

Ilya Tokatly

List of Publications by Year in descending order

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101
papers

3,938
citations

109321

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123424

61
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104
all docs

104
docs citations

104
times ranked

3067
citing authors

| # | ARTICLE | IF | CITATIONS |
|----|---|------|-----------|
| 1 | Spin-orbit induced equilibrium spin currents in materials. Physical Review B, 2022, 105, . | 3.2 | 3 |
| 2 | Dissipation and spontaneous emission in quantum electrodynamical density functional theory based on optimized effective potential: A proof of concept study. Physical Review B, 2022, 105, . | 3.2 | 2 |
| 3 | Nonlinear \tilde{f} model for disordered systems with intrinsic spin-orbit coupling. Physical Review B, 2022, 105, . | 3.2 | 3 |
| 4 | Gap inversion in quasi-one-dimensional Andreev crystals. Physical Review B, 2021, 103, . | 3.2 | 3 |
| 5 | Spectral properties of Andreev crystals. Physical Review B, 2021, 104, . | 3.2 | 1 |
| 6 | Vacuum anomalous Hall effect in gyrotropic cavity. Physical Review B, 2021, 104, . | 3.2 | 7 |
| 7 | Magnetoelectric effects in superconductors due to spin-orbit scattering: Nonlinear \tilde{f} -model description. Physical Review B, 2021, 104, . | 3.2 | 6 |
| 8 | Enhancement of Spin-Charge Conversion in Dilute Magnetic Alloys by Kondo Screening. Physical Review Letters, 2021, 127, 176801. | 7.8 | 2 |
| 9 | Large spin-charge interconversion induced by interfacial spin-orbit coupling in a highly conducting all-metallic system. Physical Review B, 2021, 104, . | 3.2 | 9 |
| 10 | Quantification of interfacial spin-charge conversion in hybrid devices with a metal/insulator interface. Applied Physics Letters, 2020, 117, . | 3.3 | 12 |
| 11 | Theory of the magnetic response in finite two-dimensional superconductors. Physical Review B, 2020, 102, . | 3.2 | 8 |
| 12 | A Josephson phase battery. Nature Nanotechnology, 2020, 15, 656-660. | 31.5 | 82 |
| 13 | Unified description of spin transport, weak antilocalization, and triplet superconductivity in systems with spin-orbit coupling. Physical Review B, 2020, 102, . | 3.2 | 2 |
| 14 | Nonlocal magnetoelectric effects in diffusive conductors with spatially inhomogeneous spin-orbit coupling. Physical Review B, 2019, 100, . | 3.2 | 6 |
| 15 | Quantum pressure focusing in solids: a reconstruction from experimental electron density. Acta Crystallographica Section B: Structural Science, Crystal Engineering and Materials, 2019, 75, 201-209. | 1.1 | 8 |
| 16 | Spectral properties and quantum phase transitions in superconducting junctions with a ferromagnetic link. Physical Review B, 2019, 99, . | 3.2 | 13 |
| 17 | Orbital magneto-optical response of periodic insulators from first principles. Npj Computational Materials, 2019, 5, . | 8.7 | 5 |
| 18 | Universal correspondence between edge spin accumulation and equilibrium spin currents in nanowires with spin-orbit coupling. Physical Review B, 2019, 100, . | 3.2 | 3 |

