

Mark Friesen

List of Publications by Year in descending order

Source: <https://exaly.com/author-pdf/8559280/publications.pdf>

Version: 2024-02-01

127
papers

6,129
citations

71102

41
h-index

71685

76
g-index

129
all docs

129
docs citations

129
times ranked

3365
citing authors

#	ARTICLE	IF	CITATIONS
1	A programmable two-qubit quantum processor in silicon. Nature, 2018, 555, 633-637.	27.8	534
2	Electrical control of a long-lived spin qubit in a Si/SiGe quantum dot. Nature Nanotechnology, 2014, 9, 666-670.	31.5	394
3	Quantum control and process tomography of a semiconductor quantum dot hybrid qubit. Nature, 2014, 511, 70-74.	27.8	242
4	Elastically relaxed free-standing strained-silicon nanomembranes. Nature Materials, 2006, 5, 388-393.	27.5	230
5	Practical design and simulation of silicon-based quantum-dot qubits. Physical Review B, 2003, 67, .	3.2	223
6	Controllable valley splitting in silicon quantum devices. Nature Physics, 2007, 3, 41-45.	16.7	218
7	Fast Hybrid Silicon Double-Quantum-Dot Qubit. Physical Review Letters, 2012, 108, 140503.	7.8	187
8	Spectroscopy of few-electron single-crystal silicon quantum dots. Nature Nanotechnology, 2010, 5, 502-505.	31.5	165
9	Two-axis control of a singlet-triplet qubit with an integrated micromagnet. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 11938-11942.	7.1	147
10	Valley splitting in strained silicon quantum wells. Applied Physics Letters, 2004, 84, 115-117.	3.3	142
11	Valley splitting theory of SiGe/Si quantum wells. Physical Review B, 2007, 75, .	3.2	142
12	Tunable Spin Loading and T_1 of a Silicon Spin Qubit Measured by Single-Shot Readout. Physical Review Letters, 2011, 106, 156804.	7.8	133
13	Gate fidelity and coherence of an electron spin in an Si/SiGe quantum dot with micromagnet. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 11738-11743.	7.1	119
14	Valley splitting in low-density quantum-confined heterostructures studied using tight-binding models. Physical Review B, 2004, 70, .	3.2	108
15	Two-particle quantum walks applied to the graph isomorphism problem. Physical Review A, 2010, 81, .	2.5	108
16	Microwave-driven coherent operation of a semiconductor quantum dot charge qubit. Nature Nanotechnology, 2015, 10, 243-247.	31.5	107
17	Theory of valley-orbit coupling in a Si/SiGe quantum dot. Physical Review B, 2010, 81, .	3.2	98
18	Decoherence of electron spin qubits in Si-based quantum computers. Physical Review B, 2002, 66, .	3.2	96

