

Ren-Bao Liu

List of Publications by Year in descending order

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136
papers

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76196

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137
docs citations

137
times ranked

4124
citing authors

#	ARTICLE	IF	CITATIONS
1	Preserving electron spin coherence in solids by optimal dynamical decoupling. <i>Nature</i> , 2009, 461, 1265-1268.	13.7	314
2	Theory of electron spin decoherence by interacting nuclear spins in a quantum dot. <i>Physical Review B</i> , 2006, 74, .	1.1	264
3	Stimulated and Spontaneous Optical Generation of Electron Spin Coherence in Charged GaAs Quantum Dots. <i>Physical Review Letters</i> , 2005, 94, 227403.	2.9	249
4	Experimental observation of electron-hole recollisions. <i>Nature</i> , 2012, 483, 580-583.	13.7	244
5	Unambiguous observation of shape effects on cellular fate of nanoparticles. <i>Scientific Reports</i> , 2014, 4, 4495.	1.6	227
6	Sensing single remote nuclear spins. <i>Nature Nanotechnology</i> , 2012, 7, 657-662.	15.6	217
7	Theory of Control of the Spin-Photon Interface for Quantum Networks. <i>Physical Review Letters</i> , 2005, 95, 030504.	2.9	175
8	Atomic-scale magnetometry of distant nuclear spin clusters via nitrogen-vacancy spin in diamond. <i>Nature Nanotechnology</i> , 2011, 6, 242-246.	15.6	149
9	Decoherence and dynamical decoupling control of nitrogen vacancy center electron spins in nuclear spin baths. <i>Physical Review B</i> , 2012, 85, .	1.1	149
10	Universality of Uhrig Dynamical Decoupling for Suppressing Qubit Pure Dephasing and Relaxation. <i>Physical Review Letters</i> , 2008, 101, 180403.	2.9	145
11	Restoring Coherence Lost to a Slow Interacting Mesoscopic Spin Bath. <i>Physical Review Letters</i> , 2007, 98, 077602.	2.9	138
12	Quantum many-body theory of qubit decoherence in a finite-size spin bath. <i>Physical Review B</i> , 2008, 78, .	1.1	135
13	Experimental Observation of Lee-Yang Zeros. <i>Physical Review Letters</i> , 2015, 114, 010601.	2.9	122
14	Preserving qubit coherence by dynamical decoupling. <i>Frontiers of Physics</i> , 2011, 6, 2-14.	2.4	104
15	Quantum computing by optical control of electron spins. <i>Advances in Physics</i> , 2010, 59, 703-802.	35.9	102
16	Sensing and atomic-scale structure analysis of single nuclear-spin clusters in diamond. <i>Nature Physics</i> , 2014, 10, 21-25.	6.5	97
17	Quantum many-body theory for electron spin decoherence in nanoscale nuclear spin baths. <i>Reports on Progress in Physics</i> , 2017, 80, 016001.	8.1	95
18	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.	1.2	92

