# Lieven M K Vandersypen

List of Publications by Year
in descending order



| 124 | 23,748 | 22153 59 | 21540 114 |
|---|---|---|---|
| papers | citations | h-index | g-index |

| 127 | 127 | 127 | 18132 |
|---|---|---|---|
| all docs | docs citations | times ranked | citing authors |

| # | Article | IF | Citations |
|---|---|---|---|
| 1 | Quantum logic with spin qubits crossing the surface code threshold. Nature, 2022, 601, 343-347. | 27.8 | 199 |
| 2 | Qubits made by advanced semiconductor manufacturing. Nature Electronics, 2022, 5, 184-190. | 26.0 | 129 |
| 3 | Coherent Spin-Spin Coupling Mediated by Virtual Microwave Photons. Physical Review X, 2022, 12, . | 8.9 | 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, . | 3.6 | 4 |
| 6 | Low percolation density and charge noise with holes in germanium. Materials for Quantum Technology, 2021, 1, 011002. | 3.1 | 31 |
| 7 | Electron cascade for distant spin readout. Nature Communications, 2021, 12, 77. | 12.8 | 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. | 27.8 | 136 |
| 10 | Radio-Frequency Reflectometry in Silicon-Based Quantum Dots. Physical Review Applied, 2021, 16, . | 3.8 | 14 |
| 11 | Quantum Simulation of Antiferromagnetic Heisenberg Chain with Gate-Defined Quantum Dots. Physical Review X, 2021, 11, . | 8.9 | 13 |
| 12 | Quantum-coherent nanoscience. Nature Nanotechnology, 2021, 16, 1318-1329. | 31.5 | 73 |
| 13 | On-chip integration of Si/SiGe-based quantum dots and switched-capacitor circuits. Applied Physics Letters, 2020, 117, . | 3.3 | 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. | 5.4 | 65 |
| 15 | On-Chip Microwave Filters for High-Impedance Resonators with Gate-Defined Quantum Dots. Physical Review Applied, 2020, 14, . | 3.8 | 19 |
| 16 | Efficient Orthogonal Control of Tunnel Couplings in a Quantum Dot Array. Physical Review Applied, 2020, 13, . | 3.8 | 21 |
| 17 | Spatial noise correlations in a Si/SiGe two-qubit device from Bell state coherences. Physical Review B, 2020, 101, . | 3.2 | 20 |
| 18 | Nagaoka ferromagnetism observed in a quantum dot plaquette. Nature, 2020, 579, 528-533. | 27.8 | 72 |

| # | Article | IF | Citations |
|---|---|---|---|
| 19 | Quantum dot arrays in silicon and germanium. Applied Physics Letters, 2020, 116, . | 3.3 | 82 |
| 20 | Repetitive Quantum Nondemolition Measurement and Soft Decoding of a Silicon Spin Qubit. Physical Review X, 2020, 10, . | 8.9 | 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. | 27.8 | 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, . | 3.2 | 7 |
| 26 | Rapid gate-based spin read-out in silicon using an on-chip resonator. Nature Nanotechnology, 2019, 14, 742-746. | 31.5 | 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><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, | 3.8 | 36 |
| 28 | Impact of Classical Control Electronics on Qubit Fidelity. Physical Review Applied, 2019, 12, . | 3.8 | 55 |
| 29 | <i>Ab initio</i> exact diagonalization simulation of the Nagaoka transition in quantum dots. Physical Review B, 2019, 100, . | 3.2 | 12 |
| 30 | A new class of efficient randomized benchmarking protocols. Npj Quantum Information, 2019, 5, . | 6.7 | 47 |
| 31 | Loading a quantum-dot based â€œQubyteâ€• register. Npj Quantum Information, 2019, 5, . | 6.7 | 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, . | 8.9 | 85 |
| 33 | Electrode-induced lattice distortions in GaAs multi-quantum-dot arrays. Journal of Materials Research, 2019, 34, 1291-1301. | 2.6 | 2 |
| 34 | Rentâ€™s rule and extensibility in quantum computing. Microprocessors and Microsystems, 2019, 67, 1-7. | 2.8 | 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. | 9.1 | 25 |