#	ARTICLE	IF	CITATIONS
19	Charge Sensing and Controllable Tunnel Coupling in a Si/SiGe Double Quantum Dot. Nano Letters, 2009, 9, 3234-3238.	9.1	86
20	Spin-Based Quantum Dot Quantum Computing in Silicon. Quantum Information Processing, 2004, 3, 133-146.	2.2	83
21	Coherent quantum oscillations and echo measurements of a Si charge qubit. Physical Review B, 2013, 88, .	3.2	83
22	Fast coherent manipulation of three-electron states in a double quantum dot. Nature Communications, 2014, 5, 3020.	12.8	82
23	High-fidelity resonant gating of a silicon-based quantum dot hybrid qubit. Npj Quantum Information, 2015, 1, .	6.7	80
24	Single-Shot Measurement of Triplet-Singlet Relaxation in a Si/SiGe Double Quantum Dot. Physical Review Letters, 2012, 108, 046808.	7.8	78
25	Magnetic field dependence of valley splitting in realistic $\text{Si}^{\wedge}\text{SiGe}$ quantum wells. Applied Physics Letters, 2006, 89, 202106.	3.3	75
26	Pulse-Gated Quantum-Dot Hybrid Qubit. Physical Review Letters, 2012, 109, 250503.	7.8	75
27	Efficient Multiqubit Entanglement via a Spin Bus. Physical Review Letters, 2007, 98, 230503.	7.8	72
28	Extending the coherence of a quantum dot hybrid qubit. Npj Quantum Information, 2017, 3, .	6.7	68
29	Nonlinear current flow in superconductors with restricted geometries. Physical Review B, 2001, 63, .	3.2	61
30	Theory of the Stark Effect for P Donors in Si. Physical Review Letters, 2005, 94, 186403.	7.8	60
31	Tunable singlet-triplet splitting in a few-electron Si/SiGe quantum dot. Applied Physics Letters, 2011, 99, .	3.3	56
32	Coulomb blockade in a silicon/silicon-germanium two-dimensional electron gas quantum dot. Applied Physics Letters, 2004, 84, 4047-4049.	3.3	55
33	Nonlinear transport current flow in superconductors with planar obstacles. Physical Review B, 2000, 62, 4004-4025.	3.2	54
34	Theory of hole-spin qubits in strained germanium quantum dots. Physical Review B, 2021, 103, .	3.2	50
35	Valley dependent anisotropic spin splitting in silicon quantum dots. Npj Quantum Information, 2018, 4, .	6.7	49
36	Spin Readout and Initialization in a Semiconductor Quantum Dot. Physical Review Letters, 2004, 92, 037901.	7.8	48

#	ARTICLE	IF	CITATIONS
37	Dynamic scaling for two-dimensional superconductors, Josephson-junction arrays, and superfluids. <i>Physical Review B</i> , 1999, 60, 1309-1325.	3.2	46
38	A decoherence-free subspace in a charge quadrupole qubit. <i>Nature Communications</i> , 2017, 8, 15923.	12.8	45
39	3DXY and Lowest Landau Level Fluctuations in Deoxygenated $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ Thin Films. <i>Physical Review Letters</i> , 1997, 78, 3173-3176.	7.8	44
40	Disorder-induced valley-orbit hybrid states in Si quantum dots. <i>Physical Review B</i> , 2013, 88, .	3.2	44
41	Heisenberg spin bus as a robust transmission line for quantum-state transfer. <i>Physical Review A</i> , 2011, 84, .	2.5	42
42	Resonant adiabatic passage with three qubits. <i>Physical Review A</i> , 2013, 87, .	2.5	40
43	Virtual-photon-mediated spin-qubit transmon coupling. <i>Nature Communications</i> , 2019, 10, 5037.	12.8	39
44	Achieving high-fidelity single-qubit gates in a strongly driven charge qubit with $1/f$ charge noise. <i>Npj Quantum Information</i> , 2019, 5, .	6.7	39
45	High-fidelity gates in quantum dot spin qubits. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2013, 110, 19695-19700.	7.1	37
46	State-conditional coherent charge qubit oscillations in a Si/SiGe quadruple quantum dot. <i>Npj Quantum Information</i> , 2016, 2, .	6.7	37
47	Two-electron dephasing in single Si and GaAs quantum dots. <i>Physical Review B</i> , 2012, 86, .	3.2	36
48	Fast tunnel rates in Si/SiGe one-electron single and double quantum dots. <i>Applied Physics Letters</i> , 2010, 96, .	3.3	35
49	Vortex unbinding and layer decoupling in a quasi-two-dimensional superconductor. <i>Physical Review B</i> , 1995, 51, 632-635.	3.2	31
50	One-Spin Quantum Logic Gates from Exchange Interactions and a Global Magnetic Field. <i>Physical Review Letters</i> , 2004, 93, 030501.	7.8	31
51	Noninteracting multiparticle quantum random walks applied to the graph isomorphism problem for strongly regular graphs. <i>Physical Review A</i> , 2012, 86, .	2.5	31
52	Detection and measurement of the Dzyaloshinskii-Moriya interaction in double quantum dot systems. <i>Physical Review B</i> , 2006, 73, .	3.2	30
53	Second-Harmonic Coherent Driving of a Spin Qubit in a Si/SiGe Quantum Dot. <i>Physical Review Letters</i> , 2015, 115, 106802.	7.8	30
54	Quantum dots in Si/SiGe 2DEGs with Schottky top-gated leads. <i>New Journal of Physics</i> , 2005, 7, 246-246.	2.9	28

