

Ilya Tokatly

List of Publications by Year in descending order

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101
papers

3,938
citations

109321

35
h-index

123424

61
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104
all docs

104
docs citations

104
times ranked

3067
citing authors

#	ARTICLE	IF	CITATIONS
1	Dielectric screening in two-dimensional insulators: Implications for excitonic and impurity states in graphane. <i>Physical Review B</i> , 2011, 84, .	3.2	476
2	Quantum-electrodynamical density-functional theory: Bridging quantum optics and electronic-structure theory. <i>Physical Review A</i> , 2014, 90, .	2.5	197
3	Strong Charge-Transfer Excitonic Effects and the Bose-Einstein Exciton Condensate in Graphane. <i>Physical Review Letters</i> , 2010, 104, 226804.	7.8	180
4	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
5	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
6	Time-Dependent Density Functional Theory for Many-Electron Systems Interacting with Cavity Photons. <i>Physical Review Letters</i> , 2013, 110, 233001.	7.8	119
7	Theory of the spin-galvanic effect and the anomalous phase shift $\langle \mathbf{m} \hat{T} \mathbf{m} \rangle$ in superconductors and Josephson junctions with intrinsic spin-orbit coupling. <i>Physical Review B</i> , 2015, 92, .	3.2	119
8	Equilibrium Spin Currents: Non-Abelian Gauge Invariance and Color Diamagnetism in Condensed Matter. <i>Physical Review Letters</i> , 2008, 101, 106601.	7.8	102
9	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
10	Optimized Effective Potential for Quantum Electrodynamical Time-Dependent Density Functional Theory. <i>Physical Review Letters</i> , 2015, 115, 093001.	7.8	93
11	Theory of diffusive $\langle \mathbf{m} \hat{T} \mathbf{m} \rangle$ Josephson junctions in the presence of spin-orbit coupling. <i>Europhysics Letters</i> , 2015, 110, 57005.	2.0	86
12	A Josephson phase battery. <i>Nature Nanotechnology</i> , 2020, 15, 656-660.	31.5	82
13	Exact Kohn-Sham potential of strongly correlated finite systems. <i>Journal of Chemical Physics</i> , 2009, 131, 224105.	3.0	80
14	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
15	Hydrodynamic theory of an electron gas. <i>Physical Review B</i> , 1999, 60, 15550-15553.	3.2	65
16	Many-Body Diagrammatic Expansion in a Kohn-Sham Basis: Implications for Time-Dependent Density Functional Theory of Excited States. <i>Physical Review Letters</i> , 2001, 86, 2078-2081.	7.8	64
17	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
18	Nonlinear phenomena in time-dependent density-functional theory: What Rabi oscillations can teach us. <i>Physical Review B</i> , 2011, 84, .	3.2	62

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19	Sodium: A Charge-Transfer Insulator at High Pressures. <i>Physical Review Letters</i> , 2010, 104, 216404.	7.8	61
20	Density functional theory beyond the linear regime: Validating an adiabatic local density approximation. <i>Physical Review A</i> , 2011, 83, .	2.5	61
21	Anomalous current in diffusive ferromagnetic Josephson junctions. <i>Physical Review B</i> , 2017, 95, .	3.2	58
22	Nonadiabatic electron dynamics in time-dependent density-functional theory. <i>Physical Review B</i> , 2006, 73, .	3.2	57
23	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
24	Lorentz shear modulus of a two-dimensional electron gas at high magnetic field. <i>Physical Review B</i> , 2007, 76, .	3.2	56
25	Lorentz shear modulus of fractional quantum Hall states. <i>Journal of Physics Condensed Matter</i> , 2009, 21, 275603.	1.8	52
26	Time-dependent deformation functional theory. <i>Physical Review B</i> , 2007, 75, .	3.2	45
27	Time-dependent current density functional theory on a lattice. <i>Physical Review B</i> , 2011, 83, .	3.2	42
28	Quantum Stress Focusing in Descriptive Chemistry. <i>Physical Review Letters</i> , 2008, 100, 206405.	7.8	41
29	Optical observation of the energy-momentum dispersion of spatially indirect excitons. <i>Physical Review B</i> , 2000, 62, 15323-15326.	3.2	40
30	Transforming Nonlocality into a Frequency Dependence: A Shortcut to Spectroscopy. <i>Physical Review Letters</i> , 2007, 99, 057401.	7.8	39
31	Excitonic effects in time-dependent density-functional theory: An analytically solvable model. <i>Physical Review B</i> , 2004, 70, .	3.2	38
32	Hydrodynamics beyond local equilibrium: Application to electron gas. <i>Physical Review B</i> , 2000, 62, 2759-2772.	3.2	37
33	Interface electronic states and boundary conditions for envelope functions. <i>Physical Review B</i> , 2002, 65, .	3.2	36
34	Time-dependent density functional theory on a lattice. <i>Physical Review B</i> , 2012, 86, .	3.2	36
35	Ballistic spin transport in the presence of interfaces with strong spin-orbit coupling. <i>Physical Review B</i> , 2017, 96, .	3.2	36
36	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