| # | Article | IF | Citations |
|---|---|---|---|
| 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. | 9.1 | 17 |
| 39 | A programmable two-qubit quantum processor in silicon. Nature, 2018, 555, 633-637. | 27.8 | 534 |
| 40 | Strong spin-photon coupling in silicon. Science, 2018, 359, 1123-1127. | 12.6 | 278 |
| 41 | A 2â€‰Ã—â€‰2 quantum dot array with controllable inter-dot tunnel couplings. Applied Physics Letters, 2018, 112, . | 3.3 | 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. | 2.5 | 0 |
| 44 | A crossbar network for silicon quantum dot qubits. Science Advances, 2018, 4, eaar3960. | 10.3 | 181 |
| 45 | Automated tuning of inter-dot tunnel coupling in double quantum dots. Applied Physics Letters, 2018, 113, . | 3.3 | 48 |
| 46 | Spin Lifetime and Charge Noise in Hot Silicon Quantum Dot Qubits. Physical Review Letters, 2018, 121, 076801. | 7.8 | 80 |
| 47 | The critical role of substrate disorder in valley splitting in Si quantum wells. Applied Physics Letters, 2018, 112, . | 3.3 | 27 |
| 48 | Valley dependent anisotropic spin splitting in silicon quantum dots. Npj Quantum Information, 2018, 4, . | 6.7 | 49 |
| 49 | Side Gate Tunable Josephson Junctions at the LaAlO<sub>3</sub>/SrTiO<sub>3</sub> Interface. Nano Letters, 2017, 17, 715-720. | 9.1 | 36 |
| 50 | Current-Phase Relation of Ballistic Graphene Josephson Junctions. Nano Letters, 2017, 17, 3396-3401. | 9.1 | 64 |
| 51 | Interfacing spin qubits in quantum dots and donorsâ€"hot, dense, and coherent. Npj Quantum Information, 2017, 3, . | 6.7 | 357 |
| 52 | Dressed photon-orbital states in a quantum dot: Intervalley spin resonance. Physical Review B, 2017, 95, . | 3.2 | 23 |
| 53 | Quantum simulation of a Fermiâ€"Hubbard model using a semiconductor quantum dot array. Nature, 2017, 548, 70-73. | 27.8 | 220 |
| 54 | Quantum interference in an interfacial superconductor. Nature Nanotechnology, 2016, 11, 861-865. | 31.5 | 33 |

| # | Article | IF | Citations |
|---|---|---|---|
| 55 | Computer-automated tuning of semiconductor double quantum dots into the single-electron regime. Applied Physics Letters, 2016, 108, . | 3.3 | 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. | 7.1 | 119 |
| 57 | High-Kinetic-Inductance Superconducting Nanowire Resonators for Circuit QED in a Magnetic Field. Physical Review Applied, 2016, 5, . | 3.8 | 192 |
| 58 | Single-spin CCD. Nature Nanotechnology, 2016, 11, 330-334. | 31.5 | 97 |
| 59 | Second-Harmonic Coherent Driving of a Spin Qubit in a Si/SiGe Quantum Dot. Physical Review Letters, 2015, 115, 106802. | 7.8 | 30 |
| 60 | Nanoscale Electrostatic Control of Oxide Interfaces. Nano Letters, 2015, 15, 2627-2632. | 9.1 | 40 |
| 61 | Ballistic Josephson junctions in edge-contacted graphene. Nature Nanotechnology, 2015, 10, 761-764. | 31.5 | 194 |
| 62 | Science and technology roadmap for graphene, related two-dimensional crystals, and hybrid systems. Nanoscale, 2015, 7, 4598-4810. | 5.6 | 2,452 |
| 63 | Spin-Relaxation Anisotropy in a GaAs Quantum Dot. Physical Review Letters, 2014, 113, 256802. | 7.8 | 40 |
| 64 | Electrical control of a long-lived spin qubit in a Si/SiGe quantum dot. Nature Nanotechnology, 2014, 9, 666-670. | 31.5 | 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. | 2.4 | 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, . | 3.3 | 16 |
| 67 | Excitation of a Si/SiGe quantum dot using an on-chip microwave antenna. Applied Physics Letters, 2013, 103, . | 3.3 | 8 |
| 68 | Steady-State Entanglement in the Nuclear Spin Dynamics of a Double Quantum Dot. Physical Review Letters, 2013, 111, 246802. | 7.8 | 19 |
| 69 | Long-distance coherent coupling in a quantum dot array. Nature Nanotechnology, 2013, 8, 432-437. | 31.5 | 125 |
| 70 | Nuclear spin effects in semiconductor quantum dots. Nature Materials, 2013, 12, 494-504. | 27.5 | 195 |
| 71 | Simultaneous Spin-Charge Relaxation in Double Quantum Dots. Physical Review Letters, 2013, 110, 196803. | 7.8 | 35 |
| 72 | (Invited) Single-Shot Readout of Singlet-Triplet Qubit States in a Si/SiGe Double Quantum Dot. ECS Transactions, 2013, 50, 655-662. | 0.5 | 0 |

