

Ren-Bao Liu

List of Publications by Citations

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119
papers

4,235
citations

35
h-index

62
g-index

137
ext. papers

4,922
ext. citations

7.5
avg, IF

5.71
L-index

#	Paper	IF	Citations
119	Preserving electron spin coherence in solids by optimal dynamical decoupling. <i>Nature</i> , 2009 , 461, 1265-85	50.4	266
118	Theory of electron spin decoherence by interacting nuclear spins in a quantum dot. <i>Physical Review B</i> , 2006 , 74,	3.3	236
117	Stimulated and spontaneous optical generation of electron spin coherence in charged GaAs quantum dots. <i>Physical Review Letters</i> , 2005 , 94, 227403	7.4	217
116	Sensing single remote nuclear spins. <i>Nature Nanotechnology</i> , 2012 , 7, 657-62	28.7	184
115	Experimental observation of electron-hole recollisions. <i>Nature</i> , 2012 , 483, 580-3	50.4	175
114	Unambiguous observation of shape effects on cellular fate of nanoparticles. <i>Scientific Reports</i> , 2014 , 4, 4495	4.9	165
113	Theory of control of the spin-photon interface for quantum networks. <i>Physical Review Letters</i> , 2005 , 95, 030504	7.4	142
112	Universality of Uhrig dynamical decoupling for suppressing qubit pure dephasing and relaxation. <i>Physical Review Letters</i> , 2008 , 101, 180403	7.4	133
111	Restoring coherence lost to a slow interacting mesoscopic spin bath. <i>Physical Review Letters</i> , 2007 , 98, 077602	7.4	129
110	Atomic-scale magnetometry of distant nuclear spin clusters via nitrogen-vacancy spin in diamond. <i>Nature Nanotechnology</i> , 2011 , 6, 242-6	28.7	128
109	Decoherence and dynamical decoupling control of nitrogen vacancy center electron spins in nuclear spin baths. <i>Physical Review B</i> , 2012 , 85,	3.3	108
108	Quantum many-body theory of qubit decoherence in a finite-size spin bath. <i>Physical Review B</i> , 2008 , 78,	3.3	105
107	Preserving qubit coherence by dynamical decoupling. <i>Frontiers of Physics</i> , 2011 , 6, 2-14	3.7	91
106	Experimental observation of Lee-Yang zeros. <i>Physical Review Letters</i> , 2015 , 114, 010601	7.4	85
105	Quantum computing by optical control of electron spins. <i>Advances in Physics</i> , 2010 , 59, 703-802	18.4	84
104	Control of electron spin decoherence caused by electron-nuclear spin dynamics in a quantum dot. <i>New Journal of Physics</i> , 2007 , 9, 226-226	2.9	84
103	Sensing and atomic-scale structure analysis of single nuclear-spin clusters in diamond. <i>Nature Physics</i> , 2014 , 10, 21-25	16.2	78

102	Lee-Yang zeros and critical times in decoherence of a probe spin coupled to a bath. <i>Physical Review Letters</i> , 2012 , 109, 185701	7.4	69
101	Observation of an anomalous decoherence effect in a quantum bath at room temperature. <i>Nature Communications</i> , 2011 , 2, 570	17.4	68
100	Fisher information in a quantum-critical environment. <i>Physical Review A</i> , 2010 , 82,	2.6	67
99	Quantum many-body theory for electron spin decoherence in nanoscale nuclear spin baths. <i>Reports on Progress in Physics</i> , 2017 , 80, 016001	14.4	60
98	Anomalous decoherence effect in a quantum bath. <i>Physical Review Letters</i> , 2011 , 106, 217205	7.4	59
97	Holonomic Quantum Control with Continuous Variable Systems. <i>Physical Review Letters</i> , 2016 , 116, 140502	7.4	54
96	Quantum many-body theory of qubit decoherence in a finite-size spin bath. II. Ensemble dynamics. <i>Physical Review B</i> , 2009 , 79,	3.3	50
95	Unified theory of consequences of spontaneous emission in a λ system. <i>Physical Review B</i> , 2005 , 71,	3.3	50
94	Protection of quantum systems by nested dynamical decoupling. <i>Physical Review A</i> , 2011 , 83,	2.6	49
93	Noise-resilient quantum evolution steered by dynamical decoupling. <i>Nature Communications</i> , 2013 , 4, 2254	17.4	46
92	Proposal for a room-temperature diamond maser. <i>Nature Communications</i> , 2015 , 6, 8251	17.4	44
91	Hybrid nanodiamond quantum sensors enabled by volume phase transitions of hydrogels. <i>Nature Communications</i> , 2018 , 9, 3188	17.4	44
90	Storage and retrieval of microwave fields at the single-photon level in a spin ensemble. <i>Physical Review A</i> , 2015 , 92,	2.6	43
89	Phase transitions in the complex plane of physical parameters. <i>Scientific Reports</i> , 2014 , 4, 5202	4.9	42
88	Tuning a spin bath through the quantum-classical transition. <i>Physical Review Letters</i> , 2012 , 108, 200402	7.4	41
87	Superradiance lattice. <i>Physical Review Letters</i> , 2015 , 114, 043602	7.4	40
86	High-resolution spectroscopy of single nuclear spins via sequential weak measurements. <i>Nature Communications</i> , 2019 , 10, 594	17.4	36
85	Sensitivity of parameter estimation near the exceptional point of a non-Hermitian system. <i>New Journal of Physics</i> , 2019 , 21, 083002	2.9	35