#	ARTICLE	IF	CITATIONS
55	Characterizing gate operations near the sweet spot of an exchange-only qubit. Physical Review B, 2015, 91, .	3.2	27
56	The critical role of substrate disorder in valley splitting in Si quantum wells. Applied Physics Letters, 2018, 112, .	3.3	27
57	Strong electron-electron interactions in Si/SiGe quantum dots. Physical Review B, 2021, 104, .	3.2	27
58	Even-odd effects of Heisenberg chains on long-range interaction and entanglement. Physical Review B, 2010, 82, .	3.2	25
59	Effective mass theory of monolayer $\hat{\Gamma}$ doping in the high-density limit. Physical Review B, 2012, 85, .	3.2	24
60	Pauli spin blockade and lifetime-enhanced transport in a Si/SiGe double quantum dot. Physical Review B, 2010, 82, .	3.2	23
61	Dressed photon-orbital states in a quantum dot: Intervalley spin resonance. Physical Review B, 2017, 95, .	3.2	23
62	Strong photon coupling to the quadrupole moment of an electron in a solid-state qubit. Nature Physics, 2020, 16, 642-646.	16.7	23
63	Coherent Control and Spectroscopy of a Semiconductor Quantum Dot Wigner Molecule. Physical Review Letters, 2021, 127, 127701.	7.8	23
64	Achieving high-fidelity single-qubit gates in a strongly driven silicon-quantum-dot hybrid qubit. Physical Review A, 2017, 95, .	2.5	22
65	Decoherence of an exchange qubit by hyperfine interaction. Physical Review B, 2014, 90, .	3.2	21
66	Dynamic scaling for 2D superconductors in zero magnetic field. Physica C: Superconductivity and Its Applications, 1999, 313, 225-231.	1.2	20
67	Extended interface states enhance valley splitting in Si^{SiO} . Physical Review B, 2010, 82, .	3.2	20
68	Adiabatic two-qubit gates in capacitively coupled quantum dot hybrid qubits. Npj Quantum Information, 2019, 5, .	6.7	20
69	Spatial noise correlations in a Si/SiGe two-qubit device from Bell state coherences. Physical Review B, 2020, 101, .	3.2	20
70	Valley splittings in Si/SiGe quantum dots with a germanium spike in the silicon well. Physical Review B, 2021, 104, .	3.2	20
71	Single-shot measurement and tunnel-rate spectroscopy of a Si/SiGe few-electron quantum dot. Physical Review B, 2011, 84, .	3.2	19
72	Measurements of Capacitive Coupling Within a Quadruple-Quantum-Dot Array. Physical Review Applied, 2019, 12, .	3.8	19

