Jeffrey C Mccallum

List of Publications by Year
in descending order

156	3,736	147801	144013
papers	citations	31 h-index	57 g-index

157	157	157	4004
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Storing quantum information for 30 seconds in a nanoelectronic device. Nature Nanotechnology, 2014, 9, 986-991.	31.5	513
2	A review on single photon sources in silicon carbide. Reports on Progress in Physics, 2017, 80, 034502.	20.1	163
3	Single-photon emitting diode in silicon carbide. Nature Communications, 2015, 6, 7783.	12.8	162
4	Optical addressing of an individual erbium ion in silicon. Nature, 2013, 497, 91-94.	27.8	149
5	Two-Level Ultrabright Single Photon Emission from Diamond Nanocrystals. Nano Letters, 2009, 9, 3191-3195.	9.1	132
6	Electrically controlling single-spin qubits in a continuous microwave field. Science Advances, 2015, 1, e1500022.	10.3	125
7	Quantifying the quantum gate fidelity of single-atom spin qubits in silicon by randomized benchmarking. Journal of Physics Condensed Matter, 2015, 27, 154205.	1.8	107
8	Chromium single-photon emitters in diamond fabricated by ion implantation. Physical Review B, 2010, 81, .	3.2	97
9	Nanomechanical Sensing Using Spins in Diamond. Nano Letters, 2017, 17, 1496-1503.	9.1	95
10	Size dependence of structural stability in nanocrystalline diamond. Physical Review B, 2000, 62, R16360-R16363.	3.2	86
11	Electrically detected magnetic resonance in ion-implanted Si:P nanostructures. Applied Physics Letters, 2006, 89, 182115.	3.3	81
12	Coherent electrical control of a single high-spin nucleus in silicon. Nature, 2020, 579, 205-209.	27.8	79
13	Spatial mapping of band bending in semiconductor devices using in situ quantum sensors. Nature Electronics, 2018, 1, 502-507.	26.0	77
14	Tunable optical antennas enabled by the phase transition in vanadium dioxide. Optics Express, 2013, 21, 27503.	3.4	66
15	A dressed spin qubit in silicon. Nature Nanotechnology, 2017, 12, 61-66.	31.5	62
16	Single atom devices by ion implantation. Journal of Physics Condensed Matter, 2015, 27, 154204.	1.8	61
17	Progress in silicon-based quantum computing. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2003, 361, 1451-1471.	3.4	60
18	Stimulated emission from nitrogen-vacancy centres in diamond. Nature Communications, 2017, 8, 14000.	12.8	60

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19	Bell's inequality violation with spins in silicon. Nature Nanotechnology, 2016, 11, 242-246.	31.5	56
20	Microscopic Imaging of the Stress Tensor in Diamond Using in Situ Quantum Sensors. Nano Letters, 2019, 19, 4543-4550.	9.1	51
21	Intrinsic and dopant-enhanced solid-phase epitaxy in amorphous germanium. Physical Review B, 2008, 77, .	3.2	47
22	Activation and control of visible single defects in 4H-, 6H-, and 3C-SiC by oxidation. Applied Physics Letters, 2016, 108, .	3.3	45
23	Strong and Tunable Spinâ€“Orbit Coupling in a Two-Dimensional Hole Gas in Ionic-Liquid Gated Diamond Devices. Nano Letters, 2016, 16, 3768-3773.	9.1	45
24	Engineering long spin coherence times of spinâ€“orbit qubits in silicon. Nature Materials, 2021, 20, 38-42.	27.5	40
25	Integration of Single-Photon Emitters into 3C-SiC Microdisk Resonators. ACS Photonics, 2017, 4, 462-468.	6.6	37
26	Dopant-enhanced solid-phase epitaxy in buried amorphous silicon layers. Physical Review B, 2007, 76, .	3.2	36
27	Channeling contrast microscopy: Application to semiconductor structures. Applied Physics Letters, 1983, 42, 827-829.	3.3	33
28	Hydrogen catalyzed crystallization of strontium titanate. Journal of Applied Physics, 1994, 76, 2711-2718.	2.5	33
29	The effect of annealing environments on the epitaxial recrystallization of ion-beam-amorphized SrTiO₃. Journal of Materials Research, 1992, 7, 717-724.	2.6	32
30	Diamond nanocrystals formed by direct implantation of fused silica with carbon. Journal of Applied Physics, 2001, 90, 3007-3018.	2.5	32
31	Structural differences between the glass state and ion-beam-amorphized states of lead pyrophosphate. Journal of Non-Crystalline Solids, 1990, 126, 179-193.	3.1	31
32	Engineering chromium-related single photon emitters in single crystal diamonds. New Journal of Physics, 2011, 13, 045015.	2.9	31
33	Breaking the rotating wave approximation for a strongly driven dressed single-electron spin. Physical Review B, 2016, 94, .	3.2	31
34	A single-atom quantum memory in silicon. Quantum Science and Technology, 2017, 2, 015009.	5.8	30
35	MoO3 induces p-type surface conductivity by surface transfer doping in diamond. Applied Surface Science, 2020, 509, 144890.	6.1	30
36	Au-rich filamentary behavior and associated subband gap optical absorption in hyperdoped Si. Physical Review Materials, 2017, 1, .	2.4	29