| # | ARTICLE | IF | CITATIONS |
|----|---|-----|-----------|
| 19 | Boundary conditions for spin and charge diffusion in the presence of interfacial spin-orbit coupling. Physical Review B, 2019, 99, . | 3.2 | 13 |
| 20 | Conserving approximations in cavity quantum electrodynamics: Implications for density functional theory of electron-photon systems. Physical Review B, 2018, 98, . | 3.2 | 21 |
| 21 | Extrinsic spin-charge coupling in diffusive superconducting systems. Physical Review B, 2018, 98, . | 3.2 | 13 |
| 22 | Shedding light on correlated electron-photon states using the exact factorization. European Physical Journal B, 2018, 91, 1. | 1.5 | 23 |
| 23 | Ballistic spin transport in the presence of interfaces with strong spin-orbit coupling. Physical Review B, 2017, 96, . | 3.2 | 36 |
| 24 | Anomalous current in diffusive ferromagnetic Josephson junctions. Physical Review B, 2017, 95, . | 3.2 | 58 |
| 25 | Usadel equation in the presence of intrinsic spin-orbit coupling: A unified theory of magnetoelectric effects in normal and superconducting systems. Physical Review B, 2017, 96, . | 3.2 | 26 |
| 26 | Theory of current-induced spin polarization in an electron gas. Physical Review B, 2017, 95, . | 3.2 | 30 |
| 27 | Spin dephasing in pseudomagnetic fields: Susceptibility and geometry. Low Temperature Physics, 2016, 42, 395-400. | 0.6 | 0 |
| 28 | Ballistic Josephson junctions in the presence of generic spin dependent fields. Physical Review B, 2016, 94, . | 3.2 | 17 |
| 29 | Manifestation of extrinsic spin Hall effect in superconducting structures: Nondissipative magnetoelectric effects. Physical Review B, 2016, 94, . | 3.2 | 28 |
| 30 | Dynamics of observables and exactly solvable quantum problems: Using time-dependent density-functional theory to control quantum systems. Physical Review A, 2016, 93, . | 2.5 | 2 |
| 31 | Spin evolution of cold atomic gases in $SU(2)$ fields. Physical Review A, 2016, 93, . | | 0 |
| 32 | Theory of the nonlinear Rashba-Edelstein effect: The clean electron gas limit. Physical Review B, 2016, 93, . | 3.2 | 7 |
| 33 | Semiclassical Quantization of Spinning Quasiparticles in Ballistic Josephson Junctions. Physical Review Letters, 2016, 116, 237002. | 7.8 | 13 |
| 34 | Bonding in molecular crystals from the local electronic pressure viewpoint. Molecular Physics, 2016, 114, 1260-1269. | 1.7 | 12 |
| 35 | NONEQUILIBRIUM SPIN DYNAMICS: FROM PROTONS IN WATER TO A GAUGE THEORY OF SPIN-ORBIT COUPLING. , 2015, , . | | 0 |
| 36 | Theory of the spin-galvanic effect and the anomalous phase shift in superconductors and Josephson junctions with intrinsic spin-orbit coupling. Physical Review B, 2015, 92, . | 3.2 | 119 |

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| 37 | Optimized Effective Potential for Quantum Electrodynamical Time-Dependent Density Functional Theory. <i>Physical Review Letters</i> , 2015, 115, 093001. | 7.8 | 93 |
| 38 | Theory of diffusive $\langle i \rangle \langle i \rangle \langle i \rangle$ Josephson junctions in the presence of spin-orbit coupling. <i>Europhysics Letters</i> , 2015, 110, 57005. | 2.0 | 86 |
| 39 | Current-induced spin polarization at the surface of metallic films: A theorem and an $\langle i \rangle \langle i \rangle$ calculation. <i>Physical Review B</i> , 2015, 91, . | 3.2 | 24 |
| 40 | Identification of structural motifs as tunneling two-level systems in amorphous alumina at low temperatures. <i>Physical Review B</i> , 2014, 90, . | 3.2 | 21 |
| 41 | Quantum electrodynamical time-dependent density-functional theory for many-electron systems on a lattice. <i>Physical Review B</i> , 2014, 90, . | 3.2 | 9 |
| 42 | Quantum-electrodynamical density-functional theory: Bridging quantum optics and electronic-structure theory. <i>Physical Review A</i> , 2014, 90, . | 2.5 | 197 |
| 43 | Spin-orbit coupling as a source of long-range triplet proximity effect in superconductor-ferromagnet hybrid structures. <i>Physical Review B</i> , 2014, 89, . | 3.2 | 158 |
| 44 | Singlet-Triplet Conversion and the Long-Range Proximity Effect in Superconductor-Ferromagnet Structures with Generic Spin Dependent Fields. <i>Physical Review Letters</i> , 2013, 110, 117003. | 7.8 | 139 |
| 45 | Time-Dependent Density Functional Theory for Many-Electron Systems Interacting with Cavity Photons. <i>Physical Review Letters</i> , 2013, 110, 233001. | 7.8 | 119 |
| 46 | Time-dependent exchange-correlation functional for a Hubbard dimer: Quantifying nonadiabatic effects. <i>Physical Review A</i> , 2013, 88, . | 2.5 | 28 |
| 47 | Spin dynamics of cold fermions with synthetic spin-orbit coupling. <i>Physical Review A</i> , 2013, 87, . | 2.5 | 23 |
| 48 | Time-dependent density functional theory on a lattice. <i>Physical Review B</i> , 2012, 86, . | 3.2 | 36 |
| 49 | Lattice density functional theory at finite temperature with strongly density-dependent exchange-correlation potentials. <i>Physical Review B</i> , 2012, 86, . | 3.2 | 26 |
| 50 | Quantum continuum mechanics made simple. <i>Journal of Chemical Physics</i> , 2012, 136, 204115. | 3.0 | 4 |
| 51 | Dielectric screening in two-dimensional insulators: Implications for excitonic and impurity states in graphane. <i>Physical Review B</i> , 2011, 84, . | 3.2 | 476 |
| 52 | Density functional theory beyond the linear regime: Validating an adiabatic local density approximation. <i>Physical Review A</i> , 2011, 83, . | 2.5 | 61 |
| 53 | Time-dependent current density functional theory on a lattice. <i>Physical Review B</i> , 2011, 83, . | 3.2 | 42 |
| 54 | A unified approach to the density-potential mapping in a family of time-dependent density functional theories. <i>Chemical Physics</i> , 2011, 391, 78-82. | 1.9 | 11 |