| # | Article | IF | Citations |
|---|---|---|---|
| 73 | Resolving Spin-Orbit- and Hyperfine-Mediated Electric Dipole Spin Resonance in a Quantum Dot. Physical Review Letters, 2013, 110, 107601. | 7.8 | 30 |
| 74 | Quantum Dot Systems: a versatile platform for quantum simulations. Annalen Der Physik, 2013, 525, 808-826. | 2.4 | 54 |
| 75 | Quantum Dots at Room Temperature Carved out from Few-Layer Graphene. Nano Letters, 2012, 12, 6096-6100. | 9.1 | 72 |
| 76 | Lattice Expansion in Seamless Bilayer Graphene Constrictions at High Bias. Nano Letters, 2012, 12, 4455-4459. | 9.1 | 32 |
| 77 | Formation and control of wrinkles in graphene by the wedging transfer method. Applied Physics Letters, 2012, 101, . | 3.3 | 116 |
| 78 | Graphene at High Bias: Cracking, Layer by Layer Sublimation, and Fusing. Nano Letters, 2012, 12, 1873-1878. | 9.1 | 95 |
| 79 | Zero-bias conductance peak and Josephson effect in graphene-NbTiN junctions. Physical Review B, 2012, 85, . | 3.2 | 45 |
| 80 | Gate-Defined Confinement in Bilayer Graphene-Hexagonal Boron Nitride Hybrid Devices. Nano Letters, 2012, 12, 4656-4660. | 9.1 | 96 |
| 81 | Coupling artificial molecular spin states by photon-assisted tunnelling. Nature Communications, 2011, 2, 556. | 12.8 | 45 |
| 82 | Efficient controlled-phase gate for single-spin qubits in quantum dots. Physical Review B, 2011, 83, . | 3.2 | 75 |
| 83 | Generating Entanglement and Squeezed States of Nuclear Spins in Quantum Dots. Physical Review Letters, 2011, 107, 206806. | 7.8 | 53 |
| 84 | Room-Temperature Gating of Molecular Junctions Using Few-Layer Graphene Nanogap Electrodes. Nano Letters, 2011, 11, 4607-4611. | 9.1 | 310 |
| 85 | Single-Shot Correlations and Two-Qubit Gate of Solid-State Spins. Science, 2011, 333, 1269-1272. | 12.6 | 183 |
| 86 | DNA Translocation through Graphene Nanopores. Nano Letters, 2010, 10, 3163-3167. | 9.1 | 908 |
| 87 | Wedging Transfer of Nanostructures. Nano Letters, 2010, 10, 1912-1916. | 9.1 | 190 |
| 88 | Gate-defined graphene double quantum dot and excited state spectroscopy. Nano Letters, 2010, 10, 1623-1627. | 9.1 | 82 |
| 89 | Bouncing spins. Nature, 2009, 458, 841-843. | 27.8 | 0 |
| 90 | Locking electron spins into magnetic resonance by electronâ€“nuclear feedback. Nature Physics, 2009, 5, 764-768. | 16.7 | 125 |