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37	Optical switching and photoluminescence in erbium-implanted vanadium dioxide thin films. Journal of Applied Physics, 2014, 115, .	2.5	28
38	Evidence for the<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mi mathvariant="bold">R</mml:mi><mml:mn>8</mml:mn></mml:math>Phase of Germanium. Physical Review Letters, 2013, 110, 085502.	7.8	27
39	Deterministic doping. Materials Science in Semiconductor Processing, 2017, 62, 23-30.	4.0	26
40	Structural inequivalence of the ion-damageâ€“produced amorphous state and the glass state in lead pyrophosphate. Physical Review Letters, 1989, 62, 1138-1141.	7.8	25
41	Microstructural and chemical effects in Al₂O₃ implanted with iron at 77 K and annealed in oxidizing or reducing atmospheres. Journal of Materials Research, 1991, 6, 2160-2177.	2.6	25
42	Hardness and elastic modulus of zircon as a function of heavy-particle irradiation dose:. Radiation Effects and Defects in Solids, 1994, 132, 131-141.	1.2	25
43	Colloidal Au and Ag precipitates formed in Al2O3 by ion implantation and annealing. Scripta Materialia, 1993, 3, 447-457.	0.5	24
44	High-fidelity adiabatic inversion of a ³¹P electron spin qubit in natural silicon. Applied Physics Letters, 2014, 104, 092115.	3.3	24
45	Temperature dependence of Raman scattering from the high-pressure phases of Si induced by indentation. Physical Review B, 2011, 83, .	3.2	23
46	Kinetics of solid phase epitaxy in buried amorphous Si layers formed by MeV ion implantation. Applied Physics Letters, 1996, 69, 925-927.	3.3	22
47	Electron spin relaxation of single phosphorus donors in metal-oxide-semiconductor nanoscale devices. Physical Review B, 2019, 99, .	3.2	22
48	Surface damage on diamond membranes fabricated by ion implantation and lift-off. Applied Physics Letters, 2011, 98, .	3.3	20
49	Formation of an r8-Dominant Si Material. Physical Review Letters, 2019, 122, 105701.	7.8	19
50	Controllable freezing of the nuclear spin bath in a single-atom spin qubit. Science Advances, 2020, 6, .	10.3	19
51	Chemically stabilised ion implanted waveguides in sapphire. Electronics Letters, 1990, 26, 1193.	1.0	18
52	G-factor and well width variations for the two-dimensional hole gas in surface conducting diamond. Applied Physics Letters, 2018, 112, .	3.3	18
53	Instability of nanocavities in amorphous silicon. Applied Physics Letters, 1999, 74, 2313-2315.	3.3	17
54	Exploring quantum chaos with a single nuclear spin. Physical Review E, 2018, 98, .	2.1	17

