Hui Zhai

List of Publications by Year
in descending order

130 papers	7,746 citations	66343 42 h-index	51608 86 g-index
131 all docs	131 docs citations	131 times ranked	3999 citing authors

#	Article	IF	Citations
1	Spin-Orbit Coupled Degenerate Fermi Gases. Physical Review Letters, 2012, 109, 095301.	7.8	796
2	Spin-Orbit Coupled Spinor Bose-Einstein Condensates. Physical Review Letters, 2010, 105, 160403.	7.8	527
3	Degenerate quantum gases with spinâ€“orbit coupling: a review. Reports on Progress in Physics, 2015, 78, 026001.	20.1	500
4	Collective Dipole Oscillations of a Spin-Orbit Coupled Bose-Einstein Condensate. Physical Review Letters, 2012, 109, 115301.	7.8	471
5	Functional Renormalization-Group Study of the Pairing Symmetry and Pairing Mechanism of the FeAs-Based High-Temperature Superconductor. Physical Review Letters, 2009, 102, 047005.	7.8	428
6	Measuring Out-of-Time-Order Correlators on a Nuclear Magnetic Resonance Quantum Simulator. Physical Review X, 2017, 7, .	8.9	262
7	SPIN-ORBIT COUPLED QUANTUM GASES. International Journal of Modern Physics B, 2012, 26, 1230001.	2.0	229
8	Nodal spin density wave and band topology of the FeAs-based materials. Physical Review B, 2009, 79, .	3.2	223
9	Out-of-time-order correlation for many-body localization. Science Bulletin, 2017, 62, 707-711.	9.0	201
10	Machine Learning Topological Invariants with Neural Networks. Physical Review Letters, 2018, 120, 066401.	7.8	185
11	Spin-Orbit Coupled Fermi Gases across a Feshbach Resonance. Physical Review Letters, 2011, 107, 195305.	7.8	181
12	Experimental determination of the finite-temperature phase diagram of a spinâ€“orbit coupled Bose gas. Nature Physics, 2014, 10, 314-320.	16.7	150
13	Scheme to Measure the Topological Number of a Chern Insulator from Quench Dynamics. Physical Review Letters, 2017, 118, 185701.	7.8	122
14	Antiferromagnetically driven electronic correlations in iron pnictides and cuprates. Physical Review B, 2009, 80, .	3.2	119
15	Floquet topological states in shaking optical lattices. Physical Review A, 2014, 89, .	2.5	118
16	Production of Feshbach molecules induced by spinâ€“orbit coupling in Fermi gases. Nature Physics, 2014, 10, 110-115.	16.7	109
17	Stability of a fully magnetized ferromagnetic state in repulsively interacting ultracold Fermi gases. Physical Review A, 2010, 81, .	2.5	107
18	Orbital Feshbach Resonance in Alkali-Earth Atoms. Physical Review Letters, 2015, 115, 135301.	7.8	102

#	Article	IF	Citations
19	Out-of-time-order correlation at a quantum phase transition. Physical Review B, 2017, 96, .	3.2	93
20	Hall conductance of a non-Hermitian Chern insulator. Physical Review B, 2018, 98, .	3.2	92
21	Machine learning of frustrated classical spin models. I. Principal component analysis. Physical Review B, 2017, 96, .	3.2	89
22	Trapped Fermi Gases in Rotating Optical Lattices: Realization and Detection of the Topological Hofstadter Insulator. Physical Review Letters, 2008, 100, 070402.	7.8	85
23	Synthetic gauge field with highly magnetic lanthanide atoms. Physical Review A, 2013, 88, .	2.5	83
24	Properties of Bose gases with the Raman-induced spinâ€“orbit coupling. Journal of Physics B: Atomic, Molecular and Optical Physics, 2013, 46, 134007.	1.5	76
25	Nodes in the gap function of LaFePO, the gap function of the Fe(Se,Te) systems, and the STM signature of the<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:msub><mml:mi>s</mml:mi><mml:mo>Â±</mml:mo></mml:msub></mml:mrow></mml:math>pair Physical Review B, 2010, 81, .	3.2	75
26	Superradiance of Degenerate Fermi Gases in a Cavity. Physical Review Letters, 2014, 112, 143004.	7.8	74
27	Vortex Lattices in Planar Bose-Einstein Condensates with Dipolar Interactions. Physical Review Letters, 2005, 95, 200403.	7.8	72
28	Charge Pumping of Interacting Fermion Atoms in the Synthetic Dimension. Physical Review Letters, 2015, 115, 095302.	7.8	72
29	Paired superfluidity and fractionalized vortices in systems of spin-orbit coupled bosons. Physical Review B, 2011, 84, .	3.2	71
30	Antiferromagnetic correlation and the pairing mechanism of the cuprates and iron pnictides: A view from the functional renormalization group studies. Europhysics Letters, 2009, 85, 37005.	2.0	68
31	Observation of the Efimovian expansion in scale-invariant Fermi gases. Science, 2016, 353, 371-374.	12.6	65
32	Visualizing the Efimov Correlation in Bose Polarons. Physical Review Letters, 2017, 119, 013401.	7.8	64
33	Competition between Chaotic and Nonchaotic Phases in a Quadratically Coupled Sachdev-Ye-Kitaev Model. Physical Review Letters, 2017, 119, 207603.	7.8	63
34	Non-Hermitian linear response theory. Nature Physics, 2020, 16, 767-771.	16.7	62
35	Criterion for Bosonic Superfluidity in an Optical Lattice. Physical Review Letters, 2007, 98, 180404.	7.8	60
36	Deep learning topological invariants of band insulators. Physical Review B, 2018, 98, .	3.2	57

