Lieven M K Vandersypen

List of Publications by Year
in descending order

124 papers	23,748 citations	22132 59 h-index	21521 114 g-index
127 all docs	127 docs citations	127 times ranked	18132 citing authors

#	Article	IF	Citations
1	Quantum logic with spin qubits crossing the surface code threshold. Nature, 2022, 601, 343-347.	13.7	199
2	Qubits made by advanced semiconductor manufacturing. Nature Electronics, 2022, 5, 184-190.	13.1	129
3	Coherent Spin-Spin Coupling Mediated by Virtual Microwave Photons. Physical Review X, 2022, 12, .	2.8	38
4	Cryogenic CMOS for Qubit Control and Readout. , 2022, , .		8
5	Long-range electron-electron interactions in quantum dot systems and applications in quantum chemistry. Physical Review Research, 2022, 4, .	1.3	4
6	Low percolation density and charge noise with holes in germanium. Materials for Quantum Technology, 2021, 1, 011002.	1.2	31
7	Electron cascade for distant spin readout. Nature Communications, 2021, 12, 77.	5.8	11
8	13.3 A 6-to-8GHz 0.17mW/Qubit Cryo-CMOS Receiver for Multiple Spin Qubit Readout in 40nm CMOS Technology. , 2021, , .		19
9	CMOS-based cryogenic control of silicon quantum circuits. Nature, 2021, 593, 205-210.	13.7	136
10	Radio-Frequency Reflectometry in Silicon-Based Quantum Dots. Physical Review Applied, 2021, 16, .	1.5	14
11	Quantum Simulation of Antiferromagnetic Heisenberg Chain with Gate-Defined Quantum Dots. Physical Review X, 2021, 11, .	2.8	13
12	Quantum-coherent nanoscience. Nature Nanotechnology, 2021, 16, 1318-1329.	15.6	73
13	On-chip integration of Si/SiGe-based quantum dots and switched-capacitor circuits. Applied Physics Letters, 2020, 117, .	1.5	8
14	A Scalable Cryo-CMOS Controller for the Wideband Frequency-Multiplexed Control of Spin Qubits and Transmons. IEEE Journal of Solid-State Circuits, 2020, 55, 2930-2946.	3.5	65
15	On-Chip Microwave Filters for High-Impedance Resonators with Gate-Defined Quantum Dots. Physical Review Applied, 2020, 14, .	1.5	19
16	Efficient Orthogonal Control of Tunnel Couplings in a Quantum Dot Array. Physical Review Applied, 2020, 13, .	1.5	21
17	Spatial noise correlations in a Si/SiGe two-qubit device from Bell state coherences. Physical Review B, 2020, 101, .	1.1	20
18	Nagaoka ferromagnetism observed in a quantum dot plaquette. Nature, 2020, 579, 528-533.	13.7	72

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19	Quantum dot arrays in silicon and germanium. Applied Physics Letters, 2020, 116, .	1.5	82
20	Repetitive Quantum Nondemolition Measurement and Soft Decoding of a Silicon Spin Qubit. Physical Review X, 2020, 10, .	2.8	18
21	19.1 A Scalable Cryo-CMOS 2-to-20GHz Digitally Intensive Controller for 4Ã—32 Frequency Multiplexed Spin Qubits/Transmons in 22nm FinFET Technology for Quantum Computers. , 2020, , .		47
22	Universal quantum logic in hot silicon qubits. Nature, 2020, 580, 355-359.	13.7	199
23	Cryo-CMOS Interfaces for Large-Scale Quantum Computers. , 2020, , .		6
24	Quantum computing with semiconductor spins. Physics Today, 2019, 72, 38-45.	0.3	80
25	Quantum simulation and optimization in hot quantum networks. Physical Review B, 2019, 99, .	1.1	7
26	Rapid gate-based spin read-out in silicon using an on-chip resonator. Nature Nanotechnology, 2019, 14, 742-746.	15.6	112
27	Quantum Transport Properties of Industrial <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline" overflow="scroll"><mml:mmultiscripts><mml:mi>Si</mml:mi><mml:mprescripts /><mml:none /><mml:mn>28</mml:mn></mml:mmultiscripts><mml:mo>/</mml:mo><mml:mmultiscripts><mml:mrow><mml:msub><mml:mrow><mml:m mathvariant="normal">O</mml:mi></mml:mrow><mml:mn>2</mml:mn></mml:msub></mml:mrow><mml:mprescripts /><mml:none /><mml:mn>28</mml:mn></mml:mmultiscripts></mml:math>. Physical Review Applied, 2019,	4.5	36
28	Impact of Classical Control Electronics on Qubit Fidelity. Physical Review Applied, 2019, 12, .	4.5	55
29	Ab initio exact diagonalization simulation of the Nagaoka transition in quantum dots. Physical Review B, 2019, 100, .	3.7	12
30	A new class of efficient randomized benchmarking protocols. Npj Quantum Information, 2019, 5, .	6.6	47
31	Loading a quantum-dot based â€œQubyteâ€• register. Npj Quantum Information, 2019, 5, .	6.6	74
32	Benchmarking Gate Fidelities in a <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:mi>Si</mml:mi><mml:mo>/</mml:mo><mml:mi>SiGe</mml:mi></mml:mrow></mml:math> Two-Qubit Device. Physical Review X, 2019, 9, .	8.8	81
33	Electrode-induced lattice distortions in GaAs multi-quantum-dot arrays. Journal of Materials Research, 2019, 34, 1291-1301.	2.3	2
34	Rentâ€™s rule and extensibility in quantum computing. Microprocessors and Microsystems, 2019, 67, 1-7.	1.8	52
35	A sparse spin qubit array with integrated control electronics. , 2019, , .		11
36	Tunable Coupling and Isolation of Single Electrons in Silicon Metal-Oxide-Semiconductor Quantum Dots. Nano Letters, 2019, 19, 8653-8657.	12.8	25