#	ARTICLE	IF	CITATIONS
73	Pulse sequences for suppressing leakage in single-qubit gate operations. Physical Review B, 2017, 95, .	3.2	18
74	Enhancing the dipolar coupling of a S-TO qubit with a transverse sweet spot. Nature Communications, 2019, 10, 5641.	12.8	18
75	Repetitive Quantum Nondemolition Measurement and Soft Decoding of a Silicon Spin Qubit. Physical Review X, 2020, 10, .	8.9	18
76	Signatures of atomic-scale structure in the energy dispersion and coherence of a Si quantum-dot qubit. Physical Review B, 2018, 98, .	3.2	17
77	High-fidelity single-qubit gates in a strongly driven quantum-dot hybrid qubit with α -noise. Physical Review A, 2019, 100, .		
78	Comparing Algorithms for Graph Isomorphism Using Discrete- and Continuous-Time Quantum Random Walks. Journal of Computational and Theoretical Nanoscience, 2013, 10, 1653-1661.	0.4	16
79	High-fidelity singlet-triplet S in inhomogeneous magnetic fields. Physical Review B, 2015, 92, .		
80	Progress toward a capacitively mediated CNOT between two charge qubits in Si/SiGe. Npj Quantum Information, 2020, 6, .	6.7	15
81	How Valley-Orbit States in Silicon Quantum Dots Probe Quantum Well Interfaces. Physical Review Letters, 2022, 128, 146802.	7.8	15
82	Pseudo-digital quantum bits. Applied Physics Letters, 2002, 81, 4619-4621.	3.3	14
83	Identifying single electron charge sensor events using wavelet edge detection. Nanotechnology, 2015, 26, 215201.	2.6	14
84	Robust critical behavior in YBa ₂ Cu ₃ O ₇ thin films. Physical Review B, 1996, 54, 3525-3529.	3.2	13
85	Quantum dots and etch-induced depletion of a silicon two-dimensional electron gas. Journal of Applied Physics, 2006, 99, 023509.	2.5	13
86	Transport through an impurity tunnel coupled to a Si/SiGe quantum dot. Applied Physics Letters, 2015, 107, .	3.3	13
87	Experimental observation of high-field diamagnetic fluctuations in niobium. Physical Review B, 2002, 66, .	3.2	12
88	Mediated gates between spin qubits. Physical Review A, 2012, 86, .	2.5	12
89	Universality of glass scaling in a YBa ₂ Cu ₃ O ₇ thin film. Physical Review B, 1997, 56, 14784-14789.	3.2	11
90	Controllable Anisotropic Exchange Coupling between Spin Qubits in Quantum Dots. Physical Review Letters, 2011, 106, 180503.	7.8	11

#	ARTICLE	IF	CITATIONS
91	Multiscale theory of valley splitting in the conduction band of a quantum well. <i>Physical Review B</i> , 2008, 77, .	3.2	10
92	Effect of randomness on quantum data buses of Heisenberg spin chains. <i>Physical Review B</i> , 2012, 85, .	3.2	10
93	Effects of charge noise on a pulse-gated singlet-triplet S qubit. <i>Physical Review B</i> , 2017, 96, .	3.2	10
94	Effect of Quantum Hall Edge Strips on Valley Splitting in Silicon Quantum Wells. <i>Physical Review Letters</i> , 2020, 125, 186801.	7.8	10
95	High-fidelity entangling gates for quantum-dot hybrid qubits based on exchange interactions. <i>Physical Review A</i> , 2020, 101, .	2.5	10
96	3D XY scaling theory of the superconducting phase transition. <i>Physica C: Superconductivity and Its Applications</i> , 1998, 302, 67-77.	1.2	9
97	Valley splitting in a Si/SiGe quantum point contact. <i>New Journal of Physics</i> , 2010, 12, 033039.	2.9	9
98	Charge qubit in a triple quantum dot with tunable coherence. <i>Physical Review Research</i> , 2021, 3, .	3.6	9
99	Microscopic theory of vortex pinning: Impurity terms in the Ginzburg-Landau free energy. <i>Physical Review B</i> , 1996, 53, R11953-R11956.	3.2	8
100	Superconducting impurity terms in the Ginzburg-Landau equations and supercurrent: A microscopic theory. <i>Physical Review B</i> , 1997, 55, 509-514.	3.2	8
101	Characterization of a gate-defined double quantum dot in a Si/SiGe nanomembrane. <i>Nanotechnology</i> , 2016, 27, 154002.	2.6	8
102	Microwave engineering for semiconductor quantum dots in a cQED architecture. <i>Applied Physics Letters</i> , 2020, 117, .	3.3	8
103	Comparison of magnetic- and chemical-boundary roughness in magnetic films and multilayers. <i>Journal of Applied Physics</i> , 2002, 91, 9978.	2.5	7
104	Critical and noncritical behavior of the Kosterlitz-Thouless-Berezinskii transition. <i>Physical Review B</i> , 1996, 53, R514-R517.	3.2	6
105	Compressed Optimization of Device Architectures for Semiconductor Quantum Devices. <i>Physical Review Applied</i> , 2019, 11, .	3.8	6
106	Unconventional Transport in the "Hole" Regime of a Si Double Quantum Dot. <i>Physical Review Letters</i> , 2011, 106, 186801.	7.8	5
107	Measurement-free implementations of small-scale surface codes for quantum-dot qubits. <i>Physical Review A</i> , 2018, 97, .	2.5	5
108	Phonon-induced decoherence of a charge quadrupole qubit. <i>New Journal of Physics</i> , 2018, 20, 103048.	2.9	5

