

Xiao-Liang Qi

List of Publications by Year in descending order

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152
papers

53,749
citations

9234

74
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all docs

153
docs citations

153
times ranked

19915
citing authors

#	ARTICLE	IF	CITATIONS
1	Topological insulators and superconductors. <i>Reviews of Modern Physics</i> , 2011, 83, 1057-1110.	16.4	11,190
2	Topological insulators in Bi ₂ Se ₃ , Bi ₂ Te ₃ and Sb ₂ Te ₃ with a single Dirac cone on the surface. <i>Nature Physics</i> , 2009, 5, 438-442.	6.5	5,240
3	Quantum Spin Hall Insulator State in HgTe Quantum Wells. <i>Science</i> , 2007, 318, 766-770.	6.0	5,070
4	Experimental Realization of a Three-Dimensional Topological Insulator, Bi ₂ Te ₃ . <i>Science</i> , 2009, 325, 178-181.	6.0	3,095
5	Topological field theory of time-reversal invariant insulators. <i>Physical Review B</i> , 2008, 78, .	1.1	2,702
6	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
7	The quantum spin Hall effect and topological insulators. <i>Physics Today</i> , 2010, 63, 33-38.	0.3	1,074
8	Massive Dirac Fermion on the Surface of a Magnetically Doped Topological Insulator. <i>Science</i> , 2010, 329, 659-662.	6.0	1,051
9	Spin-orbit gap of graphene: First-principles calculations. <i>Physical Review B</i> , 2007, 75, .	1.1	848
10	Inducing a Magnetic Monopole with Topological Surface States. <i>Science</i> , 2009, 323, 1184-1187.	6.0	824
11	Tunable multifunctional topological insulators in ternary Heusler compounds. <i>Nature Materials</i> , 2010, 9, 541-545.	13.3	804
12	Nonlocal Transport in the Quantum Spin Hall State. <i>Science</i> , 2009, 325, 294-297.	6.0	772
13	Aharonov-Bohm interference in topological insulator nanoribbons. <i>Nature Materials</i> , 2010, 9, 225-229.	13.3	727
14	Model Hamiltonian for topological insulators. <i>Physical Review B</i> , 2010, 82, .	1.1	719
15	The Quantum Spin Hall Effect: Theory and Experiment. <i>Journal of the Physical Society of Japan</i> , 2008, 77, 031007.	0.7	675
16	Quantum Spin Hall Effect in Inverted Type-II Semiconductors. <i>Physical Review Letters</i> , 2008, 100, 236601.	2.9	647
17	Topological quantization of the spin Hall effect in two-dimensional paramagnetic semiconductors. <i>Physical Review B</i> , 2006, 74, .	1.1	646
18	Time-Reversal-Invariant Topological Superconductors and Superfluids in Two and Three Dimensions. <i>Physical Review Letters</i> , 2009, 102, 187001.	2.9	630

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19	Quantum Anomalous Hall Effect in HgTe Quantum Wells. Physical Review Letters, 2008, 101, 146802.	2.9	598
20	Topological Mott Insulators. Physical Review Letters, 2008, 100, 156401.	2.9	549
21	Magnetic Impurities on the Surface of a Topological Insulator. Physical Review Letters, 2009, 102, 156603.	2.9	525
22	Oscillatory crossover from two-dimensional to three-dimensional topological insulators. Physical Review B, 2010, 81, .	1.1	459
23	Chaos in quantum channels. Journal of High Energy Physics, 2016, 2016, 1.	1.6	459
24	Minimal two-band model of the superconducting iron oxypnictides. Physical Review B, 2008, 77, .	1.1	435
25	Quantum Spin Hall Effect in a Transition Metal Oxide In_2O_3 . Physical Review Letters, 2009, 102, 256403.	2.9	435
26	Quantum Hall Effect from the Topological Surface States of Strained Bulk HgTe . Physical Review Letters, 2011, 106, 126803.	2.9	427
27	The Quantum Anomalous Hall Effect: Theory and Experiment. Annual Review of Condensed Matter Physics, 2016, 7, 301-321.	5.2	421
28	Chiral topological superconductor from the quantum Hall state. Physical Review B, 2010, 82, .	1.1	414
29	Dynamical axion field in topological magnetic insulators. Nature Physics, 2010, 6, 284-288.	6.5	403
30	Intrinsic Topological Insulator Bi_2Te_3 Thin Films on Si and Their Thickness Limit. Advanced Materials, 2010, 22, 4002-4007.	11.1	376
31	Holographic duality from random tensor networks. Journal of High Energy Physics, 2016, 2016, 1.	1.6	355
32	Landau Quantization of Topological Surface States in Bi_2Se_3 . Physical Review Letters, 2010, 105, 076801.	2.9	352
33	Local criticality, diffusion and chaos in generalized Sachdev-Ye-Kitaev models. Journal of High Energy Physics, 2017, 2017, 1.	1.6	300
34	Chiral gauge field and axial anomaly in a Weyl semimetal. Physical Review B, 2013, 87, .	1.1	274
35	Spin polarization of the quantum spin Hall edge states. Nature Physics, 2012, 8, 485-490.	6.5	264
36	General Relationship between the Entanglement Spectrum and the Edge State Spectrum of Topological Quantum States. Physical Review Letters, 2012, 108, 196402.	2.9	252