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37	Embedding Silicon Spin Qubits in Superconducting Circuits. , 2019, , .		0
38	Mesoscopic Elastic Distortions in GaAs Quantum Dot Heterostructures. Nano Letters, 2018, 18, 2780-2786.	4.5	17
39	A programmable two-qubit quantum processor in silicon. Nature, 2018, 555, 633-637.	13.7	534
40	Strong spin-photon coupling in silicon. Science, 2018, 359, 1123-1127.	6.0	278
41	A 2â€‰Ã—â€‰2 quantum dot array with controllable inter-dot tunnel couplings. Applied Physics Letters, 2018, 112, .	1.5	54
42	Qubit Device Integration Using Advanced Semiconductor Manufacturing Process Technology. , 2018, , .		20
43	A capacitance spectroscopy-based platform for realizing gate-defined electronic lattices. Journal of Applied Physics, 2018, 124, 124305.	1.1	0
44	A crossbar network for silicon quantum dot qubits. Science Advances, 2018, 4, eaar3960.	4.7	181
45	Automated tuning of inter-dot tunnel coupling in double quantum dots. Applied Physics Letters, 2018, 113, .	1.5	48
46	Spin Lifetime and Charge Noise in Hot Silicon Quantum Dot Qubits. Physical Review Letters, 2018, 121, 076801.	2.9	80
47	The critical role of substrate disorder in valley splitting in Si quantum wells. Applied Physics Letters, 2018, 112, .	1.5	27
48	Valley dependent anisotropic spin splitting in silicon quantum dots. Npj Quantum Information, 2018, 4, .	2.8	49
49	Side Gate Tunable Josephson Junctions at the LaAlO₃/SrTiO₃ Interface. Nano Letters, 2017, 17, 715-720.	4.5	36
50	Current-Phase Relation of Ballistic Graphene Josephson Junctions. Nano Letters, 2017, 17, 3396-3401.	4.5	64
51	Interfacing spin qubits in quantum dots and donorsâ€”hot, dense, and coherent. Npj Quantum Information, 2017, 3, .	2.8	357
52	Dressed photon-orbital states in a quantum dot: Intervalley spin resonance. Physical Review B, 2017, 95, .	1.1	23
53	Quantum simulation of a Fermiâ€“Hubbard model using a semiconductor quantum dot array. Nature, 2017, 548, 70-73.	13.7	220
54	Quantum interference in an interfacial superconductor. Nature Nanotechnology, 2016, 11, 861-865.	15.6	33