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|----|--|-----|-----------|
| 55 | Time-dependent density-functional and reduced density-matrix methods for few electrons: Exact versus adiabatic approximations. <i>Chemical Physics</i> , 2011, 391, 1-10. | 1.9 | 32 |
| 56 | Quantum optimal control theory in the linear response formalism. <i>Physical Review A</i> , 2011, 84, . | 2.5 | 10 |
| 57 | Nonlinear phenomena in time-dependent density-functional theory: What Rabi oscillations can teach us. <i>Physical Review B</i> , 2011, 84, . | 3.2 | 62 |
| 58 | Quantum continuum mechanics in a strong magnetic field. <i>Physical Review B</i> , 2011, 84, . | 3.2 | 2 |
| 59 | Dyakonov-Perel spin relaxation for degenerate electrons in the electron-hole liquid. <i>Physical Review B</i> , 2011, 83, . | 3.2 | 19 |
| 60 | Gauge theory approach for diffusive and precessional spin dynamics in a two-dimensional electron gas. <i>Annals of Physics</i> , 2010, 325, 1104-1117. | 2.8 | 57 |
| 61 | Antidiabatic limit of the exchange-correlation kernels of an inhomogeneous electron gas. <i>Physical Review B</i> , 2010, 81, . | 3.2 | 8 |
| 62 | Physical meaning of the natural orbitals: Analysis of exactly solvable models. <i>Physical Review A</i> , 2010, 81, . | 2.5 | 16 |
| 63 | Continuum mechanics for quantum many-body systems: Linear response regime. <i>Physical Review B</i> , 2010, 81, . | 3.2 | 30 |
| 64 | Sodium: A Charge-Transfer Insulator at High Pressures. <i>Physical Review Letters</i> , 2010, 104, 216404. | 7.8 | 61 |
| 65 | Orbital momentum Hall effect in p -doped graphane. <i>Physical Review B</i> , 2010, 82, . | 3.2 | 18 |
| 66 | Gauge-invariant formulation of spin-current density-functional theory. <i>Physical Review B</i> , 2010, 81, . | 3.2 | 14 |
| 67 | Strong Charge-Transfer Excitonic Effects and the Bose-Einstein Exciton Condensate in Graphane. <i>Physical Review Letters</i> , 2010, 104, 226804. | 7.8 | 180 |
| 68 | Duality of the spin and density dynamics for two-dimensional electrons with a spin-orbit coupling. <i>Physical Review B</i> , 2010, 82, . | 3.2 | 35 |
| 69 | Linear Continuum Mechanics for Quantum Many-Body Systems. <i>Physical Review Letters</i> , 2009, 103, 086401. | 7.8 | 22 |
| 70 | Time-dependent current density functional theory via time-dependent deformation functional theory: a constrained search formulation in the time domain. <i>Physical Chemistry Chemical Physics</i> , 2009, 11, 4621. | 2.8 | 14 |
| 71 | Lorentz shear modulus of fractional quantum Hall states. <i>Journal of Physics Condensed Matter</i> , 2009, 21, 275603. | 1.8 | 52 |
| 72 | Exact Kohn-Sham potential of strongly correlated finite systems. <i>Journal of Chemical Physics</i> , 2009, 131, 224105. | 3.0 | 80 |