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37	Topological invariants for the Fermi surface of a time-reversal-invariant superconductor. Physical Review B, 2010, 81, .	1.1	246
38	Thin Films of Magnetically Doped Topological Insulator with Carrier-Independent Long-Range Ferromagnetic Order. Advanced Materials, 2013, 25, 1065-1070.	11.1	246
39	Quantum Error Correction in Scrambling Dynamics and Measurement-Induced Phase Transition. Physical Review Letters, 2020, 125, 030505.	2.9	226
40	Kondo Effect in the Helical Edge Liquid of the Quantum Spin Hall State. Physical Review Letters, 2009, 102, 256803.	2.9	221
41	Topological Quantization in Units of the Fine Structure Constant. Physical Review Letters, 2010, 105, 166803.	2.9	212
42	Twist defects and projective non-Abelian braiding statistics. Physical Review B, 2013, 87, .	1.1	199
43	Topological Superconductivity on the Surface of Fe-Based Superconductors. Physical Review Letters, 2016, 117, 047001.	2.9	198
44	Topological Nematic States and Non-Abelian Lattice Dislocations. Physical Review X, 2012, 2, .	2.8	196
45	General theorem relating the bulk topological number to edge states in two-dimensional insulators. Physical Review B, 2006, 74, .	1.1	194
46	Topological quantum computation based on chiral Majorana fermions. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 10938-10942.	3.3	194
47	Fractional charge and quantized current in the quantum spin Hall state. Nature Physics, 2008, 4, 273-276.	6.5	189
48	Collective Modes of a Helical Liquid. Physical Review Letters, 2010, 104, 116401.	2.9	189
49	Possible proximity of the Mott insulating iridate NaIrO_2 to the topological insulator Bi_2Se_3 . Physical Review Letters, 2010, 105, 080501.	1.1	185
50	Entanglement Entropy and Entanglement Spectrum of the Kitaev Model. Physical Review Letters, 2010, 105, 080501.	2.9	175
51	Helical edge and surface states in HgTe quantum wells and bulk insulators. Physical Review B, 2008, 77, .	1.1	174
52	Generic Wave-Function Description of Fractional Quantum Anomalous Hall States and Fractional Topological Insulators. Physical Review Letters, 2011, 107, 126803.	2.9	174
53	Topological Order Parameters for Interacting Topological Insulators. Physical Review Letters, 2010, 105, 256803.	2.9	170
54	Topological insulator Bi_2Se_3 thin films grown on double-layer graphene by molecular beam epitaxy. Applied Physics Letters, 2010, 97, .	1.5	154