84	Second-order nonlinear optical effects of spin currents. <i>Physical Review Letters</i> , 2010 , 104, 256601	7.4	33
83	Coherent quantum control of nitrogen-vacancy center spins near 1000 kelvin. <i>Nature Communications</i> , 2019 , 10, 1344	17.4	31
82	Ultrafast optical control of electron spin coherence in charged GaAs quantum dots. <i>Physical Review B</i> , 2006 , 74,	3.3	31
81	Single-Shot Readout of a Nuclear Spin Weakly Coupled to a Nitrogen-Vacancy Center at Room Temperature. <i>Physical Review Letters</i> , 2017 , 118, 150504	7.4	30
80	Degenerate four-wave-mixing signals from a dc- and ac-driven semiconductor superlattice. <i>Physical Review B</i> , 1999 , 59, 5759-5769	3.3	30
79	Magnetic Criticality Enhanced Hybrid Nanodiamond Thermometer under Ambient Conditions. <i>Physical Review X</i> , 2018 , 8,	9.1	28
78	Nanodot-cavity electrostatics and photon entanglement. <i>Physical Review Letters</i> , 2004 , 92, 217402	7.4	28
77	Topological phase transitions in superradiance lattices. <i>Optica</i> , 2015 , 2, 712	8.6	26
76	Dynamical decoupling design for identifying weakly coupled nuclear spins in a bath. <i>Physical Review A</i> , 2014 , 90,	2.6	25
75	Uncovering many-body correlations in nanoscale nuclear spin baths by central spin decoherence. <i>Nature Communications</i> , 2014 , 5, 4822	17.4	24
74	Nonlinear optical response induced by non-Abelian Berry curvature in time-reversal-invariant insulators. <i>Physical Review B</i> , 2014 , 90,	3.3	22
73	Proposal for direct measurement of a pure spin current by a polarized light beam. <i>Physical Review Letters</i> , 2008 , 100, 086603	7.4	22
72	Proposal for geometric generation of a biexciton in a quantum dot using a chirped pulse. <i>Physical Review B</i> , 2008 , 78,	3.3	22
71	Anchored but not internalized: shape dependent endocytosis of nanodiamond. <i>Scientific Reports</i> , 2017 , 7, 46462	4.9	21
70	Dynamical-Decoupling-Based Quantum Sensing: Floquet Spectroscopy. <i>Physical Review X</i> , 2015 , 5,	9.1	21
69	Coherent control of cavity quantum electrodynamics for quantum nondemolition measurements and ultrafast cooling. <i>Physical Review B</i> , 2005 , 72,	3.3	21
68	Theory of low-power ultra-broadband terahertz sideband generation in bi-layer graphene. <i>Nature Communications</i> , 2014 , 5, 4854	17.4	20
67	Optically detected nuclear quadrupolar interaction of N14 in nitrogen-vacancy centers in diamond. <i>Physical Review B</i> , 2014 , 89,	3.3	20

