# Ren-Bao Liu

List of Publications by Year
in descending order



| 136 | 5,451 | 76326 | 82547 |
|---|---|---|---|
| papers | citations | 40 h-index | 72 g-index |

| 137 | 137 | 137 | 4124 |
|---|---|---|---|
| all docs | docs citations | times ranked | citing authors |

| # | Article | IF | Citations |
|---|---|---|---|
| 1 | Preserving electron spin coherence in solids by optimal dynamical decoupling. Nature, 2009, 461, 1265-1268. | 27.8 | 314 |
| 2 | Theory of electron spin decoherence by interacting nuclear spins in a quantum dot. Physical Review B, 2006, 74, . | 3.2 | 264 |
| 3 | Stimulated and Spontaneous Optical Generation of Electron Spin Coherence in Charged GaAs Quantum Dots. Physical Review Letters, 2005, 94, 227403. | 7.8 | 249 |
| 4 | Experimental observation of electronâ€“hole recollisions. Nature, 2012, 483, 580-583. | 27.8 | 244 |
| 5 | Unambiguous observation of shape effects on cellular fate of nanoparticles. Scientific Reports, 2014, 4, 4495. | 3.3 | 227 |
| 6 | Sensing single remote nuclear spins. Nature Nanotechnology, 2012, 7, 657-662. | 31.5 | 217 |
| 7 | Theory of Control of the Spin-Photon Interface for Quantum Networks. Physical Review Letters, 2005, 95, 030504. | 7.8 | 175 |
| 8 | Atomic-scale magnetometry of distant nuclear spin clusters via nitrogen-vacancy spin in diamond. Nature Nanotechnology, 2011, 6, 242-246. | 31.5 | 149 |
| 9 | Decoherence and dynamical decoupling control of nitrogen vacancy center electron spins in nuclear spin baths. Physical Review B, 2012, 85, . | 3.2 | 149 |
| 10 | Universality of Uhrig Dynamical Decoupling for Suppressing Qubit Pure Dephasing and Relaxation. Physical Review Letters, 2008, 101, 180403. | 7.8 | 145 |
| 11 | Restoring Coherence Lost to a Slow Interacting Mesoscopic Spin Bath. Physical Review Letters, 2007, 98, 077602. | 7.8 | 138 |
| 12 | Quantum many-body theory of qubit decoherence in a finite-size spin bath. Physical Review B, 2008, 78, . | 3.2 | 135 |
| 13 | Experimental Observation of Lee-Yang Zeros. Physical Review Letters, 2015, 114, 010601. | 7.8 | 122 |
| 14 | Preserving qubit coherence by dynamical decoupling. Frontiers of Physics, 2011, 6, 2-14. | 5.0 | 104 |
| 15 | Quantum computing by optical control of electron spins. Advances in Physics, 2010, 59, 703-802. | 14.4 | 102 |
| 16 | Sensing and atomic-scale structure analysis of single nuclear-spin clusters in diamond. Nature Physics, 2014, 10, 21-25. | 16.7 | 97 |
| 17 | Quantum many-body theory for electron spin decoherence in nanoscale nuclear spin baths. Reports on Progress in Physics, 2017, 80, 016001. | 20.1 | 95 |
| 18 | Control of electron spin decoherence caused by electronâ€“nuclear spin dynamics in a quantum dot. New Journal of Physics, 2007, 9, 226-226. | 2.9 | 92 |