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55	Single Rare-Earth Ions as Atomic-Scale Probes in Ultrascaled Transistors. Nano Letters, 2019, 19, 5025-5030.	9.1	16
56	Deterministic Shallow Dopant Implantation in Silicon with Detection Confidence Upperâ€Bound to 99.85% by Ionâ€“Solid Interactions. Advanced Materials, 2022, 34, e2103235.	21.0	16
57	Formation of Ti3+ in sapphire by co-implantation of Ti and O ions. Applied Physics Letters, 2000, 76, 424-426.	3.3	15
58	Single-Ion Implantation for the Development of Si-Based MOSFET Devices with Quantum Functionalities. Advances in Materials Science and Engineering, 2012, 2012, 1-10.	1.8	15
59	Coherent control via weak measurements in P31 single-atom electron and nuclear spin qubits. Physical Review B, 2018, 98, .	3.2	15
60	Palladium forms Ohmic contact on hydrogen-terminated diamond down to 4â€‰K. Applied Physics Letters, 2020, 116, .	3.3	14
61	High-electron-affinity oxide V2O5 enhances surface transfer doping on hydrogen-terminated diamond. Diamond and Related Materials, 2020, 108, 107865.	3.9	14
62	Kinetics of arsenic-enhanced solid phase epitaxy in silicon. Journal of Applied Physics, 2004, 95, 4427-4431.	2.5	13
63	Donor activation and damage in Siâ€“SiO2from low-dose, low-energy ion implantation studied via electrical transport in MOSFETs. Semiconductor Science and Technology, 2005, 20, 363-368.	2.0	13
64	Effect of boron on interstitial-related luminescence centers in silicon. Applied Physics Letters, 2010, 96, 051906.	3.3	13
65	Optical and electronic properties of sub-surface conducting layers in diamond created by MeV B-implantation at elevated temperatures. Journal of Applied Physics, 2016, 119, 223902.	2.5	13
66	Donor-based qubits for quantum computing in silicon. Applied Physics Reviews, 2021, 8, .	11.3	13
67	Ion implantation and thermal annealing of single crystals of the type YBa2Cu3Ox. Materials Letters, 1988, 6, 374-378.	2.6	11
68	Electronic damage in the ion-beam amorphization ofPb2P2O7. Physical Review B, 1992, 46, 3215-3218.	3.2	11
69	Controlled deterministic implantation by nanostencil lithography at the limit of ion-aperture straggling. Nanotechnology, 2013, 24, 145304.	2.6	11
70	Micro-concave waveguide antenna for high photon extraction from nitrogen vacancy centers in nanodiamond. Scientific Reports, 2015, 5, 12013.	3.3	11
71	Solid-Phase Epitaxy. , 2015, , 317-363.		11
72	<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mi>g</mml:mi></mml:math> -factor and well-width fluctuations as a function of carrier density in the two-dimensional hole accumulation layer of transfer-doped diamond. Physical Review B, 2019, 99, .	3.2	11