| # | Article | IF | Citations |
|---|---|---|---|
| 91 | Gate-induced insulating state in bilayer graphene devices. Nature Materials, 2008, 7, 151-157. | 27.5 | 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. | 7.8 | 73 |
| 93 | Spin Echo of a Single Electron Spin in a Quantum Dot. Physical Review Letters, 2008, 100, 236802. | 7.8 | 179 |
| 94 | Cryogenic amplifier for fast real-time detection of single-electron tunneling. Applied Physics Letters, 2007, 91, . | 3.3 | 64 |
| 95 | Universal Phase Shift and Nonexponential Decay of Driven Single-Spin Oscillations. Physical Review Letters, 2007, 99, 106803. | 7.8 | 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. | 45.6 | 14 |
| 97 | Coherent Control of a Single Electron Spin with Electric Fields. Science, 2007, 318, 1430-1433. | 12.6 | 860 |
| 98 | Spins in few-electron quantum dots. Reviews of Modern Physics, 2007, 79, 1217-1265. | 45.6 | 2,166 |
| 99 | Experimental Signature of Phonon-Mediated Spin Relaxation in a Two-Electron Quantum Dot. Physical Review Letters, 2007, 98, 126601. | 7.8 | 112 |
| 100 | A single spin made visible. Nature Physics, 2007, 3, 83-84. | 16.7 | 1 |
| 101 | Bipolar supercurrent in graphene. Nature, 2007, 446, 56-59. | 27.8 | 1,095 |
| 102 | Control and measurement of electron spins in semiconductor quantum dots. Physica Status Solidi (B): Basic Research, 2006, 243, 3682-3691. | 1.5 | 7 |
| 103 | High fidelity measurement of singletâ€"triplet state in a quantum dot. Physica Status Solidi (B): Basic Research, 2006, 243, 3855-3858. | 1.5 | 9 |
| 104 | Driven coherent oscillations of a single electron spin in a quantum dot. Nature, 2006, 442, 766-771. | 27.8 | 1,207 |
| 105 | Nondestructive measurement of electron spins in a quantum dot. Physical Review B, 2006, 74, . | 3.2 | 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. | 2.9 | 27 |
| 108 | Single-Shot Readout of Electron Spin States in a Quantum Dot Using Spin-Dependent Tunnel Rates. Physical Review Letters, 2005, 94, 196802. | 7.8 | 281 |

| # | Article | IF | Citations |
|---|---|---|---|
| 109 | NMR techniques for quantum control and computation. Reviews of Modern Physics, 2005, 76, 1037-1069. | 45.6 | 919 |
| 110 | Control and Detection of Singlet-Triplet Mixing in a Random Nuclear Field. Science, 2005, 309, 1346-1350. | 12.6 | 490 |
| 111 | Excited-state spectroscopy on a nearly closed quantum dot via charge detection. Applied Physics Letters, 2004, 84, 4617-4619. | 3.3 | 105 |
| 112 | Measurement Efficiency andn-Shot Readout of Spin Qubits. Physical Review Letters, 2004, 93, 106804. | 7.8 | 52 |
| 113 | Single-shot read-out of an individual electron spin in a quantum dot. Nature, 2004, 430, 431-435. | 27.8 | 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. | 2.7 | 8 |
| 115 | Real-time detection of single-electron tunneling using a quantum point contact. Applied Physics Letters, 2004, 85, 4394. | 3.3 | 150 |
| 116 | Zeeman Energy and Spin Relaxation in a One-Electron Quantum Dot. Physical Review Letters, 2003, 91, 196802. | 7.8 | 331 |
| 117 | NMR implementation of a building block for scalable quantum computation. Chemical Physics Letters, 2001, 338, 337-344. | 2.6 | 33 |
| 118 | Experimental realization of Shor's quantum factoring algorithm using nuclear magnetic resonance. Nature, 2001, 414, 883-887. | 27.8 | 1,284 |
| 119 | Implementation of a three-quantum-bit search algorithm. Applied Physics Letters, 2000, 76, 646-648. | 3.3 | 106 |
| 120 | Experimental Realization of an Order-Finding Algorithm with an NMR Quantum Computer. Physical Review Letters, 2000, 85, 5452-5455. | 7.8 | 137 |
| 121 | Realization of Logically Labeled Effective Pure States for Bulk Quantum Computation. Physical Review Letters, 1999, 83, 3085-3088. | 7.8 | 47 |
| 122 | Nuclear magnetic resonance quantum computing using liquid crystal solvents. Applied Physics Letters, 1999, 75, 3563-3565. | 3.3 | 53 |
| 123 | Experimental realization of a two-bit phase damping quantum code. Physical Review A, 1999, 60, 1924-1943. | 2.5 | 40 |
| 124 | Experimental realization of a quantum algorithm. Nature, 1998, 393, 143-146. | 27.8 | 512 |