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55	Computer-automated tuning of semiconductor double quantum dots into the single-electron regime. Applied Physics Letters, 2016, 108, .	1.5	40
56	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.	3.3	119
57	High-Kinetic-Inductance Superconducting Nanowire Resonators for Circuit QED in a Magnetic Field. Physical Review Applied, 2016, 5, .	1.5	192
58	Single-spin CCD. Nature Nanotechnology, 2016, 11, 330-334.	15.6	97
59	Second-Harmonic Coherent Driving of a Spin Qubit in a Si/SiGe Quantum Dot. Physical Review Letters, 2015, 115, 106802.	2.9	30
60	Nanoscale Electrostatic Control of Oxide Interfaces. Nano Letters, 2015, 15, 2627-2632.	4.5	40
61	Ballistic Josephson junctions in edge-contacted graphene. Nature Nanotechnology, 2015, 10, 761-764.	15.6	194
62	Science and technology roadmap for graphene, related two-dimensional crystals, and hybrid systems. Nanoscale, 2015, 7, 4598-4810.	2.8	2,452
63	Spin-Relaxation Anisotropy in a GaAs Quantum Dot. Physical Review Letters, 2014, 113, 256802.	2.9	40
64	Electrical control of a long-lived spin qubit in a Si/SiGe quantum dot. Nature Nanotechnology, 2014, 9, 666-670.	15.6	394
65	Electron Beam Induced Deposition on graphene on silicon oxide and hexagonal boron nitride: A comparison of substrates. Microelectronic Engineering, 2014, 121, 122-126.	1.1	4
66	Photon- and phonon-assisted tunneling in the three-dimensional charge stability diagram of a triple quantum dot array. Applied Physics Letters, 2013, 102, .	1.5	16
67	Excitation of a Si/SiGe quantum dot using an on-chip microwave antenna. Applied Physics Letters, 2013, 103, .	1.5	8
68	Steady-State Entanglement in the Nuclear Spin Dynamics of a Double Quantum Dot. Physical Review Letters, 2013, 111, 246802.	2.9	19
69	Long-distance coherent coupling in a quantum dot array. Nature Nanotechnology, 2013, 8, 432-437.	15.6	125
70	Nuclear spin effects in semiconductor quantum dots. Nature Materials, 2013, 12, 494-504.	13.3	195
71	Simultaneous Spin-Charge Relaxation in Double Quantum Dots. Physical Review Letters, 2013, 110, 196803.	2.9	35
72	(Invited) Single-Shot Readout of Singlet-Triplet Qubit States in a Si/SiGe Double Quantum Dot. ECS Transactions, 2013, 50, 655-662.	0.3	0

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73	Resolving Spin-Orbit- and Hyperfine-Mediated Electric Dipole Spin Resonance in a Quantum Dot. Physical Review Letters, 2013, 110, 107601.	2.9	30
74	Quantum Dot Systems: a versatile platform for quantum simulations. Annalen Der Physik, 2013, 525, 808-826.	0.9	54
75	Quantum Dots at Room Temperature Carved out from Few-Layer Graphene. Nano Letters, 2012, 12, 6096-6100.	4.5	72
76	Lattice Expansion in Seamless Bilayer Graphene Constrictions at High Bias. Nano Letters, 2012, 12, 4455-4459.	4.5	32
77	Formation and control of wrinkles in graphene by the wedging transfer method. Applied Physics Letters, 2012, 101, .	1.5	116
78	Graphene at High Bias: Cracking, Layer by Layer Sublimation, and Fusing. Nano Letters, 2012, 12, 1873-1878.	4.5	95
79	Zero-bias conductance peak and Josephson effect in graphene-NbTiN junctions. Physical Review B, 2012, 85, .	1.1	45
80	Gate-Defined Confinement in Bilayer Graphene-Hexagonal Boron Nitride Hybrid Devices. Nano Letters, 2012, 12, 4656-4660.	4.5	96
81	Coupling artificial molecular spin states by photon-assisted tunnelling. Nature Communications, 2011, 2, 556.	5.8	45
82	Efficient controlled-phase gate for single-spin qubits in quantum dots. Physical Review B, 2011, 83, .	1.1	75
83	Generating Entanglement and Squeezed States of Nuclear Spins in Quantum Dots. Physical Review Letters, 2011, 107, 206806.	2.9	53
84	Room-Temperature Gating of Molecular Junctions Using Few-Layer Graphene Nanogap Electrodes. Nano Letters, 2011, 11, 4607-4611.	4.5	310
85	Single-Shot Correlations and Two-Qubit Gate of Solid-State Spins. Science, 2011, 333, 1269-1272.	6.0	183
86	DNA Translocation through Graphene Nanopores. Nano Letters, 2010, 10, 3163-3167.	4.5	908
87	Wedging Transfer of Nanostructures. Nano Letters, 2010, 10, 1912-1916.	4.5	190
88	Gate-defined graphene double quantum dot and excited state spectroscopy. Nano Letters, 2010, 10, 1623-1627.	4.5	82
89	Bouncing spins. Nature, 2009, 458, 841-843.	13.7	0
90	Locking electron spins into magnetic resonance by electronâ€“nuclear feedback. Nature Physics, 2009, 5, 764-768.	6.5	125