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55	Quantized topological magnetoelectric effect of the zero-plateau quantum anomalous Hall state. <i>Physical Review B</i> , 2015, 92, .	1.1	152
56	Fractional Topological Insulators in Three Dimensions. <i>Physical Review Letters</i> , 2010, 105, 246809.	2.9	149
57	A time-reversal invariant topological phase at the surface of a 3D topological insulator. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2013, 2013, P09016.	0.9	142
58	Theoretical prediction of topological insulators in thallium-based III-V-VI ₂ ternary chalcogenides. <i>Europhysics Letters</i> , 2010, 90, 37002.	0.7	140
59	Massive Dirac surface states in topological insulator/magnetic insulator heterostructures. <i>Physical Review B</i> , 2013, 87, .	1.1	132
60	Theory of defects in Abelian topological states. <i>Physical Review B</i> , 2013, 88, .	1.1	126
61	Prediction of a Weyl semimetal in HgCdMn_2 . <i>Physical Review B</i> , 2014, 89, .	1.1	118
62	One-Dimensional Helical Transport in Topological Insulator Nanowire Interferometers. <i>Nano Letters</i> , 2014, 14, 2815-2821.	4.5	118
63	A new class of (2 + 1)-dimensional topological superconductors with \mathbb{Z}_8 topological classification. <i>New Journal of Physics</i> , 2013, 15, 065002.	1.2	114
64	Electronic structures and surface states of the topological insulator Bi_2Te_3 . <i>Physical Review B</i> , 2009, 80, .	11	113
65	Conductance and noise signatures of Majorana backscattering. <i>Physical Review B</i> , 2011, 83, .	1.1	113
66	Topological superconducting phase and Majorana fermions in half-metal/superconductor heterostructures. <i>Physical Review B</i> , 2011, 84, .	1.1	109
67	Time-reversal-invariant topological superconductivity in doped Weyl semimetals. <i>Physical Review B</i> , 2014, 90, .	1.1	106
68	Topological field theory and thermal responses of interacting topological superconductors. <i>Physical Review B</i> , 2011, 84, .	1.1	98
69	Classification of topological defects in Abelian topological states. <i>Physical Review B</i> , 2013, 88, .	1.1	93
70	Spin-Charge Separation in the Quantum Spin Hall State. <i>Physical Review Letters</i> , 2008, 101, 086802.	2.9	89
71	Topological Insulators in Ternary Compounds with a Honeycomb Lattice. <i>Physical Review Letters</i> , 2011, 106, 156402.	2.9	89
72	40 years of the quantum Hall effect. <i>Nature Reviews Physics</i> , 2020, 2, 397-401.	11.9	84

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73	Momentum polarization: An entanglement measure of topological spin and chiral central charge. <i>Physical Review B</i> , 2013, 88, .	1.1	82
74	Quantum epidemiology: operator growth, thermal effects, and SYK. <i>Journal of High Energy Physics</i> , 2019, 2019, 1.	1.6	82
75	Equivalent topological invariants of topological insulators. <i>New Journal of Physics</i> , 2010, 12, 065007.	1.2	81
76	Spread of entanglement in a Sachdev-Ye-Kitaev chain. <i>Journal of High Energy Physics</i> , 2017, 2017, 1.	1.6	75
77	Axion topological field theory of topological superconductors. <i>Physical Review B</i> , 2013, 87, .	1.1	74
78	Energy diffusion and the butterfly effect in inhomogeneous Sachdev-Ye-Kitaev chains. <i>SciPost Physics</i> , 2017, 2, .	1.5	74
79	Position-Momentum Duality and Fractional Quantum Hall Effect in Chern Insulators. <i>Physical Review Letters</i> , 2015, 114, 236802.	2.9	73
80	Topological invariants for interacting topological insulators with inversion symmetry. <i>Physical Review B</i> , 2012, 85, .	1.1	71
81	Magnetoconductance of the quantum spin Hall state. <i>Physical Review B</i> , 2010, 82, .	1.1	69
82	Synthetic Topological Qubits in Conventional Bilayer Quantum Hall Systems. <i>Physical Review X</i> , 2014, 4, .	2.8	62
83	Bidirectional holographic codes and sub-AdS locality. <i>Journal of High Energy Physics</i> , 2016, 2016, 1.	1.6	62
84	Topological insulators in filled skutterudites. <i>Physical Review B</i> , 2012, 85, .	1.1	61
85	Effects of Magnetic Doping on Weak Antilocalization in Narrow Bi_2Se_3 Nanoribbons. <i>Nano Letters</i> , 2012, 12, 4355-4359.	4.5	59
86	Effective entropy of quantum fields coupled with gravity. <i>Journal of High Energy Physics</i> , 2020, 2020, 1.	1.6	59
87	Layer Construction of 3D Topological States and String Braiding Statistics. <i>Physical Review X</i> , 2014, 4, .	2.8	57
88	Landau level spectroscopy of surface states in the topological insulator Bi_2Sb . $\frac{0.91}{0.09} \times \frac{1}{0.09}$ via magneto-optics. <i>Physical Review B</i> , 2012, 85, .	1.1	54
89	Replica wormhole and information retrieval in the SYK model coupled to Majorana chains. <i>Journal of High Energy Physics</i> , 2020, 2020, 1.	1.6	53
90	Pseudopotential formalism for fractional Chern insulators. <i>Physical Review B</i> , 2013, 88, .	1.1	52

