

Dimitrie Culcer

List of Publications by Year in descending order

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Version: 2024-02-01

78
papers

4,503
citations

126907

33
h-index

98798

67
g-index

79
all docs

79
docs citations

79
times ranked

3782
citing authors

#	ARTICLE	IF	CITATIONS
1	Universal Intrinsic Spin Hall Effect. <i>Physical Review Letters</i> , 2004, 92, 126603.	7.8	1,858
2	Two-dimensional surface charge transport in topological insulators. <i>Physical Review B</i> , 2010, 82, .	3.2	162
3	Transport in three-dimensional topological insulators: Theory and experiment. <i>Physica E: Low-Dimensional Systems and Nanostructures</i> , 2012, 44, 860-884.	2.7	127
4	Antisymmetric magnetoresistance in van der Waals Fe ₃ GeTe ₂ /graphite/Fe ₃ GeTe ₂ trilayer heterostructures. <i>Science Advances</i> , 2019, 5, eaaw0409.	10.3	119
5	Dephasing of Si spin qubits due to charge noise. <i>Applied Physics Letters</i> , 2009, 95, .	3.3	96
6	Transport in two-dimensional topological materials: recent developments in experiment and theory. <i>2D Materials</i> , 2020, 7, 022007.	4.4	92
7	Valley-Based Noise-Resistant Quantum Computation Using Si Quantum Dots. <i>Physical Review Letters</i> , 2012, 108, 126804.	7.8	81
8	Interface roughness, valley-orbit coupling, and valley manipulation in quantum dots. <i>Physical Review B</i> , 2010, 82, .	3.2	79
9	Exchange coupling in silicon quantum dots: Theoretical considerations for quantum computation. <i>Physical Review B</i> , 2010, 81, .	3.2	77
10	Quantum dot spin qubits in silicon: Multivalley physics. <i>Physical Review B</i> , 2010, 82, .	3.2	69
11	Integrated silicon qubit platform with single-spin addressability, exchange control and single-shot singlet-triplet readout. <i>Nature Communications</i> , 2018, 9, 4370.	12.8	66
12	Spin orientation of holes in quantum wells. <i>Semiconductor Science and Technology</i> , 2008, 23, 114017.	2.0	63
13	Spin-orbit interactions in inversion-asymmetric two-dimensional hole systems: A variational analysis. <i>Physical Review B</i> , 2017, 95, .	3.2	60
14	Ultrafast coherent control of a hole spin qubit in a germanium quantum dot. <i>Nature Communications</i> , 2022, 13, 206.	12.8	58
15	Interband coherence response to electric fields in crystals: Berry-phase contributions and disorder effects. <i>Physical Review B</i> , 2017, 96, .	3.2	57
16	Realizing singlet-triplet qubits in multivalley Si quantum dots. <i>Physical Review B</i> , 2009, 80, .	3.2	55
17	Generation of Spin Currents and Spin Densities in Systems with Reduced Symmetry. <i>Physical Review Letters</i> , 2007, 99, 226601.	7.8	53
18	Theory of hole-spin qubits in strained germanium quantum dots. <i>Physical Review B</i> , 2021, 103, .	3.2	50