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73	Strong spin-orbit interaction induced by transition metal oxides at the surface of hydrogen-terminated diamond. Carbon, 2020, 164, 244-250.	10.3	11
74	Annealingâ€environment effects in the epitaxial regrowth of ionâ€beamâ€amorphized layers on CaTiO3. Journal of Applied Physics, 1995, 78, 1519-1527.	2.5	10
75	Intrinsic and boron-enhanced hydrogen diffusion in amorphous silicon formed by ion implantation. Applied Physics Letters, 2009, 95, 101911.	3.3	10
76	Infrared erbium photoluminescence enhancement in silicon carbide nano-pillars. Journal of Applied Physics, 2021, 130, .	2.5	10
77	Dopant enhanced H diffusion in amorphous silicon and its effect on the kinetics of solid phase epitaxy. Materials Science and Engineering B: Solid-State Materials for Advanced Technology, 2009, 157, 6-10.	3.5	9
78	Dopant effects on solid phase epitaxy in silicon and germanium. Journal of Applied Physics, 2012, 111, .	2.5	9
79	Atomic transport during solid-phase epitaxial recrystallization of amorphous germanium. Applied Physics Letters, 2015, 107, .	3.3	8
80	Thermal evolution of the indentation-induced phases of silicon. Journal of Applied Physics, 2019, 126, .	2.5	8
81	Ion Implantation Through Thin Silicon Dioxide Layers for Si-based Solid-State Quantum Computer Device Development. Materials Research Society Symposia Proceedings, 2008, 1074, 1.	0.1	7
82	Lattice location of nickel in diamond by RBS channelling and PIXE. Physica Status Solidi (A) Applications and Materials Science, 2011, 208, 42-46.	1.8	7
83	Fabrication and characterization of PECVD silicon nitride for RF MEMS applications. Microsystem Technologies, 2013, 19, 131-136.	2.0	7
84	Creation and Functionalization of Defects in SiC by Proton Beam Writing. Materials Science Forum, 2017, 897, 233-237.	0.3	7
85	Irradiation-Induced Modification of the Superconducting Properties of Heavily-Boron-Doped Diamond. Physical Review Applied, 2018, 10, .	3.8	7
86	Helium Microprobe Analysis of Semiconductor Materials. IEEE Transactions on Nuclear Science, 1983, 30, 1228-1231.	2.0	6
87	Ion-channeling and Raman scattering study of damage accumulation in silicon. Journal of Applied Physics, 2004, 95, 1096-1101.	2.5	6
88	Modeling the effect of hydrogen infiltration on the asymmetry in arsenic-enhanced solid phase epitaxy in silicon. Journal of Applied Physics, 2004, 96, 2381-2385.	2.5	6
89	Deep level transient spectroscopy study for the development of ion-implanted silicon field-effect transistors for spin-dependent transport. Thin Solid Films, 2010, 518, 2524-2527.	1.8	6
90	High-resolution spectroscopy of individual erbium ions in strong magnetic fields. Physical Review B, 2020, 102, .	3.2	6

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91	Engineering the spinâ€“orbit interaction in surface conducting diamond with a solid-state gate dielectric. Applied Physics Letters, 2020, 116, .	3.3	6
92	Scanned Single-Electron Probe inside a Silicon Electronic Device. ACS Nano, 2020, 14, 9449-9455.	14.6	6
93	Hydrogen-Terminated Diamond MOSFETs Using Ultrathin Glassy Ga₂O₃ Dielectric Formed by Low-Temperature Liquid Metal Printing Method. ACS Applied Electronic Materials, 2022, 4, 2272-2280.	4.3	6
94	Defect formation due to the crystallization of deep amorphous volumes formed in silicon by mega electron volt (MeV) ion implantation. Journal of Materials Research, 2001, 16, 3229-3237.	2.6	5
95	Hydrogen in amorphous Si and Ge during solid phase epitaxy. Thin Solid Films, 2010, 518, 2317-2322.	1.8	5
96	Hydrogen refinement during solid phase epitaxy of buried amorphous silicon layers. Journal of Applied Physics, 2010, 108, .	2.5	5
97	Epitaxial Formation of SiC on (100) Diamond. ACS Applied Electronic Materials, 2020, 2, 2003-2009.	4.3	5
98	Surface transfer doping of diamond using solution-processed molybdenum trioxide. Carbon, 2021, 175, 20-26.	10.3	5
99	Correlation between electronic micro-roughness and surface topography in two-dimensional surface conducting hydrogen-terminated diamond. Diamond and Related Materials, 2021, 116, 108377.	3.9	5
100	Activation and electron spin resonance of near-surface implanted bismuth donors in silicon. Physical Review Materials, 2019, 3, .	2.4	5
101	Zeeman and hyperfine interactions of a single <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mmultiscripts><mml:mi>Er</mml:mi><mml:none /><mml:mrow><mml:mn>3</mml:mn><mml:mo>+</mml:mo></mml:mrow><mml:mprescripts /><mml:none /><mml:mn>167</mml:mn></mml:mmultiscripts></mml:math> ion in Si. Physical Review B, 2022, 105, .	3.2	5
102	Kinetics of Intrinsic and Dopant-Enhanced Solid Phase Epitaxy in Buried Amorphous Si Layers. Materials Research Society Symposia Proceedings, 1996, 438, 119.	0.1	4
103	Surface morphological structures in ultra-high-dose self-implanted silicon. Applied Physics Letters, 1998, 73, 1811-1813.	3.3	4
104	Conditions for the formation of Ti3+ by ion implantation of a-axis Î±-Al2O3. Materials Science and Engineering B: Solid-State Materials for Advanced Technology, 2004, 106, 257-262.	3.5	4
105	Cathodoluminescence microanalysis of diamond nanocrystals in fused silicon dioxide. Journal of Applied Physics, 2008, 104, 113514.	2.5	4
106	Microstructure evolution in carbon-ion implanted sapphire. Journal of Applied Physics, 2010, 107, 023508.	2.5	4
107	Investigation of charge carrier trapping in H-terminated diamond devices. Applied Physics Letters, 2020, 117, 143507.	3.3	4
108	Dopant effects on the photoluminescence of interstitial-related centers in ion implanted silicon. Journal of Applied Physics, 2012, 111, 094910.	2.5	3