| # | Article | IF | Citations |
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| 19 | Lee-Yang Zeros and Critical Times in Decoherence of a Probe Spin Coupled to a Bath. Physical Review Letters, 2012, 109, 185701. | 7.8 | 88 |
| 20 | Sensitivity of parameter estimation near the exceptional point of a non-Hermitian system. New Journal of Physics, 2019, 21, 083002. | 2.9 | 84 |
| 21 | Fisher information in a quantum-critical environment. Physical Review A, 2010, 82, . | 2.5 | 80 |
| 22 | Holonomic Quantum Control with Continuous Variable Systems. Physical Review Letters, 2016, 116, 140502. | 7.8 | 77 |
| 23 | Observation of an anomalous decoherence effect in a quantum bath at room temperature. Nature Communications, 2011, 2, 570. | 12.8 | 75 |
| 24 | Coherent quantum control of nitrogen-vacancy center spins near 1000 kelvin. Nature Communications, 2019, 10, 1344. | 12.8 | 75 |
| 25 | Quantum many-body theory of qubit decoherence in a finite-size spin bath. II. Ensemble dynamics. Physical Review B, 2009, 79, . | 3.2 | 69 |
| 26 | Anomalous Decoherence Effect in a Quantum Bath. Physical Review Letters, 2011, 106, 217205. | 7.8 | 65 |
| 27 | Noise-resilient quantum evolution steered by dynamical decoupling. Nature Communications, 2013, 4, 2254. | 12.8 | 63 |
| 28 | Proposal for a room-temperature diamond maser. Nature Communications, 2015, 6, 8251. | 12.8 | 61 |
| 29 | High-resolution spectroscopy of single nuclear spins via sequential weak measurements. Nature Communications, 2019, 10, 594. | 12.8 | 60 |
| 30 | Unified theory of consequences of spontaneous emission in aî›system. Physical Review B, 2005, 71, . | 3.2 | 59 |
| 31 | Superradiance Lattice. Physical Review Letters, 2015, 114, 043602. | 7.8 | 57 |
| 32 | Hybrid nanodiamond quantum sensors enabled by volume phase transitions of hydrogels. Nature Communications, 2018, 9, 3188. | 12.8 | 54 |
| 33 | Protection of quantum systems by nested dynamical decoupling. Physical Review A, 2011, 83, . | 2.5 | 52 |
| 34 | Tuning a Spin Bath through the Quantum-Classical Transition. Physical Review Letters, 2012, 108, 200402. | 7.8 | 52 |
| 35 | Storage and retrieval of microwave fields at the single-photon level in a spin ensemble. Physical Review A, 2015, 92, . | 2.5 | 52 |
| 36 | Phase transitions in the complex plane of physical parameters. Scientific Reports, 2014, 4, 5202. | 3.3 | 52 |

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| 37 | Magnetic Criticality Enhanced Hybrid Nanodiamond Thermometer under Ambient Conditions. Physical Review X, 2018, 8, . | 8.9 | 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. | 7.8 | 46 |
| 39 | Second-Order Nonlinear Optical Effects of Spin Currents. Physical Review Letters, 2010, 104, 256601. | 7.8 | 44 |
| 40 | Twenty-threeâ€“millisecond electron spin coherence of erbium ions in a natural-abundance crystal. Science Advances, 2021, 7, eabj9786. | 10.3 | 42 |
| 41 | Ultrafast optical control of electron spin coherence in chargedGaAsquantum dots. Physical Review B, 2006, 74, . | 3.2 | 38 |
| 42 | Topological phase transitions in superradiance lattices. Optica, 2015, 2, 712. | 9.3 | 38 |
| 43 | Dynamical Birefringence: Electron-Hole Recollisions as Probes of Berry Curvature. Physical Review X, 2017, 7, . | 8.9 | 36 |
| 44 | Mesoscopic Superposition States Generated by Synthetic Spin-Orbit Interaction in Fock-State Lattices. Physical Review Letters, 2016, 116, 220502. | 7.8 | 33 |
| 45 | Uncovering many-body correlations in nanoscale nuclear spin baths by central spin decoherence. Nature Communications, 2014, 5, 4822. | 12.8 | 32 |
| 46 | Dynamical-Decoupling-Based Quantum Sensing: Floquet Spectroscopy. Physical Review X, 2015, 5, . | 8.9 | 31 |
| 47 | Anchored but not internalized: shape dependent endocytosis of nanodiamond. Scientific Reports, 2017, 7, 46462. | 3.3 | 31 |
| 48 | Degenerate four-wave-mixing signals from a dc- and ac-driven semiconductor superlattice. Physical Review B, 1999, 59, 5759-5769. | 3.2 | 30 |
| 49 | Nanodot-Cavity Electrodynamics and Photon Entanglement. Physical Review Letters, 2004, 92, 217402. | 7.8 | 29 |
| 50 | Dynamical decoupling design for identifying weakly coupled nuclear spins in a bath. Physical Review A, 2014, 90, . | 2.5 | 29 |
| 51 | Proposal for Direct Measurement of a Pure Spin Current by a Polarized Light Beam. Physical Review Letters, 2008, 100, 086603. | 7.8 | 28 |
| 52 | Ultra-sensitive hybrid diamond nanothermometer. National Science Review, 2021, 8, nwaa194. | 9.5 | 28 |
| 53 | Proposal for geometric generation of a biexciton in a quantum dot using a chirped pulse. Physical Review B, 2008, 78, . | 3.2 | 27 |
| 54 | Optically detected nuclear quadrupolar interaction of<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mmultiscripts><mml:mi mathvariant="normal">N</mml:mi><mml:mprescripts /><mml:none /><mml:mn>14</mml:mn></mml:mmultiscripts></mml:math>in nitrogen-vacancy centers in diamond. Physical Review B, 2014, 89, . | 3.2 | 25 |