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19	Lee-Yang Zeros and Critical Times in Decoherence of a Probe Spin Coupled to a Bath. <i>Physical Review Letters</i> , 2012, 109, 185701.	2.9	88
20	Sensitivity of parameter estimation near the exceptional point of a non-Hermitian system. <i>New Journal of Physics</i> , 2019, 21, 083002.	1.2	84
21	Fisher information in a quantum-critical environment. <i>Physical Review A</i> , 2010, 82, .	1.0	80
22	Holonomic Quantum Control with Continuous Variable Systems. <i>Physical Review Letters</i> , 2016, 116, 140502.	2.9	77
23	Observation of an anomalous decoherence effect in a quantum bath at room temperature. <i>Nature Communications</i> , 2011, 2, 570.	5.8	75
24	Coherent quantum control of nitrogen-vacancy center spins near 1000 kelvin. <i>Nature Communications</i> , 2019, 10, 1344.	5.8	75
25	Quantum many-body theory of qubit decoherence in a finite-size spin bath. II. Ensemble dynamics. <i>Physical Review B</i> , 2009, 79, .	1.1	69
26	Anomalous Decoherence Effect in a Quantum Bath. <i>Physical Review Letters</i> , 2011, 106, 217205.	2.9	65
27	Noise-resilient quantum evolution steered by dynamical decoupling. <i>Nature Communications</i> , 2013, 4, 2254.	5.8	63
28	Proposal for a room-temperature diamond maser. <i>Nature Communications</i> , 2015, 6, 8251.	5.8	61
29	High-resolution spectroscopy of single nuclear spins via sequential weak measurements. <i>Nature Communications</i> , 2019, 10, 594.	5.8	60
30	Unified theory of consequences of spontaneous emission in $\hat{a}\hat{b}$ system. <i>Physical Review B</i> , 2005, 71, .	1.1	59
31	Superradiance Lattice. <i>Physical Review Letters</i> , 2015, 114, 043602.	2.9	57
32	Hybrid nanodiamond quantum sensors enabled by volume phase transitions of hydrogels. <i>Nature Communications</i> , 2018, 9, 3188.	5.8	54
33	Protection of quantum systems by nested dynamical decoupling. <i>Physical Review A</i> , 2011, 83, .	1.0	52
34	Tuning a Spin Bath through the Quantum-Classical Transition. <i>Physical Review Letters</i> , 2012, 108, 200402.	2.9	52
35	Storage and retrieval of microwave fields at the single-photon level in a spin ensemble. <i>Physical Review A</i> , 2015, 92, .	1.0	52
36	Phase transitions in the complex plane of physical parameters. <i>Scientific Reports</i> , 2014, 4, 5202.	1.6	52

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37	Magnetic Criticality Enhanced Hybrid Nanodiamond Thermometer under Ambient Conditions. Physical Review X, 2018, 8, .	2.8	48
38	Single-Shot Readout of a Nuclear Spin Weakly Coupled to a Nitrogen-Vacancy Center at Room Temperature. Physical Review Letters, 2017, 118, 150504.	2.9	46
39	Second-Order Nonlinear Optical Effects of Spin Currents. Physical Review Letters, 2010, 104, 256601.	2.9	44
40	Twenty-threeâ€“millisecond electron spin coherence of erbium ions in a natural-abundance crystal. Science Advances, 2021, 7, eabj9786.	4.7	42
41	Ultrafast optical control of electron spin coherence in chargedGaAsquantum dots. Physical Review B, 2006, 74, .	1.1	38
42	Topological phase transitions in superradiance lattices. Optica, 2015, 2, 712.	4.8	38
43	Dynamical Birefringence: Electron-Hole Recollisions as Probes of Berry Curvature. Physical Review X, 2017, 7, .	2.8	36
44	Mesoscopic Superposition States Generated by Synthetic Spin-Orbit Interaction in Fock-State Lattices. Physical Review Letters, 2016, 116, 220502.	2.9	33
45	Uncovering many-body correlations in nanoscale nuclear spin baths by central spin decoherence. Nature Communications, 2014, 5, 4822.	5.8	32
46	Dynamical-Decoupling-Based Quantum Sensing: Floquet Spectroscopy. Physical Review X, 2015, 5, .	2.8	31
47	Anchored but not internalized: shape dependent endocytosis of nanodiamond. Scientific Reports, 2017, 7, 46462.	1.6	31
48	Degenerate four-wave-mixing signals from a dc- and ac-driven semiconductor superlattice. Physical Review B, 1999, 59, 5759-5769.	1.1	30
49	Nanodot-Cavity Electrodynamics and Photon Entanglement. Physical Review Letters, 2004, 92, 217402.	2.9	29
50	Dynamical decoupling design for identifying weakly coupled nuclear spins in a bath. Physical Review A, 2014, 90, .	1.0	29
51	Proposal for Direct Measurement of a Pure Spin Current by a Polarized Light Beam. Physical Review Letters, 2008, 100, 086603.	2.9	28
52	Ultra-sensitive hybrid diamond nanothermometer. National Science Review, 2021, 8, nwaa194.	4.6	28
53	Proposal for geometric generation of a biexciton in a quantum dot using a chirped pulse. Physical Review B, 2008, 78, .	1.1	27
54	Optically detected nuclear quadrupolar interaction of N in nitrogen-vacancy centers in diamond. Physical Review B, 2014, 89, .	1.1	25