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91	Spin Aharonov-Bohm effect and topological spin transistor. Physical Review B, 2010, 82, .	1.1	51
92	Entanglement holographic mapping of many-body localized system by spectrum bifurcation renormalization group. Physical Review B, 2016, 93, .	1.1	51
93	Machine learning spatial geometry from entanglement features. Physical Review B, 2018, 97, .	1.1	51
94	Quantum chaos in the Brownian SYK model with large finite N : OTOCs and tripartite information. Journal of High Energy Physics, 2019, 2019, 1.	1.6	51
95	Quantum Anomalous Hall Effect in Magnetic Insulator Heterostructure. Nano Letters, 2015, 15, 2019-2023.	4.5	50
96	Theoretical prediction of topological insulator in ternary rare earth chalcogenides. Physical Review B, 2010, 82, .	1.1	49
97	Projective ribbon permutation statistics: A remnant of non-Abelian braiding in higher dimensions. Physical Review B, 2011, 83, .	1.1	49
98	Majorana zero modes in dislocations of $SrRuO_4$. Physical Review B, 2014, 90, .	1.1	49
99	Half quantum spin Hall effect on the surface of weak topological insulators. Physica E: Low-Dimensional Systems and Nanostructures, 2012, 44, 906-911.	1.3	47
100	A random unitary circuit model for black hole evaporation. Journal of High Energy Physics, 2020, 2020, 1.	1.6	46
101	Time-reversal anomaly and Josephson effect in time-reversal-invariant topological superconductors. Physical Review B, 2013, 88, .	1.1	45
102	Fractional statistics and the butterfly effect. Journal of High Energy Physics, 2016, 2016, 1.	1.6	43
103	Mutual Chern-Simons effective theory of doped antiferromagnets. Physical Review B, 2005, 71, .	1.1	42
104	Topological Magnetic Insulators with Corundum Structure. Physical Review Letters, 2011, 106, 126403.	2.9	42
105	Dissipationless phonon Hall viscosity. Physical Review B, 2012, 85, .	1.1	41
106	Holographic entanglement negativity and replica symmetry breaking. Journal of High Energy Physics, 2021, 2021, 1.	1.6	40
107	Superdensity operators for spacetime quantum mechanics. Journal of High Energy Physics, 2018, 2018, 1.	1.6	38
108	Lattice construction of pseudopotential Hamiltonians for fractional Chern insulators. Physical Review B, 2014, 90, .	1.1	36

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109	Tensor network quotient takes the vacuum to the thermal state. <i>Physical Review B</i> , 2016, 94, .	1.1	35
110	Stationary phase approximation approach to the quasiparticle interference on the surface of a strong topological insulator. <i>Physical Review B</i> , 2012, 85, .	1.1	34
111	Exact holographic mapping in free fermion systems. <i>Physical Review B</i> , 2016, 93, .	1.1	33
112	Integrable and Chaotic Dynamics of Spins Coupled to an Optical Cavity. <i>Physical Review X</i> , 2019, 9, .	2.8	32
113	Topological superconductivity at the edge of transition-metal dichalcogenides. <i>Physical Review B</i> , 2014, 90, .	1.1	31
114	Holographic duality between $2+1$ dimensional quantum anomalous Hall state and $3+1$ dimensional topological insulators. <i>Physical Review B</i> , 2016, 94, .	1.1	31
115	Field-induced gap and quantized charge pumping in a nanoscale helical wire. <i>Physical Review B</i> , 2009, 79, .	1.1	30
116	Generalized Kitaev Models and Extrinsic Non-Abelian Twist Defects. <i>Physical Review Letters</i> , 2015, 114, 026401.	2.9	29
117	Quantum algorithmic measurement. <i>Nature Communications</i> , 2022, 13, 887.	5.8	29
118	Models of three-dimensional fractional topological insulators. <i>Physical Review B</i> , 2012, 86, .	1.1	28
119	Weakly coupled non-Abelian anyons in three dimensions. <i>Physical Review B</i> , 2011, 84, .	1.1	27
120	Holographic coherent states from random tensor networks. <i>Journal of High Energy Physics</i> , 2017, 2017, 1.	1.6	26
121	Does gravity come from quantum information?. <i>Nature Physics</i> , 2018, 14, 984-987.	6.5	26
122	Position-momentum duality in the entanglement spectrum of free fermions. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2014, 2014, P10023.	0.9	25
123	Modular flow as a disentangler. <i>Journal of High Energy Physics</i> , 2018, 2018, 1.	1.6	25
124	Calculation of divergent photon absorption in ultrathin films of a topological insulator. <i>Physical Review B</i> , 2013, 88, .	1.1	24
125	Holographic entanglement renormalization of topological insulators. <i>Physical Review B</i> , 2016, 94, .	1.1	22
126	The coupled SYK model at finite temperature. <i>Journal of High Energy Physics</i> , 2020, 2020, 1.	1.6	21

