	Quantum anomalous Hall effect in graphene from Rashba and exchange effects. <i>Physical Review B</i> , 2010, 82, .	1.1	567
90	Topological electromotive force from domain-wall dynamics in a ferromagnet. <i>Physical Review B</i> , 2010, 82, .	1.1	40

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91	Ultra-high-fidelity qubits for quantum computing. <i>Physical Review A</i> , 2009, 80, .	1.0	10
92	Polarization and Adiabatic Pumping in Inhomogeneous Crystals. <i>Physical Review Letters</i> , 2009, 102, 087602.	2.9	53
93	Universal Electromotive Force Induced by Domain Wall Motion. <i>Physical Review Letters</i> , 2009, 102, 067201.	2.9	163
94	Edge States in Graphene: From Gapped Flat-Band to Gapless Chiral Modes. <i>Physical Review Letters</i> , 2009, 102, 096801.	2.9	328
95	Superconductivity at the Two-Dimensional Limit. <i>Science</i> , 2009, 324, 1314-1317.	6.0	294
96	Magnetoelectric coupling and electric control of magnetization in ferromagnet/ferroelectric/normal-metal superlattices. <i>Physical Review B</i> , 2009, 80, .	1.1	92
97	Berry curvature, orbital moment, and effective quantum theory of electrons in electromagnetic fields. <i>Journal of Physics Condensed Matter</i> , 2008, 20, 193202.	0.7	142
98	Valley-dependent optoelectronics from inversion symmetry breaking. <i>Physical Review B</i> , 2008, 77, .	1.1	845
99	Finite Size Effects on Helical Edge States in a Quantum Spin-Hall System. <i>Physical Review Letters</i> , 2008, 101, 246807.	2.9	405
100	Berry Phase Effect on the Exciton Transport and on the Exciton Bose-Einstein Condensate. <i>Physical Review Letters</i> , 2008, 101, 106401.	2.9	54
101	Partial entropy in finite-temperature phase transitions. <i>Physical Review B</i> , 2007, 75, .	1.1	10
102	Theoretical evidence of the Berry-phase mechanism in anomalous Hall transport: First-principles studies of $\text{CuCr}_2\text{Se}_4\hat{\sim}\text{xBr}_x$. <i>Physical Review B</i> , 2007, 75, .	1.1	27
103	Optical Control of Topological Quantum Transport in Semiconductors. <i>Physical Review Letters</i> , 2007, 99, 047401.	2.9	56
104	Quantum Theory of Orbital Magnetization and Its Generalization to Interacting Systems. <i>Physical Review Letters</i> , 2007, 99, 197202.	2.9	195
105	Valley-Contrasting Physics in Graphene: Magnetic Moment and Topological Transport. <i>Physical Review Letters</i> , 2007, 99, 236809.	2.9	1,730
106	Berry Phase Effects on the Dynamics of Quasiparticles in a Superfluid with a Vortex. <i>Physical Review Letters</i> , 2006, 97, 040401.	2.9	23
107	Berry-Phase Effect in Anomalous Thermoelectric Transport. <i>Physical Review Letters</i> , 2006, 97, 026603.	2.9	396
108	Xiao et al. Reply. <i>Physical Review Letters</i> , 2006, 96, .	2.9	9

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109	Influence of quantum size effects on Pb island growth and diffusion barrier oscillations. Physical Review B, 2006, 74, .	1.1	18
110	Transition to instability in a periodically kicked Bose-Einstein condensate on a ring. Physical Review A, 2006, 73, .	1.0	66
111	Linear Magnetization Dependence of the Intrinsic Anomalous Hall Effect. Physical Review Letters, 2006, 96, 037204.	2.9	172
112	Minimal field requirement in precessional magnetization switching. Journal of Applied Physics, 2006, 99, 013903.	1.1	23
113	Geometrical phase effects on the Wigner distribution of Bloch electrons. Physical Review B, 2006, 74, .	1.1	11
114	Imaging of critical correlations in optical lattices and atomic traps. Physical Review A, 2006, 73, .	1.0	23
115	Fidelity for the quantum evolution of a Bose-Einstein condensate. Physical Review A, 2005, 72, .	1.0	52
116	Charge Hall effect driven by spin-dependent chemical potential gradients and Onsager relations in mesoscopic systems. Physical Review B, 2005, 72, .	1.1	78
117	Electrical generation of spin in crystals with reduced symmetry. Physical Review B, 2005, 72, .	1.1	19
118	Disorder effects in the anomalous Hall effect induced by Berry curvature. Physical Review B, 2005, 72, .	1.1	85
119	Coherent wave-packet evolution in coupled bands. Physical Review B, 2005, 72, .	1.1	90
120	Berry Phase Correction to Electron Density of States in Solids. Physical Review Letters, 2005, 95, 137204.	2.9	416
121	First Principles Calculation of Anomalous Hall Conductivity in Ferromagnetic bcc Fe. Physical Review Letters, 2004, 92, 037204.	2.9	715
122	Spin-Orbit Coupling and Berry Phase with Ultracold Atoms in 2D Optical Lattices. Physical Review Letters, 2004, 92, 153005.	2.9	90
123	Superconductivity Modulated by Quantum Size Effects. Science, 2004, 306, 1915-1917.	6.0	540
124	Dc-transport properties of ferromagnetic (Ga,Mn)As semiconductors. Applied Physics Letters, 2003, 83, 320-322.	1.5	98
125	Anomalous Hall effect in paramagnetic two-dimensional systems. Physical Review B, 2003, 68, .	1.1	131
126	Negative differential magnetization in ultrathin Fe on vicinal W(100). Physical Review B, 2003, 67, .	1.1	7