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55	Nonlinear optical response induced by non-Abelian Berry curvature in time-reversal-invariant insulators. <i>Physical Review B</i> , 2014, 90, .	1.1	24
56	Theory of low-power ultra-broadband terahertz sideband generation in bi-layer graphene. <i>Nature Communications</i> , 2014, 5, 4854.	5.8	24
57	Electrically controllable RKKY interaction in semiconductor quantum wires. <i>Physical Review B</i> , 2010, 81, .	1.1	22
58	Controllable effects of quantum fluctuations on spin free-induction decay at room temperature. <i>Scientific Reports</i> , 2012, 2, 432.	1.6	22
59	Angstrom-Resolution Magnetic Resonance Imaging of Single Molecules via Wave-Function Fingerprints of Nuclear Spins. <i>Physical Review Applied</i> , 2016, 6, .	1.5	22
60	Coherent control of cavity quantum electrodynamics for quantum nondemolition measurements and ultrafast cooling. <i>Physical Review B</i> , 2005, 72, .	1.1	21
61	High-order THz-sideband generation in semiconductors. <i>AIP Conference Proceedings</i> , 2007, , .	0.3	21
62	Suppression of electron spin decoherence of the diamond NV center by a transverse magnetic field. <i>Physical Review B</i> , 2013, 88, .	1.1	20
63	Classical nature of nuclear spin noise near clock transitions of Bi donors in silicon. <i>Physical Review B</i> , 2015, 92, .	1.1	20
64	Dynamics revealed by correlations of time-distributed weak measurements of a single spin. <i>New Journal of Physics</i> , 2010, 12, 013018.	1.2	19
65	Terahertz Electron-Hole Recollisions in GaAs Wells: Robustness to Scattering by Optical Phonons and Thermal Fluctuations. <i>Physical Review Letters</i> , 2013, 111, 267402.	2.0	18
66	Characterization of Arbitrary-Order Correlations in Quantum Baths by Weak Measurement. <i>Physical Review Letters</i> , 2019, 123, 050603.	2.9	18
67	Quantum-coherence-induced second plateau in high-sideband generation. <i>Physical Review B</i> , 2014, 89, .	1.1	17
68	Giant Faraday rotation induced by the Berry phase in bilayer graphene under strong terahertz fields. <i>New Journal of Physics</i> , 2014, 16, 043014.	1.2	17
69	Association of Nanodiamond Rotation Dynamics with Cell Activities by Translation-Rotation Tracking. <i>Nano Letters</i> , 2021, 21, 3393-3400.	4.5	17
70	Decoherence of coupled electron spins via nuclear spin dynamics in quantum dots. <i>Physical Review B</i> , 2008, 77, .	1.1	16
71	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.	1.2	16
72	Magnetic ordering of nitrogen-vacancy centers in diamond via resonator-mediated coupling. <i>EPJ Quantum Technology</i> , 2015, 2, .	2.9	16