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109	Vanadium dioxide thickness effects on tunable optical antennas. Proceedings of SPIE, 2013, , .	0.8	3
110	Erbium-doped slot waveguides containing size-controlled silicon nanocrystals. Journal of Applied Physics, 2015, 117, 163106.	2.5	3
111	Deep level transient spectroscopy study of heavy ion implantation induced defects in silicon. Journal of Applied Physics, 2018, 124, .	2.5	3
112	Isotopic enrichment of silicon by high fluence <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"><mml:mrow><mml:msup><mml:mrow /><mml:mn>28</mml:mn></mml:msup><mml:msup><mml:mtext>Si</mml:mtext><mml:mo>â^'</mml:mo></mml:msup></mml:mrow> ion implantation. Physical Review Materials, 2021, 5, .	2.4	3
113	MeV Helium Microbeam Analysis: Applications to Semiconductor Structures. Materials Research Society Symposia Proceedings, 1985, 48, 403.	0.1	2
114	Channeling Contrast Microscopy: A Powerful Tool for Examining Semiconductor Structures. Materials Research Society Symposia Proceedings, 1986, 69, 305.	0.1	2
115	Structural Analysis of Amorphous Phosphates Using High Performance Liquid Chromatography. Materials Research Society Symposia Proceedings, 1993, 321, 13.	0.1	2
116	Effect of boron on formation of interstitialâ€related luminescence centres in ion implanted silicon. Physica Status Solidi (A) Applications and Materials Science, 2011, 208, 620-623.	1.8	2
117	Ultrashallow Junction Electrodes in Low-Loss Silicon Microring Resonators. Physical Review Applied, 2021, 15, .	3.8	2
118	Single site optical spectroscopy of coupled Er³⁺ ion pairs in silicon. Quantum Science and Technology, 2022, 7, 025019.	5.8	2
119	Valley population of donor states in highly strained silicon. Materials for Quantum Technology, 2022, 2, 025002.	3.1	2
120	Modeling of Hydrogen Diffusion And Segregation in Amorphous Silicon During Solid Phase Epitaxy. ECS Transactions, 2010, 33, 157-164.	0.5	1
121	Comparison between implanted boron and phosphorus in silicon wafers.. , 2010, , .		1
122	Solid phase epitaxial regrowth of germanium containing nanoporous structures formed by ion implantation. , 2014, , .		1
123	Deterministic Shallow Dopant Implantation in Silicon with Detection Confidence Upperâ€Bound to 99.85% by Ionâ€"Solid Interactions (Adv. Mater. 3/2022). Advanced Materials, 2022, 34, .	21.0	1
124	Kinetics of Intrinsic and Dopant-Enhanced Solid Phase Epitaxy in Buried Amorphous Si Layers. Materials Research Society Symposia Proceedings, 1996, 439, 137.	0.1	0
125	Microstructure of Ultra High Dose Self Implanted Silicon. Materials Research Society Symposia Proceedings, 1997, 504, 27.	0.1	0
126	Defective Crystal Recovered from the Crystallization of Potassium-Doped Amorphous Silicon Films. Journal of the Electrochemical Society, 2003, 150, G266.	2.9	0