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127	Confinement-Deconfinement Interplay in Quantum Phases of Doped Mott Insulators. <i>Physical Review Letters</i> , 2011, 106, 147002.	2.9	20
128	Electron fractionalization and unconventional order parameters of the θ -J model. <i>Nuclear Physics B</i> , 2012, 854, 815-840.	0.9	20
129	Topological Response Theory of Doped Topological Insulators. <i>Physical Review Letters</i> , 2011, 107, 206602.	2.9	19
130	Tensor network implementation of bulk entanglement spectrum. <i>Physical Review B</i> , 2014, 90, .	1.1	17
131	Spin Hall effect in a doped Mott insulator. <i>Physical Review B</i> , 2005, 72, .	1.1	16
132	Symmetry Meets Topology. <i>Science</i> , 2012, 338, 1550-1551.	6.0	13
133	Topological insulators. <i>MRS Bulletin</i> , 2014, 39, 843-846.	1.7	13
134	Identifying non-Abelian topological ordered state and transition by momentum polarization. <i>Physical Review B</i> , 2014, 89, .	1.1	13
135	Chaos and high temperature pure state thermalization. <i>Journal of High Energy Physics</i> , 2019, 2019, 1.	1.6	13
136	Crystal-symmetry preserving Wannier states for fractional Chern insulators. <i>Physical Review B</i> , 2013, 88, .	1.1	12
137	Momentum-space instantons and maximally localized flat-band topological Hamiltonians. <i>Physica Status Solidi - Rapid Research Letters</i> , 2013, 7, 154-156.	1.2	12
138	Characterizing eigenstate thermalization via measures in the Fock space of operators. <i>Physical Review E</i> , 2016, 93, 042138.	0.8	12
139	Emergent classicality in general multipartite states and channels. <i>Quantum - the Open Journal for Quantum Science</i> , 0, 5, 555.	0.0	12
140	Unified Topological Response Theory For Gapped and Gapless Free Fermions. <i>Physical Review X</i> , 2015, 5, .	2.8	11
141	Holevo information and ensemble theory of gravity. <i>Journal of High Energy Physics</i> , 2022, 2022, 1.	1.6	11
142	Lower pseudogap phase of Mott insulators: A spin/vortex liquid state. <i>Physical Review B</i> , 2006, 74, .	1.1	10
143	Rescuing a black hole in the large-q coupled SYK model. <i>Journal of High Energy Physics</i> , 2021, 2021, 1.	1.6	10
144	Mutual Chern-Simons gauge theory of spontaneous vortex phase. <i>Physical Review B</i> , 2007, 76, .	1.1	9

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145	Quantum causal influence. Journal of High Energy Physics, 2019, 2019, 1.	1.6	9
146	Size of bulk fermions in the SYK model. Journal of High Energy Physics, 2020, 2020, 1.	1.6	9
147	Building bulk geometry from the tensor Radon transform. Journal of High Energy Physics, 2020, 2020, 1.	1.6	7
148	Entanglement island, miracle operators and the firewall. Journal of High Energy Physics, 2022, 2022, 1.	1.6	7
149	A fine point on topological insulators. Physics Today, 2010, 63, 12-12.	0.3	6
150	Field-Theory Foundations of Topological Insulators. Contemporary Concepts of Condensed Matter Science, 2013, 6, 91-122.	0.5	3
151	Strongly interacting phases of metallic wires in strong magnetic field. Physical Review B, 2017, 96, .	1.1	3
152	Reply to "Comment on "Chiral gauge field and axial anomaly in a Weyl semimetal" " Physical Review B, 2017, 96, .	1.1	1