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19	Anisotropic Pauli Spin Blockade of Holes in a GaAs Double Quantum Dot. Nano Letters, 2016, 16, 7685-7689.	9.1	47
20	Quantum kinetic theory of the chiral anomaly. Physical Review B, 2017, 96, .	3.2	46
21	Roadmap on quantum nanotechnologies. Nanotechnology, 2021, 32, 162003.	2.6	45
22	Optimal operation points for ultrafast, highly coherent Ge hole spin-orbit qubits. Npj Quantum Information, 2021, 7, .	6.7	45
23	Gate-Controlled Magnetic Phase Transition in a van der Waals Magnet Fe_5GeTe_2 . Nano Letters, 2021, 21, 5599-5605.	9.1	45
24	Charge-Insensitive Single-Atom Spin-Orbit Qubit in Silicon. Physical Review Letters, 2016, 116, 246801.	7.8	44
25	Charge noise, spin-orbit coupling, and dephasing of single-spin qubits. Applied Physics Letters, 2014, 105, .	3.3	43
26	Anomalous Hall response of topological insulators. Physical Review B, 2011, 83, .	3.2	42
27	Controlling Spin-Orbit Interactions in Silicon Quantum Dots Using Magnetic Field Direction. Physical Review X, 2019, 9, .	8.9	42
28	Engineering long spin coherence times of spin-orbit qubits in silicon. Nature Materials, 2021, 20, 38-42.	27.5	40
29	Overcoming Boltzmann's Tyranny in a Transistor via the Topological Quantum Field Effect. Nano Letters, 2021, 21, 3155-3161.	9.1	36
30	Side jumps in the spin Hall effect: Construction of the Boltzmann collision integral. Physical Review B, 2010, 81, .	3.2	35
31	Generating a Topological Anomalous Hall Effect in a Nonmagnetic Conductor: An In-Plane Magnetic Field as a Direct Probe of the Berry Curvature. Physical Review Letters, 2021, 126, 256601.	7.8	35
32	Electrically driven spin qubit based on valley mixing. Physical Review B, 2017, 95, .	3.2	34
33	Resonant Photovoltaic Effect in Doped Magnetic Semiconductors. Physical Review Letters, 2020, 124, 087402.	7.8	34
34	Spin Precession and Alternating Spin Polarization in Spin-3/2 Hole Systems. Physical Review Letters, 2006, 97, 106601.	7.8	33
35	Linear response theory of interacting topological insulators. Physical Review B, 2011, 84, .	3.2	32
36	Quantum computing with acceptor spins in silicon. Nanotechnology, 2016, 27, 244001.	2.6	31

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37	Control of valley dynamics in silicon quantum dots in the presence of an interface step. Physical Review B, 2016, 94, .	3.2	31
38	Spin blockade in hole quantum dots: Tuning exchange electrically and probing Zeeman interactions. Physical Review B, 2017, 95, .	3.2	29
39	Geometric Control of Universal Hydrodynamic Flow in a Two-Dimensional Electron Fluid. Physical Review X, 2021, 11, .	8.9	29
40	Conductivity corrections for topological insulators with spin-orbit impurities: Hikami-Larkin-Nagaoka formula revisited. Physical Review B, 2015, 92, .	3.2	27
41	Electrical Control of the Zeeman Spin Splitting in Two-Dimensional Hole Systems. Physical Review Letters, 2018, 121, 077701.	7.8	27
42	Strong Spin-Orbit Contribution to the Hall Coefficient of Two-Dimensional Hole Systems. Physical Review Letters, 2018, 121, 087701.	7.8	27
43	Dephasing of Si singlet-triplet qubits due to charge and spin defects. Applied Physics Letters, 2013, 102, .	3.3	26
44	Anomalous spin precession and spin Hall effect in semiconductor quantum wells. Physical Review B, 2013, 88, .	3.2	25
45	Weak Localization and Antilocalization in Topological Materials with Impurity Spin-Orbit Interactions. Materials, 2017, 10, 807.	2.9	24
46	Do micromagnets expose spin qubits to charge and Johnson noise?. Applied Physics Letters, 2015, 107, .	3.3	22
47	Unconventional Temperature Dependence of the Anomalous Hall Effect in HgCr_2Te_2 . Physical Review Letters, 2019, 123, 096601.	7.8	18
48	Progress in Epitaxial Thin-Film Na_3Bi as a Topological Electronic Material. Advanced Materials, 2021, 33, e2005897.	21.0	18
49	Screening, Friedel oscillations, and low-temperature conductivity in topological insulator thin films. Physical Review B, 2014, 89, .	3.2	16
50	Crossover of Magnetoresistance from Fourfold to Twofold Symmetry in SmB_6 Single Crystal, a Topological Kondo Insulator. Journal of the Physical Society of Japan, 2015, 84, 044717.	1.6	16
51	Quantum transport in Weyl semimetal thin films in the presence of spin-orbit coupled impurities. Physical Review B, 2017, 96, .	3.2	16
52	Sign Change in the Anomalous Hall Effect and Strong Transport Effects in a 2D Massive Dirac Metal Due to Spin-Charge Correlated Disorder. Physical Review Letters, 2019, 123, 126603.	7.8	15
53	Suppression of the Kondo resistivity minimum in topological insulators. Physical Review B, 2013, 88, .	3.2	14
54	Valley Phase and Voltage Control of Coherent Manipulation in Si Quantum Dots. Nano Letters, 2017, 17, 4461-4465.	9.1	14