66	Electrically controllable RKKY interaction in semiconductor quantum wires. <i>Physical Review B</i> , 2010 , 81,	3.3	20
65	Angstrom-Resolution Magnetic Resonance Imaging of Single Molecules via Wave-Function Fingerprints of Nuclear Spins. <i>Physical Review Applied</i> , 2016 , 6,	4.3	18
64	High-order THz-sideband generation in semiconductors. <i>AIP Conference Proceedings</i> , 2007 ,	0	17
63	Mesoscopic Superposition States Generated by Synthetic Spin-Orbit Interaction in Fock-State Lattices. <i>Physical Review Letters</i> , 2016 , 116, 220502	7.4	16
62	Dynamical Birefringence: Electron-Hole Recollisions as Probes of Berry Curvature. <i>Physical Review X</i> , 2017 , 7,	9.1	16
61	Classical nature of nuclear spin noise near clock transitions of Bi donors in silicon. <i>Physical Review B</i> , 2015 , 92,	3.3	16
60	Controllable effects of quantum fluctuations on spin free-induction decay at room temperature. <i>Scientific Reports</i> , 2012 , 2, 432	4.9	16
59	Magnetic ordering of nitrogen-vacancy centers in diamond via resonator-mediated coupling. <i>EPJ Quantum Technology</i> , 2015 , 2,	6.9	15
58	Dynamics revealed by correlations of time-distributed weak measurements of a single spin. <i>New Journal of Physics</i> , 2010 , 12, 013018	2.9	15
57	Decoherence of coupled electron spins via nuclear spin dynamics in quantum dots. <i>Physical Review B</i> , 2008 , 77,	3.3	15
56	Thermodynamic holography. <i>Scientific Reports</i> , 2015 , 5, 15077	4.9	13
55	Quantum-coherence-induced second plateau in high-sideband generation. <i>Physical Review B</i> , 2014 , 89,	3.3	13
54	Adiabatic stabilization of excitons in an intense terahertz laser. <i>Physical Review B</i> , 2002 , 66,	3.3	13
53	Nanometer-precision non-local deformation reconstruction using nanodiamond sensing. <i>Nature Communications</i> , 2019 , 10, 3259	17.4	12
52	Suppression of electron spin decoherence of the diamond NV center by a transverse magnetic field. <i>Physical Review B</i> , 2013 , 88,	3.3	12
51	Berry phases of quantum trajectories of optically excited electron-hole pairs in semiconductors under strong terahertz fields. <i>New Journal of Physics</i> , 2013 , 15, 115005	2.9	12
50	Terahertz electron-hole recollisions in GaAs/AlGaAs quantum wells: robustness to scattering by optical phonons and thermal fluctuations. <i>Physical Review Letters</i> , 2013 , 111, 267402	7.4	11
49	Giant Faraday rotation induced by the Berry phase in bilayer graphene under strong terahertz fields. <i>New Journal of Physics</i> , 2014 , 16, 043014	2.9	11

48	Dynamic Fano resonance of Floquet-state excitons in superlattices. <i>Journal of Physics Condensed Matter</i> , 2000 , 12, L741-L747	1.8	11
47	Characterization of Arbitrary-Order Correlations in Quantum Baths by Weak Measurement. <i>Physical Review Letters</i> , 2019 , 123, 050603	7.4	10
46	Effects of excitation frequency on high-order terahertz sideband generation in semiconductors. <i>New Journal of Physics</i> , 2013 , 15, 105015	2.9	10
45	Theory of control of the dynamics of the interface between stationary and flying qubits. <i>Journal of Optics B: Quantum and Semiclassical Optics</i> , 2005 , 7, S318-S325		10
44	Proposal for Quantum Sensing Based on Two-Dimensional Dynamical Decoupling: NMR Correlation Spectroscopy of Single Molecules. <i>Physical Review Applied</i> , 2016 , 6,	4.3	10
43	Faraday rotation echo spectroscopy and detection of quantum fluctuations. <i>Scientific Reports</i> , 2014 , 4, 4695	4.9	9
42	Quantum criticality at high temperature revealed by spin echo. <i>New Journal of Physics</i> , 2013 , 15, 043032	2.9	9
41	Bloch oscillation under a bichromatic laser: Dynamical delocalization and localization, persistent terahertz emission, and harmonics generation. <i>Europhysics Letters</i> , 2000 , 50, 526-532	1.6	9
40	Ultra-sensitive hybrid diamond nanothermometer. <i>National Science Review</i> , 2021 , 8, nwaa194	10.8	9
39	Dynamical decoupling for a qubit in telegraphlike noises. <i>Physical Review A</i> , 2010 , 82,	2.6	8
38	Publisher's Note: Quantum many-body theory of qubit decoherence in a finite-size spin bath [Phys. Rev. B 78, 085315 (2008)]. <i>Physical Review B</i> , 2008 , 78,	3.3	8
37	Phase transitions in sequential weak measurements. <i>Physical Review A</i> , 2018 , 98,	2.6	7
36	Exciton absorption in semiconductor superlattices in a strong longitudinal THz field. <i>New Journal of Physics</i> , 2009 , 11, 083004	2.9	7
35	Keeping a spin qubit alive in natural silicon: Comparing optimal working points and dynamical decoupling. <i>Physical Review B</i> , 2015 , 91,	3.3	6
34	No-go theorems and optimization of dynamical decoupling against noise with soft cutoff. <i>Physical Review A</i> , 2013 , 87,	2.6	6
33	Quantum noise theory for quantum transport through nanostructures. <i>New Journal of Physics</i> , 2011 , 13, 013005	2.9	6
32	Optically manipulating spins in semiconductor quantum dots. <i>Journal of Applied Physics</i> , 2007 , 101, 081721	2.5	6
31	Three-tangle of a general three-qubit state in the representation of Majorana stars. <i>Physical Review A</i> , 2020 , 101,	2.6	5