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73	Effects of excitation frequency on high-order terahertz sideband generation in semiconductors. <i>New Journal of Physics</i> , 2013, 15, 105015.	1.2	15
74	Nanometer-precision non-local deformation reconstruction using nanodiamond sensing. <i>Nature Communications</i> , 2019, 10, 3259.	5.8	15
75	Adiabatic stabilization of excitons in an intense terahertz laser. <i>Physical Review B</i> , 2002, 66, .	1.1	14
76	Thermodynamic holography. <i>Scientific Reports</i> , 2015, 5, 15077.	1.6	13
77	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.	1.4	12
78	Quantum criticality at high temperature revealed by spin echo. <i>New Journal of Physics</i> , 2013, 15, 043032.	1.2	12
79	Dynamic Fano resonance of Floquet-state excitons in superlattices. <i>Journal of Physics Condensed Matter</i> , 2000, 12, L741-L747.	0.7	11
80	Faraday rotation echo spectroscopy and detection of quantum fluctuations. <i>Scientific Reports</i> , 2014, 4, 4695.	1.6	11
81	Phase transitions in sequential weak measurements. <i>Physical Review A</i> , 2018, 98, .	1.0	11
82	Zero-field magnetometry using hyperfine-biased nitrogen-vacancy centers near diamond surfaces. <i>Physical Review Research</i> , 2022, 4, .	1.3	11
83	Proposal for Quantum Sensing Based on Two-Dimensional Dynamical Decoupling: NMR Correlation Spectroscopy of Single Molecules. <i>Physical Review Applied</i> , 2016, 6, .	1.5	10
84	Bloch oscillation under a bichromatic laser: Dynamical delocalization and localization, persistent terahertz emission, and harmonics generation. <i>Europhysics Letters</i> , 2000, 50, 526-532.	0.7	9
85	Publisher's Note: Quantum many-body theory of qubit decoherence in a finite-size spin bath [<i>Phys. Rev. B</i> 78, 085315 (2008)]. <i>Physical Review B</i> , 2008, 78, .	1.1	9
86	Dynamical decoupling for a qubit in telegraphlike noises. <i>Physical Review A</i> , 2010, 82, .	1.0	9
87	Hyperfine spectroscopy in a quantum-limited spectrometer. <i>Magnetic Resonance</i> , 2020, 1, 315-330.	0.8	9
88	Exciton absorption in semiconductor superlattices in a strong longitudinal THz field. <i>New Journal of Physics</i> , 2009, 11, 083004.	1.2	7
89	Geometric diffusion of quantum trajectories. <i>Scientific Reports</i> , 2015, 5, 12109.	1.6	7
90	Three-tangle of a general three-qubit state in the representation of Majorana stars. <i>Physical Review A</i> , 2020, 101, .	1.0	7

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91	Classical-Noise-Free Sensing Based on Quantum Correlation Measurement*. Chinese Physics Letters, 2021, 38, 010301.	1.3	7
92	Optically manipulating spins in semiconductor quantum dots. Journal of Applied Physics, 2007, 101, 081721.	1.1	6
93	Protection of center-spin coherence by a dynamically polarized nuclear spin core. Physical Review B, 2010, 82, .	1.1	6
94	Quantum noise theory for quantum transport through nanostructures. New Journal of Physics, 2011, 13, 013005.	1.2	6
95	No-go theorems and optimization of dynamical decoupling against noise with soft cutoff. Physical Review A, 2013, 87, .	1.0	6
96	Keeping a spin qubit alive in natural silicon: Comparing optimal working points and dynamical decoupling. Physical Review B, 2015, 91, .	1.1	6
97	Unification of valley and anomalous Hall effects in a strained lattice. Physical Review B, 2021, 104, .	1.1	6
98	Atomic-Scale Positioning of Single Spins via Multiple Nitrogen-Vacancy Centers. Physical Review Applied, 2016, 5, .	1.5	5
99	Collision-Sensitive Spin Noise. Physical Review Applied, 2022, 17, .	1.5	5
100	Nonlinear optics of semiconductors under an intense terahertz field. Physical Review B, 2003, 68, .	1.1	4
101	Theory of nonlinear optical spectroscopy of electron spin coherence in quantum dots. Physical Review B, 2007, 75, .	1.1	4
102	Quantum many-body theory for qubit decoherence in a finite-size spin bath. , 2008, , .		4
103	Cluster correlation expansion for studying decoherence of clock transitions in spin baths. Physical Review B, 2020, 102, .	1.1	4
104	Tunneling in double well model of porous silicon. Solid State Communications, 1995, 93, 589-594.	0.9	3
105	Tunable terahertz emission from difference frequency in biased superlattices. Applied Physics Letters, 2004, 84, 2730-2732.	1.5	3
106	Publisher's Note: Restoring Coherence Lost to a Slow Interacting Mesoscopic Spin Bath [Phys. Rev. Lett. 98, 077602 (2007)]. Physical Review Letters, 2007, 98, .	2.9	3
107	Extending quantum control of time-independent systems to time-dependent systems. Physical Review A, 2011, 83, .	1.0	3
108	Non-Markovian dynamics and strong coupling between atomic transitions and a waveguide continuum edge. Physical Review A, 2012, 85, .	1.0	3