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55	Impact of valley phase and splitting on readout of silicon spin qubits. Physical Review B, 2018, 97, .	3.2	14
56	Coulomb interaction and valley-orbit coupling in Si quantum dots. Physical Review B, 2013, 88, .	3.2	13
57	Helical Edge Transport in Millimeter-Scale Thin Films of Na_3Bi . Nano Letters, 2020, 20, 6306-6312.	9.1	13
58	NV-center-based digital quantum simulation of a quantum phase transition in topological insulators. Physical Review B, 2014, 89, .	3.2	12
59	Pseudospin-electric coupling for holes beyond the envelope-function approximation. Physical Review B, 2020, 102, .	3.2	12
60	Semiclassical response of disordered conductors: Extrinsic carrier velocity and spin and field-corrected collision integral. Physical Review Research, 2022, 4, .	3.6	12
61	Entanglement control and magic angles for acceptor qubits in Si. Applied Physics Letters, 2018, 113, .	3.3	11
62	Nonlinear Ballistic Response of Quantum Spin Hall Edge States. Physical Review Letters, 2021, 127, 206801.	7.8	11
63	Quantum phase transitions and topological proximity effects in graphene nanoribbon heterostructures. Nanoscale, 2014, 6, 3259.	5.6	9
64	Coulomb drag in topological insulator films. Physica E: Low-Dimensional Systems and Nanostructures, 2016, 79, 72-79.	2.7	9
65	Generalized Stoner criterion and versatile spin ordering in two-dimensional spin-orbit coupled electron systems. Physical Review B, 2017, 96, .	3.2	9
66	Signatures of quantum mechanical Zeeman effect in classical transport due to topological properties of two-dimensional spin-3/2 holes. Physical Review B, 2020, 101, .	3.2	9
67	Anomalous Hall Coulomb drag of massive Dirac fermions. Physical Review B, 2017, 95, .	3.2	8
68	Quasiparticle band-gap renormalization in doped monolayer MoS_2 . Physical Review B, 2021, 104, .		
69	Unidirectional valley-contrasting photocurrent in strained transition metal dichalcogenide monolayers. Physical Review B, 2022, 105, .	3.2	5
70	STEADY-STATE SPIN DENSITIES AND CURRENTS. International Journal of Modern Physics B, 2008, 22, 4765-4791.	2.0	4
71	Phase diagram of the interacting persistent spin-helix state. Physical Review B, 2020, 102, .	3.2	4
72	Electron-electron interactions in nonequilibrium bilayer graphene. Physical Review B, 2013, 87, .	3.2	3

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73	Hidden anisotropy in the Drude conductivity of charge carriers with Dirac-Schrödinger dynamics. Physical Review B, 2019, 100, .	3.2	3
74	Nonlinear antidamping spin-orbit torque originating from intraband transport on the warped surface of a topological insulator. Physical Review B, 2022, 105, .	3.2	3
75	Coulomb drag in topological materials. Journal of Physics and Chemistry of Solids, 2019, 128, 54-64.	4.0	2
76	Nonlinear spin filter for nonmagnetic materials at zero magnetic field. Physical Review B, 2020, 102, .	3.2	2
77	Anomalous plasmon mode in strained Weyl semimetals. Physical Review B, 2021, 103, .	3.2	2
78	Unidirectional magnetotransport of linearly dispersing topological edge states. Physical Review B, 2021, 104, .	3.2	1