#	Article	IF	Citations
37	Quantum phase transitions of the Bose-Hubbard model inside a cavity. Physical Review A, 2016, 93, .	2.5	54
38	Superfluid-Insulator Transition of Strongly Interacting Fermi Gases in Optical Lattices. Physical Review Letters, 2007, 99, 100402.	7.8	49
39	Tunable quantum chaos in the Sachdev-Ye-Kitaev model coupled to a thermal bath. Journal of High Energy Physics, 2017, 2017, 1.	4.7	48
40	Correlated versus ferromagnetic state in repulsively interacting two-component Fermi gases. Physical Review A, 2009, 80, .	2.5	46
41	Collective-mode dynamics in a spin-orbit-coupled Bose-Einstein condensate. Physical Review A, 2012, 86, .	2.5	44
42	Kondo effect in alkaline-earth-metal atomic gases with confinement-induced resonances. Physical Review A, 2016, 93, .	2.5	44
43	Searching for non-Abelian phases in the Bose-Einstein condensate of dysprosium. Physical Review A, 2012, 85, .	2.5	39
44	Superfluidity of Bosons in Kagome Lattices with Frustration. Physical Review Letters, 2012, 109, 265302.	7.8	37
45	Magnetic-order-driven topological transition in the Haldane-Hubbard model. Physical Review B, 2015, 91, .	3.2	36
46	Superfluidity in three-species mixtures of Fermi gases across Feshbach resonances. Physical Review A, 2007, 75, .	2.5	34
47	Spin helix of magnetic impurities in two-dimensional helical metal. Europhysics Letters, 2010, 90, 47001.	2.0	34
48	Universal Trimers Induced by Spin-Orbit Coupling in Ultracold Fermi Gases. Physical Review Letters, 2014, 112, 013201.	7.8	33
49	Stability condition of a strongly interacting boson-fermion mixture across an interspecies Feshbach resonance. Physical Review A, 2011, 83, .	2.5	32
50	Reaching a Fermi-superfluid state near an orbital Feshbach resonance. Physical Review A, 2016, 94, .	2.5	32
51	Machine learning of frustrated classical spin models (II): Kernel principal component analysis. Frontiers of Physics, 2018, 13, 1.	5.0	32
52	Theory of quantum antiferromagnetism of fermions in an optical lattice with a half-filled<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mi>p</mml:mi></mml:math>band. Physical Review B, 2008, 77, .	3.2	31
53	Information Scrambling in Quantum Neural Networks. Physical Review Letters, 2020, 124, 200504.	7.8	31
54	Vortex dipole in a trapped atomic Bose-Einstein condensate. Physical Review A, 2004, 70, .	2.5	30