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91	Gate-induced insulating state in bilayer graphene devices. Nature Materials, 2008, 7, 151-157.	13.3	1,495
92	<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mi>I</mml:mi><mml:mi>n</mml:mi><mml:mi>S</mml:mi><mml:mi>i</mml:mi><mml:mi>t</mml:mi><mml:mi>u of Charge Noise in<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mi>GaAs</mml:mi><mml:mo>/</mml:mo><mml:msub><mml:mi>Al</mml:mi><mml:mi>x</mml:mi></mml:msub Physical Review Letters, 2008, 101, 226603.	2.9	73
93	Spin Echo of a Single Electron Spin in a Quantum Dot. Physical Review Letters, 2008, 100, 236802.	2.9	179
94	Cryogenic amplifier for fast real-time detection of single-electron tunneling. Applied Physics Letters, 2007, 91, .	1.5	64
95	Universal Phase Shift and Nonexponential Decay of Driven Single-Spin Oscillations. Physical Review Letters, 2007, 99, 106803.	2.9	84
96	Publisher's Note: Spins in few-electron quantum dots [Rev. Mod. Phys. 79, 1217 (2007)]. Reviews of Modern Physics, 2007, 79, 1455-1455.	16.4	14
97	Coherent Control of a Single Electron Spin with Electric Fields. Science, 2007, 318, 1430-1433.	6.0	860
98	Spins in few-electron quantum dots. Reviews of Modern Physics, 2007, 79, 1217-1265.	16.4	2,166
99	Experimental Signature of Phonon-Mediated Spin Relaxation in a Two-Electron Quantum Dot. Physical Review Letters, 2007, 98, 126601.	2.9	112
100	A single spin made visible. Nature Physics, 2007, 3, 83-84.	6.5	1
101	Bipolar supercurrent in graphene. Nature, 2007, 446, 56-59.	13.7	1,095
102	Control and measurement of electron spins in semiconductor quantum dots. Physica Status Solidi (B): Basic Research, 2006, 243, 3682-3691.	0.7	7
103	High fidelity measurement of singletâ€“triplet state in a quantum dot. Physica Status Solidi (B): Basic Research, 2006, 243, 3855-3858.	0.7	9
104	Driven coherent oscillations of a single electron spin in a quantum dot. Nature, 2006, 442, 766-771.	13.7	1,207
105	Nondestructive measurement of electron spins in a quantum dot. Physical Review B, 2006, 74, .	1.1	41
106	Semiconductor few-electron quantum dots as spin qubits. , 2006, , 298-305.		3
107	Spin filling of a quantum dot derived from excited-state spectroscopy. New Journal of Physics, 2005, 7, 182-182.	1.2	27
108	Single-Shot Readout of Electron Spin States in a Quantum Dot Using Spin-Dependent Tunnel Rates. Physical Review Letters, 2005, 94, 196802.	2.9	281

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109	NMR techniques for quantum control and computation. Reviews of Modern Physics, 2005, 76, 1037-1069.	16.4	919
110	Control and Detection of Singlet-Triplet Mixing in a Random Nuclear Field. Science, 2005, 309, 1346-1350.	6.0	490
111	Excited-state spectroscopy on a nearly closed quantum dot via charge detection. Applied Physics Letters, 2004, 84, 4617-4619.	1.5	105
112	Measurement Efficiency andn-Shot Readout of Spin Qubits. Physical Review Letters, 2004, 93, 106804.	2.9	52
113	Single-shot read-out of an individual electron spin in a quantum dot. Nature, 2004, 430, 431-435.	13.7	1,395
114	Tunable few-electron double quantum dots with integrated charge read-out. Physica E: Low-Dimensional Systems and Nanostructures, 2004, 25, 135-141.	1.3	8
115	Real-time detection of single-electron tunneling using a quantum point contact. Applied Physics Letters, 2004, 85, 4394.	1.5	150
116	Zeeman Energy and Spin Relaxation in a One-Electron Quantum Dot. Physical Review Letters, 2003, 91, 196802.	2.9	331
117	NMR implementation of a building block for scalable quantum computation. Chemical Physics Letters, 2001, 338, 337-344.	1.2	33
118	Experimental realization of Shor's quantum factoring algorithm using nuclear magnetic resonance. Nature, 2001, 414, 883-887.	13.7	1,284
119	Implementation of a three-quantum-bit search algorithm. Applied Physics Letters, 2000, 76, 646-648.	1.5	106
120	Experimental Realization of an Order-Finding Algorithm with an NMR Quantum Computer. Physical Review Letters, 2000, 85, 5452-5455.	2.9	137
121	Realization of Logically Labeled Effective Pure States for Bulk Quantum Computation. Physical Review Letters, 1999, 83, 3085-3088.	2.9	47
122	Nuclear magnetic resonance quantum computing using liquid crystal solvents. Applied Physics Letters, 1999, 75, 3563-3565.	1.5	53
123	Experimental realization of a two-bit phase damping quantum code. Physical Review A, 1999, 60, 1924-1943.	1.0	40
124	Experimental realization of a quantum algorithm. Nature, 1998, 393, 143-146.	13.7	512