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127	Formation of Ti:sapphire via high-temperature processing of Ti-implanted sapphire crystals. , 2004, 5277, 375.		0
128	Formation of carbon nanoclusters by implantation of keV carbon ions in fused silica followed by thermal annealing. , 2005, 5650, 35.		0
129	Dislocation related band-edge photoluminescence in boron-implanted silicon. , 2008, , .		0
130	Boron Enhanced H Diffusion in Amorphous Si Formed by Ion Implantation. Materials Research Society Symposia Proceedings, 2008, 1070, 1.	0.1	0
131	Intrinsic and Dopant-Enhanced Solid Phase Epitaxy in Amorphous Germanium. Materials Research Society Symposia Proceedings, 2008, 1070, 1.	0.1	0
132	Deep-level transient spectroscopy study of channelled boron implantation in silicon.. , 2010, , .		0
133	Recent Insights In Solid Phase Epitaxy of Silicon and Germanium. ECS Transactions, 2010, 33, 237-248.	0.5	0
134	Nickel germanide formation via solid phase epitaxial regrowth of amorphous germanium. , 2010, , .		0
135	Deep level transient spectroscopy study of defects at Si/SiO<inf>2</inf> and Si/Si<inf>3</inf>N<inf>4</inf> interfaces. , 2010, , .		0
136	Photoluminescense of B and P doped Si nanocrystals fabricated by ion implantation. , 2010, , .		0
137	Advanced germanium devices: The development of materials and processing. , 2010, , .		0
138	Activation Energy and Blistering Rate in Hydrogen-implanted Semiconductors. Materials Research Society Symposia Proceedings, 2012, 1424, 79.	0.1	0
139	Raman study on the phase transformations of the meta-stable phases of Si induced by indentation. , 2012, , .		0
140	Characterisation of solid-phase-epitaxy of amorphous germanium thin-films. , 2012, , .		0
141	Electrical characterisation of spin-coated a-IZO thin-film transistors. , 2012, , .		0
142	Ion-implantation and analysis for doped silicon slot waveguides. , 2012, , .		0
143	Ion-implantation and analysis for doped silicon slot waveguides. EPJ Web of Conferences, 2012, 35, 03002.	0.3	0
144	Optical Switching and Photoluminescence in Erbium Implanted Vanadium Dioxide Thin Films. Materials Research Society Symposia Proceedings, 2013, 1577, 1.	0.1	0

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145	Investigation of amorphisation of germanium using modeling and experimental processes. Proceedings of SPIE, 2013, , .	0.8	0
146	Single-atom spin qubits in silicon. , 2014, , .		0
147	Optical spectroscopy of erbium doped monocrystalline vanadium dioxide. , 2014, , .		0
148	Development Of nanowire devices with quantum functionalities. , 2014, , .		0
149	Characterization of few-layered graphene grown by carbon implantation. , 2014, , .		0
150	dLow Temperature of formation of Nickel Germanide by reaction of Nickel and Crystalline Germanium. Materials Research Society Symposia Proceedings, 2014, 1655, 1.	0.1	0
151	Characterisation of nickel germanide formed on amorphous and crystalline germanium. , 2014, , .		0
152	Hydrogen diffusion and segregation during solid phase epitaxial regrowth of preamorphized Si. Journal of Applied Physics, 2016, 119, 115103.	2.5	0
153	Piezoresistance in Defect-Engineered Silicon. Physical Review Applied, 2021, 15, .	3.8	0
154	Imaging with NV ensembles: beyond magnetometry. , 2019, , .		0
155	Biomolecular modifications in the sacfry of Mogurnda adspersa in response to copper stress. Aquatic Toxicology, 2022, 248, 106179.	4.0	0
156	High-field magnetotransport studies of surface-conducting diamonds. Physical Review B, 2022, 105, .	3.2	0