#	Article	IF	Citations
55	Calibration of the interaction energy between Bose and Fermi superfluids. Physical Review A, 2014, 90, .	2.5	29
56	Strong Interaction Effects and Criticality of Bosons in Shaken Optical Lattices. Physical Review Letters, 2014, 113, 155303.	7.8	29
57	Skyrmion excitation in a two-dimensional spinor Bose-Einstein condensate. Physical Review A, 2003, 68, .	2.5	28
58	Stability of excited dressed states with spin-orbit coupling. Physical Review A, 2013, 87, .	2.5	27
59	Pairing and Vortex Lattices for Interacting Fermions in Optical Lattices with a Large Magnetic Field. Physical Review Letters, 2010, 104, 145301.	7.8	25
60	Quasiparticle Lifetime in a Mixture of Bose and Fermi Superfluids. Physical Review Letters, 2014, 113, 265304.	7.8	25
61	Topological Sachdev-Ye-Kitaev model. Physical Review B, 2018, 97, .	3.2	25
62	Enhancing Kondo coupling in alkaline-earth-metal atomic gases with confinement-induced resonances in mixed dimensions. Physical Review A, 2017, 96, .	2.5	24
63	Entanglement properties of some fractional quantum Hall liquids. Physical Review A, 2002, 66, .	2.5	23
64	Critical Rotational Frequency for Superfluid Fermionic Gases across a Feshbach Resonance. Physical Review Letters, 2006, 97, 180414.	7.8	23
65	Controlling the interaction of ultracold alkaline-earth atoms. Nature Reviews Physics, 2020, 2, 213-220.	26.6	23
66	Quantum many-body scars and quantum criticality. Physical Review B, 2022, 105, .	3.2	23
67	Emergent SchrÃ¶dinger equation in an introspective machine learning architecture. Science Bulletin, 2019, 64, 1228-1233.	9.0	21
68	Degenerate Bose gases near a d-wave shape resonance. Nature Physics, 2019, 15, 570-576.	16.7	21
69	Bound States and Scattering Resonances Induced by Spatially Modulated Interactions. Physical Review Letters, 2011, 106, 163201.	7.8	20
70	Superradiant phase transition of Fermi gases in a cavity across a Feshbach resonance. Physical Review A, 2015, 91, .	2.5	20
71	Anomalous conductance of a strongly interacting Fermi gas through a quantum point contact. Physical Review A, 2017, 95, .	2.5	19
72	Quantum Hall Transition near a Fermion Feshbach Resonance in a Rotating Trap. Physical Review Letters, 2008, 100, 030404.	7.8	18

#	Article	IF	Citations
73	Highly polarized Fermi gases across a narrow Feshbach resonance. Physical Review A, 2012, 85, .	2.5	18
74	Electronic instabilities in iron-based superconductors: A variational Monte Carlo study. Physical Review B, 2011, 83, .	3.2	16
75	Evolution of the Higgs mode in a fermion superfluid with tunable interactions. Physical Review A, 2016, 93, .	2.5	16
76	Dynamics and density correlations in matter-wave jet emission of a driven condensate. Physical Review A, 2019, 99, .	2.5	15
77	Many-body echo. Physical Review A, 2020, 102, .	2.5	15
78	Scrambling ability of quantum neural network architectures. Physical Review Research, 2021, 3, .	3.6	15
79	Quantum coherence of double-well Bose-Einstein condensates: An SU(2) coherent-state path-integral approach. Physical Review A, 2003, 67, .	2.5	14
80	<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mi>s</mml:mi></mml:math>-wave-scattering resonances induced by dipolar interactions of polar molecules. Physical Review A, 2012, 85, .	2.5	14
81	Fermion Pairing Across a Dipolar Interaction Induced Resonance. Physical Review Letters, 2013, 110, 045302.	7.8	14
82	Universal Dynamics of a Degenerate Bose Gas Quenched to Unitarity. Physical Review Letters, 2020, 124, 040403.	7.8	14
83	Active learning algorithm for computational physics. Physical Review Research, 2020, 2, .	3.6	14
84	Controlled transport between Fermi superfluids through a quantum point contact. Physical Review A, 2018, 98, .	2.5	13
85	Focus on topological physics: from condensed matter to cold atoms and optics. New Journal of Physics, 2016, 18, 080201.	2.9	12
86	Stability of Time-Reversal Symmetry Protected Topological Phases. Physical Review Letters, 2021, 127, 086801.	7.8	12
87	Double-layer Bose-Einstein condensates with a large number of vortices. Physical Review A, 2004, 69, .	2.5	11
88	Quasi-one-dimensional dipolar quantum gases. Physical Review A, 2014, 89, .	2.5	11
89	Efimov physics and universal trimers in spin-orbit-coupled ultracold atomic mixtures. Physical Review A, 2015, 91, .	2.5	11
90	Symmetry Protected Dynamical Symmetry in the Generalized Hubbard Models. Physical Review Letters, 2017, 119, 225302.	7.8	11