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| 55 | Nonlinear optical response induced by non-Abelian Berry curvature in time-reversal-invariant insulators. Physical Review B, 2014, 90, . | 3.2 | 24 |
| 56 | Theory of low-power ultra-broadband terahertz sideband generation in bi-layer graphene. Nature Communications, 2014, 5, 4854. | 12.8 | 24 |
| 57 | Electrically controllable RKKY interaction in semiconductor quantum wires. Physical Review B, 2010, 81, . | 3.2 | 22 |
| 58 | Controllable effects of quantum fluctuations on spin free-induction decay at room temperature. Scientific Reports, 2012, 2, 432. | 3.3 | 22 |
| 59 | Angstrom-Resolution Magnetic Resonance Imaging of Single Molecules via Wave-Function Fingerprints of Nuclear Spins. Physical Review Applied, 2016, 6, . | 3.8 | 22 |
| 60 | Coherent control of cavity quantum electrodynamics for quantum nondemolition measurements and ultrafast cooling. Physical Review B, 2005, 72, . | 3.2 | 21 |
| 61 | High-order THz-sideband generation in semiconductors. AIP Conference Proceedings, 2007, , . | 0.4 | 21 |
| 62 | Suppression of electron spin decoherence of the diamond NV center by a transverse magnetic field. Physical Review B, 2013, 88, . | 3.2 | 20 |
| 63 | Classical nature of nuclear spin noise near clock transitions of Bi donors in silicon. Physical Review B, 2015, 92, . | 3.2 | 20 |
| 64 | Dynamics revealed by correlations of time-distributed weak measurements of a single spin. New Journal of Physics, 2010, 12, 013018. | 2.9 | 19 |
| 65 | Terahertz Electron-Hole Recollisions in<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:mi>GaAs</mml:mi><mml:mo>/</mml:mo><mml:mi>AlGaAs</mml:mi></mml:mrow></mml:math>Q Wells: Robustness to Scattering by Optical Phonons and Thermal Fluctuations. Physical Review Letters, 2013, 111, 267402. | 7.8 | 18 |
| 66 | Characterization of Arbitrary-Order Correlations in Quantum Baths by Weak Measurement. Physical Review Letters, 2019, 123, 050603. | 7.8 | 18 |
| 67 | Quantum-coherence-induced second plateau in high-sideband generation. Physical Review B, 2014, 89, . | 3.2 | 17 |
| 68 | Giant Faraday rotation induced by the Berry phase in bilayer graphene under strong terahertz fields. New Journal of Physics, 2014, 16, 043014. | 2.9 | 17 |
| 69 | Association of Nanodiamond Rotation Dynamics with Cell Activities by Translation-Rotation Tracking. Nano Letters, 2021, 21, 3393-3400. | 9.1 | 17 |
| 70 | Decoherence of coupled electron spins via nuclear spin dynamics in quantum dots. Physical Review B, 2008, 77, . | 3.2 | 16 |
| 71 | Berry phases of quantum trajectories of optically excited electronâ€“hole pairs in semiconductors under strong terahertz fields. New Journal of Physics, 2013, 15, 115005. | 2.9 | 16 |
| 72 | Magnetic ordering of nitrogen-vacancy centers in diamond via resonator-mediated coupling. EPJ Quantum Technology, 2015, 2, . | 6.3 | 16 |