#	ARTICLE	IF	CITATIONS
109	Majorana bound states in nanowire-superconductor hybrid systems in periodic magnetic fields. Physical Review B, 2020, 101, .	3.2	5
110	Unpaired vortices and layer decoupling in quasi-two-dimensional superconductors: A model calculation. Physical Review B, 1995, 51, 12786-12796.	3.2	4
111	Dynamic scaling of V data for the neutral 2D Coulomb gas. Physica B: Condensed Matter, 2000, 284-288, 610-611.	2.7	4
112	Long-range two-hybrid-qubit gates mediated by a microwave cavity with red sidebands. Physical Review A, 2021, 104, .	2.5	4
113	Charge-Noise Resilience of Two-Electron Quantum Dots in $\langle \text{math display="inline"} \langle \text{mrow} \langle \text{mi} \text{Si} \langle \text{mi} \rangle \langle \text{mo} \rangle \langle \text{mi} \text{SiGe} \langle \text{mi} \rangle \langle \text{mrow} \rangle \langle \text{math} \rangle$ Heterostructures. Physical Review Letters, 2022, 128, .	7.8	4
114	Order parameter and magnetic field of a vortex line pinned at a point defect: Ginzburg-Landau theory. Physical Review B, 1998, 57, 2709-2712.	3.2	3
115	Nanowires charge towards integration. Nature Nanotechnology, 2007, 2, 595-596.	31.5	3
116	Top-gated few-electron double quantum dot in Si/SiGe. Physica E: Low-Dimensional Systems and Nanostructures, 2008, 40, 520-523.	2.7	3
117	Probing quantum phase transitions in a spin chain with a double quantum dot. Physical Review B, 2013, 87, .	3.2	3
118	Lifting of spin blockade by charged impurities in Si-MOS double quantum dot devices. Physical Review B, 2020, 101, .	3.2	3
119	Nonlinear current flow and electric field domains in inhomogeneous superconductors. Physica C: Superconductivity and Its Applications, 2000, 341-348, 1249-1250.	1.2	2
120	Cooling of cryogenic electron bilayers via the Coulomb interaction. Physical Review B, 2011, 84, .	3.2	2
121	Power-law scaling for the adiabatic algorithm for search-engine ranking. Physical Review A, 2013, 88, .	2.5	2
122	Si/SiGe Quantum Devices, Quantum Wells, and Electron-Spin Coherence. Topics in Applied Physics, 2009, , 101-127.	0.8	2
123	Ginzburg-landau impurity terms for unconventional superconductors. European Physical Journal D, 1996, 46, 1061-1062.	0.4	1
124	Reply to "Comment on "Temperature dependence of the second magnetization peak in a deoxygenated $\text{YBa}_2\text{Cu}_3\text{O}_{6.65}$ single crystal". Physical Review B, 2001, 63, .	3.2	1
125	Spin-based Quantum Dot Quantum Computing in Silicon. , 2005, , 133-146.		1
126	(Invited) Toward Si/SiGe Quantum Dot Spin Qubits: Gated Si/SiGe Single and Double Quantum Dots. ECS Transactions, 2010, 33, 639-647.	0.5	0

#	ARTICLE	IF	CITATIONS
127	Single-Shot Measurement of One and Two-Electron Spin States in Si/SiGe Gated Quantum Dots. , 2012, , .		0