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127	Nonlinear Evolution of Quantum States in the Adiabatic Regime. Physical Review Letters, 2003, 90, 170404.	2.9	197
128	The Geometric Phase in Quantum Systems. , 2003, , .		346
129	Quantum step heights in hysteresis loops of molecular magnets. Physical Review B, 2002, 65, .	1.1	47
130	Anomalous Hall Effect in Ferromagnetic Semiconductors. Physical Review Letters, 2002, 88, 207208.	2.9	758
131	Landau and dynamical instabilities of the superflow of Bose-Einstein condensates in optical lattices. Physical Review A, 2001, 64, .	1.0	339
132	Electron dynamics in slowly modulated crystals: theorems of power and adiabatic drifting. Physica E: Low-Dimensional Systems and Nanostructures, 2001, 9, 327-332.	1.3	1
133	Shape of the Quantum Diffusion Front. Physical Review Letters, 2001, 86, 2485-2489.	2.9	33
134	Transition between extended and localized states in a one-dimensional incommensurate optical lattice. Physical Review A, 2001, 64, .	1.0	70
135	Metallic Phase in Quantum Hall Systems due to Inter-Landau-Band Mixing. Physical Review Letters, 2001, 87, 216802.	2.9	26
136	Screening, Nonadiabaticity, and Quantized Acoustoelectric Current. Journal of Low Temperature Physics, 2000, 118, 571-577.	0.6	3
137	Morphological Symmetry Breaking during Epitaxial Growth at Grazing Incidence. Physical Review Letters, 2000, 84, 3895-3898.	2.9	8
138	AC and DC fields in optical lattices: quasienergy band structure. Journal of Optics B: Quantum and Semiclassical Optics, 2000, 2, 618-627.	1.4	6
139	Nonlinear Effects in Interference of Bose-Einstein Condensates. Physical Review Letters, 2000, 84, 2294-2297.	2.9	180
140	Manipulation of band electrons with a rectangular-wave electric field. Journal of Physics Condensed Matter, 1999, 11, 4527-4538.	0.7	22
141	Bose-Einstein Condensates in an Optical Lattice. Physical Review Letters, 1999, 82, 2022-2025.	2.9	218
142	Wave-packet dynamics in slowly perturbed crystals: Gradient corrections and Berry-phase effects. Physical Review B, 1999, 59, 14915-14925.	1.1	771
143	Quantum Effect in Metal Overlayers on Semiconductor Substrates. Series on Directions in Condensed Matter Physics, 1999, , 149-173.	0.1	0
144	Spin-Wave Dynamics in Real Crystals. Physical Review Letters, 1998, 80, 2205-2208.	2.9	123

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145	“Electronic Growth” of Metallic Overlayers on Semiconductor Substrates. <i>Physical Review Letters</i> , 1998, 80, 5381-5384.	2.9	359
146	Observation of Rabi oscillations between Bloch bands in an optical potential. <i>Physical Review A</i> , 1998, 58, R2648-R2651.	1.0	51
147	Oscillatory Nonmetal-Metal Transitions of Ultrathin Sb Overlayers on a GaAs(110) Substrate. <i>Physical Review Letters</i> , 1998, 80, 3582-3585.	2.9	22
148	Dynamical Bloch Band Suppression in an Optical Lattice. <i>Physical Review Letters</i> , 1998, 81, 5093-5096.	2.9	156
149	New Light on Quantum Transport. <i>Physics Today</i> , 1997, 50, 30-34.	0.3	160
150	Experimental evidence for non-exponential decay in quantum tunnelling. <i>Nature</i> , 1997, 387, 575-577.	13.7	178
151	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
152	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
153	Observation of Atomic Wannier-Stark Ladders in an Accelerating Optical Potential. <i>Physical Review Letters</i> , 1996, 76, 4512-4515.	2.9	382
154	Atomic Landau-Zener Tunneling and Wannier-Stark Ladders in Optical Potentials. <i>Physical Review Letters</i> , 1996, 76, 4504-4507.	2.9	173
155	Transverse Force on a Quantized Vortex in a Superfluid. <i>Physical Review Letters</i> , 1996, 76, 3758-3761.	2.9	127
156	Rabi oscillations between Bloch bands. <i>Physical Review B</i> , 1996, 54, R5235-R5238.	1.1	63
157	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
158	Berry Phase, Hyperorbits, and the Hofstadter Spectrum. <i>Physical Review Letters</i> , 1995, 75, 1348-1351.	2.9	215
159	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
160	CONNECTIONS BETWEEN THE QUANTUM HALL EFFECT AND CONFORMAL FIELD THEORY. <i>Modern Physics Letters A</i> , 1992, 07, 2837-2849.	0.5	0
161	THEORY OF THE QUANTIZED ADIABATIC PARTICLE TRANSPORT. <i>Modern Physics Letters B</i> , 1991, 05, 923-931.	1.0	34
162	Effect of an electric field on a split Bloch band. <i>Physical Review B</i> , 1989, 40, 3625-3637.	1.1	21

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163	Quantum Hall effect with realistic boundary conditions. Physical Review B, 1987, 35, 2188-2197.	1.1	80
164	Coupling of source and drain to a quantum Hall system. Physical Review B, 1986, 33, 3785-3792.	1.1	1
165	Quantized Hall conductance as a topological invariant. Physical Review B, 1985, 31, 3372-3377.	1.1	854