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| 73 | Effects of excitation frequency on high-order terahertz sideband generation in semiconductors. New Journal of Physics, 2013, 15, 105015. | 2.9 | 15 |
| 74 | Nanometer-precision non-local deformation reconstruction using nanodiamond sensing. Nature Communications, 2019, 10, 3259. | 12.8 | 15 |
| 75 | Adiabatic stabilization of excitons in an intense terahertz laser. Physical Review B, 2002, 66, . | 3.2 | 14 |
| 76 | Thermodynamic holography. Scientific Reports, 2015, 5, 15077. | 3.3 | 13 |
| 77 | Theory of control of the dynamics of the interface between stationary and flying qubits. Journal of Optics B: Quantum and Semiclassical Optics, 2005, 7, S318-S325. | 1.4 | 12 |
| 78 | Quantum criticality at high temperature revealed by spin echo. New Journal of Physics, 2013, 15, 043032. | 2.9 | 12 |
| 79 | Dynamic Fano resonance of Floquet-state excitons in superlattices. Journal of Physics Condensed Matter, 2000, 12, L741-L747. | 1.8 | 11 |
| 80 | Faraday rotation echo spectroscopy and detection of quantum fluctuations. Scientific Reports, 2014, 4, 4695. | 3.3 | 11 |
| 81 | Phase transitions in sequential weak measurements. Physical Review A, 2018, 98, . | 2.5 | 11 |
| 82 | Zero-field magnetometry using hyperfine-biased nitrogen-vacancy centers near diamond surfaces. Physical Review Research, 2022, 4, . | 3.6 | 11 |
| 83 | Proposal for Quantum Sensing Based on Two-Dimensional Dynamical Decoupling: NMR Correlation Spectroscopy of Single Molecules. Physical Review Applied, 2016, 6, . | 3.8 | 10 |
| 84 | Bloch oscillation under a bichromatic laser: Dynamical delocalization and localization, persistent terahertz emission, and harmonics generation. Europhysics Letters, 2000, 50, 526-532. | 2.0 | 9 |
| 85 | Publisher's Note: Quantum many-body theory of qubit decoherence in a finite-size spin bath [Phys. Rev. B78, 085315 (2008)]. Physical Review B, 2008, 78, . | 3.2 | 9 |
| 86 | Dynamical decoupling for a qubit in telegraphlike noises. Physical Review A, 2010, 82, . | 2.5 | 9 |
| 87 | Hyperfine spectroscopy in a quantum-limited spectrometer. Magnetic Resonance, 2020, 1, 315-330. | 1.9 | 9 |
| 88 | Exciton absorption in semiconductor superlattices in a strong longitudinal THz field. New Journal of Physics, 2009, 11, 083004. | 2.9 | 7 |
| 89 | Geometric diffusion of quantum trajectories. Scientific Reports, 2015, 5, 12109. | 3.3 | 7 |
| 90 | Three-tangle of a general three-qubit state in the representation of Majorana stars. Physical Review A, 2020, 101, . | 2.5 | 7 |