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37	Formation of k -space indirect magnetoexcitons in double-quantum-well direct-gap heterostructures. Semiconductor Science and Technology, 1998, 13, 288-295.	2.0	34
38	Time-dependent density-functional and reduced density-matrix methods for few electrons: Exact versus adiabatic approximations. Chemical Physics, 2011, 391, 1-10.	1.9	32
39	Continuum mechanics for quantum many-body systems: Linear response regime. Physical Review B, 2010, 81, .	3.2	30
40	Theory of current-induced spin polarization in an electron gas. Physical Review B, 2017, 95, .	3.2	30
41	Time-dependent exchange-correlation functional for a Hubbard dimer: Quantifying nonadiabatic effects. Physical Review A, 2013, 88, .	2.5	28
42	Manifestation of extrinsic spin Hall effect in superconducting structures: Nondissipative magnetoelectric effects. Physical Review B, 2016, 94, .	3.2	28
43	Local exchange-correlation vector potential with memory in time-dependent density functional theory: The generalized hydrodynamics approach. Physical Review B, 2003, 67, .	3.2	27
44	Lattice density functional theory at finite temperature with strongly density-dependent exchange-correlation potentials. Physical Review B, 2012, 86, .	3.2	26
45	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
46	Current-induced spin polarization at the surface of metallic films: A theorem and an ab initio calculation. Physical Review B, 2015, 91, .	3.2	24
47	Spin dynamics of cold fermions with synthetic spin-orbit coupling. Physical Review A, 2013, 87, .	2.5	23
48	Shedding light on correlated electron-photon states using the exact factorization. European Physical Journal B, 2018, 91, 1.	1.5	23
49	Many-body diagrammatic expansion for the exchange-correlation kernel in time-dependent density functional theory. Physical Review B, 2002, 65, .	3.2	22
50	Magnetoelasticity theory of incompressible quantum Hall liquids. Physical Review B, 2006, 73, .	3.2	22
51	Linear Continuum Mechanics for Quantum Many-Body Systems. Physical Review Letters, 2009, 103, 086401.	7.8	22
52	Identification of structural motifs as tunneling two-level systems in amorphous alumina at low temperatures. Physical Review B, 2014, 90, .	3.2	21
53	Conserving approximations in cavity quantum electrodynamics: Implications for density functional theory of electron-photon systems. Physical Review B, 2018, 98, .	3.2	21
54	New Collective Mode in the Fractional Quantum Hall Liquid. Physical Review Letters, 2007, 98, 026805.	7.8	20

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55	Time-dependent density functional theory: Derivation of gradient-corrected dynamical exchange-correlational potentials. <i>Physical Review B</i> , 2007, 76, .	3.2	19
56	Dyakonov-Perel spin relaxation for degenerate electrons in the electron-hole liquid. <i>Physical Review B</i> , 2011, 83, .	3.2	19
57	Orbital momentum Hall effect in p -doped graphane. <i>Physical Review B</i> , 2010, 82, .	3.2	18
58	Ballistic Josephson junctions in the presence of generic spin dependent fields. <i>Physical Review B</i> , 2016, 94, .	3.2	17
59	Physical meaning of the natural orbitals: Analysis of exactly solvable models. <i>Physical Review A</i> , 2010, 81, .	2.5	16
60	Phase separation and dielectric correlations in HTSC. <i>Physica C: Superconductivity and Its Applications</i> , 1994, 223, 95-105.	1.2	14
61	Scientific session of the Division of General Physics and Astronomy of the Russian Academy of Sciences (January 29, 1997). <i>Physics-Uspokhi</i> , 1997, 40, 529-529.	2.2	14
62	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
63	Gauge-invariant formulation of spin-current density-functional theory. <i>Physical Review B</i> , 2010, 81, .	3.2	14
64	Semiclassical Quantization of Spinning Quasiparticles in Ballistic Josephson Junctions. <i>Physical Review Letters</i> , 2016, 116, 237002.	7.8	13
65	Extrinsic spin-charge coupling in diffusive superconducting systems. <i>Physical Review B</i> , 2018, 98, .	3.2	13
66	Spectral properties and quantum phase transitions in superconducting junctions with a ferromagnetic link. <i>Physical Review B</i> , 2019, 99, .	3.2	13
67	Boundary conditions for spin and charge diffusion in the presence of interfacial spin-orbit coupling. <i>Physical Review B</i> , 2019, 99, .	3.2	13
68	Bonding in molecular crystals from the local electronic pressure viewpoint. <i>Molecular Physics</i> , 2016, 114, 1260-1269.	1.7	12
69	Quantification of interfacial spin-charge conversion in hybrid devices with a metal/insulator interface. <i>Applied Physics Letters</i> , 2020, 117, .	3.3	12
70	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
71	Quantum optimal control theory in the linear response formalism. <i>Physical Review A</i> , 2011, 84, .	2.5	10
72	Unified hydrodynamics theory of the lowest Landau level. <i>Physical Review B</i> , 2006, 74, .	3.2	9