#	Article	IF	Citations
91	Dynamic super Efimov effect. Physical Review A, 2017, 96, .	2.5	11
92	Page curve from non-Markovianity. Journal of High Energy Physics, 2021, 2021, 1.	4.7	11
93	Expressivity of quantum neural networks. Physical Review Research, 2021, 3, .	3.6	11
94	Universal feature in optical control of a p -wave Feshbach resonance. Physical Review A, 2018, 97, .	2.5	10
95	Efimov effect in Dirac semi-metals. Frontiers of Physics, 2018, 13, 1.	5.0	10
96	Active Learning Approach to Optimization of Experimental Control. Chinese Physics Letters, 2020, 37, 103201.	3.3	10
97	RÃ©nyi entropy dynamics and Lindblad spectrum for open quantum systems. Physical Review Research, 2021, 3, .	3.6	10
98	Vortex Lattices in the Bose-Fermi Superfluid Mixture. Physical Review Letters, 2017, 118, 080403.	7.8	9
99	Visualizing a neural network that develops quantum perturbation theory. Physical Review A, 2018, 98, .	2.5	9
100	High Temperature Virial Expansion to Universal Quench Dynamics. Physical Review Letters, 2020, 125, 110404.	7.8	9
101	Degeneracy of Many-Body Quantum States in an Optical Lattice under a Uniform Magnetic Field. Physical Review Letters, 2010, 105, 155302.	7.8	8
102	Fluctuation effects on the transport properties of unitary Fermi gases. Physical Review A, 2014, 90, .	2.5	8
103	Efimov-enhanced Kondo effect in alkali-metal and alkaline-earth-metal atomic gas mixtures. Physical Review A, 2019, 99, .	2.5	8
104	Dynamical Fractal in Quantum Gases with Discrete Scaling Symmetry. Physical Review Letters, 2019, 122, 230402.	7.8	8
105	A wavefunction describing superfluidity in a perfect crystal. Journal of Statistical Mechanics: Theory and Experiment, 2005, 2005, P07003-P07003.	2.3	7
106	Two generalizations of pairing in extended Hubbard models. Physical Review B, 2005, 71, .	3.2	7
107	Emergent gauge field for a chiral bound state on curved surface. Journal of Physics B: Atomic, Molecular and Optical Physics, 2017, 50, 184006.	1.5	7
108	Disconnecting a traversable wormhole: Universal quench dynamics in random spin models. Physical Review Research, 2021, 3, .	3.6	7

#	Article	IF	Citations
109	Pairing between atoms and molecules in a boson-fermion resonant mixture. Physical Review A, 2005, 72, .	2.5	6
110	Homogeneous Fermion Superfluid with Unequal Spin Populations. Journal of Low Temperature Physics, 2007, 148, 33-41.	1.4	6
111	Magnetically stabilized nematic order. II. Critical states and algebraically ordered nematic spin liquids in one-dimensional optical lattices. Physical Review B, 2005, 72, .	3.2	5
112	Strongly interacting ultracold quantum gases. Frontiers of Physics in China, 2009, 4, 1-20.	1.0	5
113	Emergent symmetry at superradiance transition of a Bose condensate in two crossed beam cavities. Science Bulletin, 2018, 63, 542-547.	9.0	5
114	Dynamic Kosterlitz-Thouless theory for two-dimensional ultracold atomic gases. Physical Review A, 2020, 102, .	2.5	5
115	Maximum Energy Growth Rate in Dilute Quantum Gases. Physical Review Letters, 2021, 126, 240401.	7.8	5
116	Density-dependent spin-orbit coupling in degenerate quantum gases. Physical Review A, 2021, 103, .	2.5	5
117	Ideal-Gas Approach to Hydrodynamics. Physical Review X, 2021, 11, .	8.9	5
118	Space-time duality between quantum chaos and non-Hermitian boundary effect. Physical Review Research, 2022, 4, .	3.6	5
119	Many-body localization from dynamical gauge fields. Physical Review B, 2020, 102, .	3.2	4
120	Machine learning identification of impurities in the STM images. Chinese Physics B, 2020, 29, 116805.	1.4	4
121	Realizing the Hayden-Preskill protocol with coupled Dicke models. Physical Review Research, 2020, 2, .	3.6	4
122	Resonant-driving-induced ferromagnetism in the Fermi-Hubbard model. Physical Review A, 2019, 99, .	2.5	3
123	Three-body problem of bosons near a <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mi>d</mml:mi></mml:math> -wave resonance. Physical Review A, 2019, 99, .	2.5	3
124	The quantum cocktail party problem. Science China: Physics, Mechanics and Astronomy, 2020, 63, 1.	5.1	3
125	Topological micromotion of Floquet quantum systems. Physical Review B, 2022, 105, .	3.2	3
126	New relations between spin and charge dynamics of the Fermi Hubbard model. New Journal of Physics, 2019, 21, 015003.	2.9	2

#	Article	IF	Citations
127	Macroscopic quantum tunnelling in rotating BoseÂEinstein condensates. Journal of Physics B: Atomic, Molecular and Optical Physics, 2003, 36, 1761-1769.	1.5	1
128	Understanding of the vortex lattice behaviour induced by selective removal of atoms from a Boseâ€“Einstein condensate. Journal of Physics B: Atomic, Molecular and Optical Physics, 2005, 38, 377-385.	1.5	0
129	Striking stripes. Science China: Physics, Mechanics and Astronomy, 2017, 60, 1.	5.1	0
130	Scaling symmetry meets topology. Science Bulletin, 2019, 64, 289-290.	9.0	0