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| 91 | Classical-Noise-Free Sensing Based on Quantum Correlation Measurement*. Chinese Physics Letters, 2021, 38, 010301. | 3.3 | 7 |
| 92 | Optically manipulating spins in semiconductor quantum dots. Journal of Applied Physics, 2007, 101, 081721. | 2.5 | 6 |
| 93 | Protection of center-spin coherence by a dynamically polarized nuclear spin core. Physical Review B, 2010, 82, . | 3.2 | 6 |
| 94 | Quantum noise theory for quantum transport through nanostructures. New Journal of Physics, 2011, 13, 013005. | 2.9 | 6 |
| 95 | No-go theorems and optimization of dynamical decoupling against noise with soft cutoff. Physical Review A, 2013, 87, . | 2.5 | 6 |
| 96 | Keeping a spin qubit alive in natural silicon: Comparing optimal working points and dynamical decoupling. Physical Review B, 2015, 91, . | 3.2 | 6 |
| 97 | Unification of valley and anomalous Hall effects in a strained lattice. Physical Review B, 2021, 104, . | 3.2 | 6 |
| 98 | Atomic-Scale Positioning of Single Spins via Multiple Nitrogen-Vacancy Centers. Physical Review Applied, 2016, 5, . | 3.8 | 5 |
| 99 | Collision-Sensitive Spin Noise. Physical Review Applied, 2022, 17, . | 3.8 | 5 |
| 100 | Nonlinear optics of semiconductors under an intense terahertz field. Physical Review B, 2003, 68, . | 3.2 | 4 |
| 101 | Theory of nonlinear optical spectroscopy of electron spin coherence in quantum dots. Physical Review B, 2007, 75, . | 3.2 | 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, . | 3.2 | 4 |
| 104 | Tunneling in double well model of porous silicon. Solid State Communications, 1995, 93, 589-594. | 1.9 | 3 |
| 105 | Tunable terahertz emission from difference frequency in biased superlattices. Applied Physics Letters, 2004, 84, 2730-2732. | 3.3 | 3 |
| 106 | Publisherâ€™s Note: Restoring Coherence Lost to a Slow Interacting Mesoscopic Spin Bath [Phys. Rev. Lett. 98, 077602 (2007)]. Physical Review Letters, 2007, 98, . | 7.8 | 3 |
| 107 | Extending quantum control of time-independent systems to time-dependent systems. Physical Review A, 2011, 83, . | 2.5 | 3 |
| 108 | Non-Markovian dynamics and strong coupling between atomic transitions and a waveguide continuum edge. Physical Review A, 2012, 85, . | 2.5 | 3 |

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| 109 | Optical effects of spin currents in semiconductors. Physical Review B, 2012, 86, . | 3.2 | 3 |
| 110 | A diamond age of masers. Nature, 2018, 555, 447-449. | 27.8 | 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. | 2.9 | 2 |
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| 114 | Electron spin decoherence in nuclear spin baths and dynamical decoupling. AIP Conference Proceedings, 2011, , . | 0.4 | 1 |
| 115 | A masing ladder. Science, 2021, 371, 780-781. | 12.6 | 1 |
| 116 | Revealing Capillarity in AFM Indentation of Cells by Nanodiamond-Based Nonlocal Deformation Sensing. Nano Letters, 2022, 22, 3889-3896. | 9.1 | 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. | 2.7 | 0 |
| 118 | Theory on measuring electron spin decoherence times by nonlinear optical spectroscopy of quantum dots. AIP Conference Proceedings, 2007, , . | 0.4 | 0 |
| 119 | CONTROL OF ELECTRON SPIN DECOHERENCE IN MESOSCOPIC NUCLEAR SPIN BATHS. International Journal of Modern Physics B, 2008, 22, 27-32. | 2.0 | 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, , . | 0.4 | 0 |
| 124 | Second-order nonlinear optical effects of spin currents. AIP Conference Proceedings, 2011, , . | 0.4 | 0 |
| 125 | Coherent spin control by electromagnetic vacuum fluctuations. Physical Review A, 2011, 83, . | 2.5 | 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. | 9.5 | 0 |
| 129 | 2â€‰+â€‰1 dimensional de Sitter universe emerging from the gauge structure of a nonlinear quantum system. Scientific Reports, 2017, 7, 9756. | 3.3 | 0 |
| 130 | Dynamical Birefringence: High-order Sideband Generation as a Probe of Berry Curvature. , 2017, , . | | 0 |
| 131 | Publisherâ€™s Note: Dynamical Birefringence: Electron-Hole Recollisions as Probes of Berry Curvature [Phys. Rev. X 7 , 041042 (2017)]. Physical Review X, 2019, 9, . | 8.9 | 0 |
| 132 | Dynamic inter-sideband Fano interference of excitons in ac-driven superlattices. Springer Proceedings in Physics, 2001, , 200-201. | 0.2 | 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 |