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73	Quantum electrodynamical time-dependent density-functional theory for many-electron systems on a lattice. Physical Review B, 2014, 90, .	3.2	9
74	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
75	Antiadiabatic limit of the exchange-correlation kernels of an inhomogeneous electron gas. Physical Review B, 2010, 81, .	3.2	8
76	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
77	Theory of the magnetic response in finite two-dimensional superconductors. Physical Review B, 2020, 102, .	3.2	8
78	Momentum dependence of electron state dimensionality in heterostructures. Physics-Uspekhi, 1997, 40, 538-542.	2.2	7
79	Theory of the nonlinear Rashba-Edelstein effect: The clean electron gas limit. Physical Review B, 2016, 93, .	3.2	7
80	Vacuum anomalous Hall effect in gyrotropic cavity. Physical Review B, 2021, 104, .	3.2	7
81	Spin evolution of cold atomic gases in $SU(2)$ fields. Physical Review A, 2016, 93, .		
82	Nonlocal magnetoelectric effects in diffusive conductors with spatially inhomogeneous spin-orbit coupling. Physical Review B, 2019, 100, .	3.2	6
83	Magnetoelectric effects in superconductors due to spin-orbit scattering: Nonlinear \tilde{J}_f -model description. Physical Review B, 2021, 104, .	3.2	6
84	Orbital magneto-optical response of periodic insulators from first principles. Npj Computational Materials, 2019, 5, .	8.7	5
85	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
86	Quantum continuum mechanics made simple. Journal of Chemical Physics, 2012, 136, 204115.	3.0	4
87	Universal correspondence between edge spin accumulation and equilibrium spin currents in nanowires with spin-orbit coupling. Physical Review B, 2019, 100, .	3.2	3
88	Gap inversion in quasi-one-dimensional Andreev crystals. Physical Review B, 2021, 103, .	3.2	3
89	Spin-orbit induced equilibrium spin currents in materials. Physical Review B, 2022, 105, .	3.2	3
90	Nonlinear \tilde{J}_f model for disordered systems with intrinsic spin-orbit coupling. Physical Review B, 2022, 105, .	3.2	3

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91	Interfacial electronic states in semiconductor heterostructures. JETP Letters, 1998, 67, 416-421.	1.4	2
92	Asymptotically exact dispersion relations for collective modes in a confined charged Fermi liquid. Physical Review B, 2002, 66, .	3.2	2
93	Bose representation for a strongly coupled nonequilibrium fermionic superfluid in a time-dependent trap. Physical Review A, 2004, 70, .	2.5	2
94	Quantum continuum mechanics in a strong magnetic field. Physical Review B, 2011, 84, .	3.2	2
95	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
96	Enhancement of Spin-Charge Conversion in Dilute Magnetic Alloys by Kondo Screening. Physical Review Letters, 2021, 127, 176801.	7.8	2
97	Unified description of spin transport, weak antilocalization, and triplet superconductivity in systems with spin-orbit coupling. Physical Review B, 2020, 102, .	3.2	2
98	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
99	Spectral properties of Andreev crystals. Physical Review B, 2021, 104, .	3.2	1
100	NONEQUILIBRIUM SPIN DYNAMICS: FROM PROTONS IN WATER TO A GAUGE THEORY OF SPIN-ORBIT COUPLING. , 2015, , .		0
101	Spin dephasing in pseudomagnetic fields: Susceptibility and geometry. Low Temperature Physics, 2016, 42, 395-400.	0.6	0