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| 73 | Equilibrium Spin Currents: Non-Abelian Gauge Invariance and Color Diamagnetism in Condensed Matter. <i>Physical Review Letters</i> , 2008, 101, 106601. | 7.8 | 102 |
| 74 | Quantum Stress Focusing in Descriptive Chemistry. <i>Physical Review Letters</i> , 2008, 100, 206405. | 7.8 | 41 |
| 75 | Time-dependent density functional theory: Derivation of gradient-corrected dynamical exchange-correlational potentials. <i>Physical Review B</i> , 2007, 76, . | 3.2 | 19 |
| 76 | Lorentz shear modulus of a two-dimensional electron gas at high magnetic field. <i>Physical Review B</i> , 2007, 76, . | 3.2 | 56 |
| 77 | Time-dependent deformation functional theory. <i>Physical Review B</i> , 2007, 75, . | 3.2 | 45 |
| 78 | New Collective Mode in the Fractional Quantum Hall Liquid. <i>Physical Review Letters</i> , 2007, 98, 026805. | 7.8 | 20 |
| 79 | Transforming Nonlocality into a Frequency Dependence: A Shortcut to Spectroscopy. <i>Physical Review Letters</i> , 2007, 99, 057401. | 7.8 | 39 |
| 80 | Nonadiabatic electron dynamics in time-dependent density-functional theory. <i>Physical Review B</i> , 2006, 73, . | 3.2 | 57 |
| 81 | Unified hydrodynamics theory of the lowest Landau level. <i>Physical Review B</i> , 2006, 74, . | 3.2 | 9 |
| 82 | Magnetoelasticity theory of incompressible quantum Hall liquids. <i>Physical Review B</i> , 2006, 73, . | 3.2 | 22 |
| 83 | Quantum many-body dynamics in a Lagrangian frame: II. Geometric formulation of time-dependent density functional theory. <i>Physical Review B</i> , 2005, 71, . | 3.2 | 64 |
| 84 | Quantum many-body dynamics in a Lagrangian frame: I. Equations of motion and conservation laws. <i>Physical Review B</i> , 2005, 71, . | 3.2 | 78 |
| 85 | Bose representation for a strongly coupled nonequilibrium fermionic superfluid in a time-dependent trap. <i>Physical Review A</i> , 2004, 70, . | 2.5 | 2 |
| 86 | Dilute Fermi Gas in Quasi-One-Dimensional Traps: From Weakly Interacting Fermions via Hard Core Bosons to a Weakly Interacting Bose Gas. <i>Physical Review Letters</i> , 2004, 93, 090405. | 7.8 | 93 |
| 87 | Excitonic effects in time-dependent density-functional theory: An analytically solvable model. <i>Physical Review B</i> , 2004, 70, . | 3.2 | 38 |
| 88 | Local exchange-correlation vector potential with memory in time-dependent density functional theory: The generalized hydrodynamics approach. <i>Physical Review B</i> , 2003, 67, . | 3.2 | 27 |
| 89 | Many-body diagrammatic expansion for the exchange-correlation kernel in time-dependent density functional theory. <i>Physical Review B</i> , 2002, 65, . | 3.2 | 22 |
| 90 | Interface electronic states and boundary conditions for envelope functions. <i>Physical Review B</i> , 2002, 65, . | 3.2 | 36 |

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| 91 | Asymptotically exact dispersion relations for collective modes in a confined charged Fermi liquid. Physical Review B, 2002, 66, . | 3.2 | 2 |
| 92 | Many-Body Diagrammatic Expansion in a Kohn-Sham Basis: Implications for Time-Dependent Density Functional Theory of Excited States. Physical Review Letters, 2001, 86, 2078-2081. | 7.8 | 64 |
| 93 | Optical observation of the energy-momentum dispersion of spatially indirect excitons. Physical Review B, 2000, 62, 15323-15326. | 3.2 | 40 |
| 94 | Hydrodynamics beyond local equilibrium: Application to electron gas. Physical Review B, 2000, 62, 2759-2772. | 3.2 | 37 |
| 95 | Hydrodynamic theory of an electron gas. Physical Review B, 1999, 60, 15550-15553. | 3.2 | 65 |
| 96 | Interfacial electronic states in semiconductor heterostructures. JETP Letters, 1998, 67, 416-421. | 1.4 | 2 |
| 97 | Formation of -space indirect magnetoexcitons in double-quantum-well direct-gap heterostructures. Semiconductor Science and Technology, 1998, 13, 288-295. | 2.0 | 34 |
| 98 | Electric and Magnetic Field Dependent Dimensionality of Electronic States in Quantum-Scale Semiconducting and Superconducting Heterostructures. International Journal of Modern Physics B, 1998, 12, 2932-2934. | 2.0 | 4 |
| 99 | Momentum dependence of electron state dimensionality in heterostructures. Physics-Usppekhi, 1997, 40, 538-542. | 2.2 | 7 |
| 100 | Scientific session of the Division of General Physics and Astronomy of the Russian Academy of Sciences (January 29, 1997). Physics-Usppekhi, 1997, 40, 529-529. | 2.2 | 14 |
| 101 | Phase separation and dielectric correlations in HTSC. Physica C: Superconductivity and Its Applications, 1994, 223, 95-105. | 1.2 | 14 |