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109	Optical effects of spin currents in semiconductors. Physical Review B, 2012, 86, .	1.1	3
110	A diamond age of masers. Nature, 2018, 555, 447-449.	13.7	3
111	Berry phases of higher spins due to internal geometry of Majorana constellation and relation to quantum entanglement. New Journal of Physics, 2021, 23, 073020.	1.2	2
112	Effects of local decoherence on quantum critical metrology. Physical Review A, 2021, 104, .	1.0	2
113	Direct Optical Detection of a Pure Spin Current in a Semiconductor. Journal of Superconductivity and Novel Magnetism, 2010, 23, 53-56.	0.8	1
114	Electron spin decoherence in nuclear spin baths and dynamical decoupling. AIP Conference Proceedings, 2011, , .	0.3	1
115	A masing ladder. Science, 2021, 371, 780-781.	6.0	1
116	Revealing Capillarity in AFM Indentation of Cells by Nanodiamond-Based Nonlocal Deformation Sensing. Nano Letters, 2022, 22, 3889-3896.	4.5	1
117	Dynamical quantum interference and its controllability in semiconductors irradiated by an intense terahertz laser. Physica E: Low-Dimensional Systems and Nanostructures, 2003, 17, 191-196.	1.3	0
118	Theory on measuring electron spin decoherence times by nonlinear optical spectroscopy of quantum dots. AIP Conference Proceedings, 2007, , .	0.3	0
119	CONTROL OF ELECTRON SPIN DECOHERENCE IN MESOSCOPIC NUCLEAR SPIN BATHS. International Journal of Modern Physics B, 2008, 22, 27-32.	1.0	0
120	DIRECT AND NON-DEMOLITION OPTICAL MEASUREMENT OF PURE SPIN CURRENTS IN SEMICONDUCTORS. , 2008, , .		0
121	Monitoring Electron Spin Decoherence in Correlations of Sequential Weak Measurement by Faraday Rotation. , 2009, , .		0
122	Theory of Direct Optical Measurement of Pure Spin Currents in Direct-gap Semiconductors. , 2010, , .		0
123	Spin Bloch oscillation in a one-dimensional system with non-trivial band topology. AIP Conference Proceedings, 2011, , .	0.3	0
124	Second-order nonlinear optical effects of spin currents. AIP Conference Proceedings, 2011, , .	0.3	0
125	Coherent spin control by electromagnetic vacuum fluctuations. Physical Review A, 2011, 83, .	1.0	0
126	Near infrared frequency dependence of high-order sideband generation. , 2013, , .		0

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127	High-order dynamical decoupling. , 0, , 351-375.		0
128	Strong coupling without touching. National Science Review, 2014, 1, 472-473.	4.6	0
129	2-dimensional de Sitter universe emerging from the gauge structure of a nonlinear quantum system. Scientific Reports, 2017, 7, 9756.	1.6	0
130	Dynamical Birefringence: High-order Sideband Generation as a Probe of Berry Curvature. , 2017, , .		0
131	Publisher's Note: Dynamical Birefringence: Electron-Hole Recollisions as Probes of Berry Curvature [Phys. Rev. X 7 , 041042 (2017)]. Physical Review X, 2019, 9, .	2.8	0
132	Dynamic inter-sideband Fano interference of excitons in ac-driven superlattices. Springer Proceedings in Physics, 2001, , 200-201.	0.1	0
133	Solid-state phase gate for two photons. , 2004, , .		0
134	Restoring Coherence Lost In a Mesoscopic Bath. , 2006, , .		0
135	High-Order Sideband Generation in Quantum Wells Driven by Intense THz Radiation: Electron-Hole Recollisions. , 2012, , .		0
136	Polarimetry of THz High-Order Sideband Generation: Towards a Measurement of Berry Curvature. , 2018, , .		0