30	Atomic-Scale Positioning of Single Spins via Multiple Nitrogen-Vacancy Centers. <i>Physical Review Applied</i> , 2016 , 5,	4.3	5
29	Geometric diffusion of quantum trajectories. <i>Scientific Reports</i> , 2015 , 5, 12109	4.9	5
28	Protection of center-spin coherence by a dynamically polarized nuclear spin core. <i>Physical Review B</i> , 2010 , 82,	3.3	5
27	Association of Nanodiamond Rotation Dynamics with Cell Activities by Translation-Rotation Tracking. <i>Nano Letters</i> , 2021 , 21, 3393-3400	11.5	5
26	Nonlinear optics of semiconductors under an intense terahertz field. <i>Physical Review B</i> , 2003 , 68,	3.3	4
25	A diamond age of masers. <i>Nature</i> , 2018 , 555, 447-449	50.4	3
24	Extending quantum control of time-independent systems to time-dependent systems. <i>Physical Review A</i> , 2011 , 83,	2.6	3
23	Optical effects of spin currents in semiconductors. <i>Physical Review B</i> , 2012 , 86,	3.3	3
22	Theory of nonlinear optical spectroscopy of electron spin coherence in quantum dots. <i>Physical Review B</i> , 2007 , 75,	3.3	3
21	Publisher's Note: Restoring Coherence Lost to a Slow Interacting Mesoscopic Spin Bath [Phys. Rev. Lett. 98, 077602 (2007)]. <i>Physical Review Letters</i> , 2007 , 98,	7.4	3
20	Tunneling in double well model of porous silicon. <i>Solid State Communications</i> , 1995 , 93, 589-594	1.6	3
19	Twenty-three-millisecond electron spin coherence of erbium ions in a natural-abundance crystal.. <i>Science Advances</i> , 2021 , 7, eabj9786	14.3	3
18	Classical-Noise-Free Sensing Based on Quantum Correlation Measurement*. <i>Chinese Physics Letters</i> , 2021 , 38, 010301	1.8	3
17	Quantum many-body theory for qubit decoherence in a finite-size spin bath 2008 ,		2
16	Tunable terahertz emission from difference frequency in biased superlattices. <i>Applied Physics Letters</i> , 2004 , 84, 2730-2732	3.4	2
15	Cluster correlation expansion for studying decoherence of clock transitions in spin baths. <i>Physical Review B</i> , 2020 , 102,	3.3	2
14	Hyperfine spectroscopy in a quantum-limited spectrometer. <i>Magnetic Resonance</i> , 2020 , 1, 315-330	2.9	2
13	Unification of valley and anomalous Hall effects in a strained lattice. <i>Physical Review B</i> , 2021 , 104,	3.3	2

12	Non-Markovian dynamics and strong coupling between atomic transitions and a waveguide continuum edge. <i>Physical Review A</i> , 2012 , 85,	2.6	1
11	Direct Optical Detection of a Pure Spin Current in Semiconductor. <i>Journal of Superconductivity and Novel Magnetism</i> , 2010 , 23, 53-56	1.5	1
10	Zero-field magnetometry using hyperfine-biased nitrogen-vacancy centers near diamond surfaces. <i>Physical Review Research</i> , 2022 , 4,	3.9	1
9	Collision-Sensitive Spin Noise. <i>Physical Review Applied</i> , 2022 , 17,	4.3	1
8	Berry phases of higher spins due to internal geometry of Majorana constellation and relation to quantum entanglement. <i>New Journal of Physics</i> , 2021 , 23, 073020	2.9	0
7	A masing ladder. <i>Science</i> , 2021 , 371, 780-781	33.3	0
6	Strong coupling without touching. <i>National Science Review</i> , 2014 , 1, 472-473	10.8	
5	2 + 1 dimensional de Sitter universe emerging from the gauge structure of a nonlinear quantum system. <i>Scientific Reports</i> , 2017 , 7, 9756	4.9	
4	High-order dynamical decoupling 351-375		
3	CONTROL OF ELECTRON SPIN DECOHERENCE IN MESOSCOPIC NUCLEAR SPIN BATHS. <i>International Journal of Modern Physics B</i> , 2008 , 22, 27-32	1.1	
2	Dynamical quantum interference and its controllability in semiconductors irradiated by an intense terahertz laser. <i>Physica E: Low-Dimensional Systems and Nanostructures</i> , 2003 , 17, 191-196	3	
1	Dynamic inter-sideband Fano interference of excitons in ac-driven superlattices. <i>Springer Proceedings in Physics</i> , 2001 , 200-201	0.2	