

# Matthew J Sellars

## List of Publications by Year in descending order

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91  
papers

5,591  
citations

136940

32  
h-index

74160

75  
g-index

92  
all docs

92  
docs citations

92  
times ranked

3488  
citing authors

#	ARTICLE	IF	CITATIONS
1	Time-Resolved Photoionization Detection of a Single Er <sup>3+</sup> Ion in Silicon. Nano Letters, 2022, 22, 396-401.	9.1	4
2	Complete crystal-field calculation of Zeeman hyperfine splittings in europium. Physical Review B, 2022, 105, .	3.2	1
3	Single site optical spectroscopy of coupled Er <sup>3+</sup> ion pairs in silicon. Quantum Science and Technology, 2022, 7, 025019.	5.8	2
4	Zeeman and hyperfine interactions of a single $\text{Er}^{3+}$ ion in Si. Physical Review B, 2022, 105, .	3.2	5
5	Ultrashallow Junction Electrodes in Low-Loss Silicon Microring Resonators. Physical Review Applied, 2021, 15, .	3.8	2
6	Quantum memories and the double-slit experiment: implications for astronomical interferometry. Journal of the Optical Society of America B: Optical Physics, 2021, 38, A86.	2.1	12
7	Initialization protocol for efficient quantum memories using resolved hyperfine structure. Physical Review Research, 2021, 3, .	3.6	18
8	High-resolution spectroscopy of individual erbium ions in strong magnetic fields. Physical Review B, 2020, 102, .	3.2	6
9	Diamond nanopillar arrays for quantum microscopy of neuronal signals. Neurophotonics, 2020, 7, 1.	3.3	5
10	Single Rare-Earth Ions as Atomic-Scale Probes in Ultrascaled Transistors. Nano Letters, 2019, 19, 5025-5030.	9.1	16
11	Quantum information processing using frozen core Y <sup>3+</sup> spins in Eu <sup>3+</sup> :Y <sub>2</sub> SiO <sub>5</sub> . New Journal of Physics, 2019, 21, 033019.	2.9	9
12	Technique for frequency selective, sub-diffraction limited imaging of rare-earth ions in bulk crystals. Journal of Luminescence, 2018, 194, 284-291.	3.1	1
13	Coherence time of over a second in a telecom-compatible quantum memory storage material. Nature Physics, 2018, 14, 50-54.	16.7	182
14	NV <sup>0</sup> pair centre in 1b diamond. New Journal of Physics, 2018, 20, 113037.	2.9	79
15	Introduction to the Spectroscopy of Rare-Earth Doped Crystals for Quantum Communications. , 2017, , .		0
16	Stoichiometric Rare-Earth Crystals for Applications in Quantum Information. , 2017, , .		0
17	Generation of Light with Multimode Time-Delayed Entanglement Using Storage in a Solid-State Spin-Wave Quantum Memory. Physical Review Letters, 2016, 117, 020501.	7.8	42
18	Engineering closed optical transitions in rare-earth ion crystals. Physical Review B, 2016, 93, .	3.2	13

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19	Epitaxial growth of Sc <sub>2</sub> O <sub>3</sub> films on Gd <sub>2</sub> O <sub>3</sub> -buffered Si substrates by pulsed laser deposition. Applied Physics A: Materials Science and Processing, 2016, 122, 1.	2.3	3
20	Closing optical transitions for single rare-earth ion spin readout. , 2016, , .		0
21	Observation of Photon Echoes From Evanescently Coupled Rare-Earth Ions in a Planar Waveguide. Physical Review Letters, 2015, 115, 013601.	7.8	38
22	Optically addressable nuclear spins in a solid with a six-hour coherence time. Nature, 2015, 517, 177-180.	27.8	500
23	Single photon production by rephased amplified spontaneous emission. New Journal of Physics, 2014, 16, 033042.	2.9	8
24	Atomic clocks in the solid state. Nature Nanotechnology, 2013, 8, 544-545. Minimizing Zeeman sensitivity on optical and hyperfine transitions in 	31.5	1
25	Method for assigning satellite lines to crystallographic sites in rare-earth crystals. Physical Review B, 2013, 88, .	3.1	10
26	Optical lifetime and linewidth studies of the transition in : A potential material for quantum memory applications. Journal of Luminescence, 2013, 133, 152-156.	3.2	11
27	Optical addressing of an individual erbium ion in silicon. Nature, 2013, 497, 91-94.	3.1	24
28	Demonstration of a dynamic bandpass frequency filter in a rare-earth ion-doped crystal. Journal of the Optical Society of America B: Optical Physics, 2013, 30, 1173.	27.8	149
29	Cavity enhanced rephased amplified spontaneous emission. Proceedings of SPIE, 2013, , .	2.1	21
30	Precision Measurement of Electronic Ion-Ion Interactions between Neighboring $\text{Eu}^{3+}$ Centers. Physical Review Letters, 2013, 111, 240501.	0.8	0
31	Storage and retrieval of collective excitations on a long-lived spin transition in a rare-earth ion-doped crystal. Optics Express, 2013, 21, 10087.	7.8	29
32	Demonstration of Photon-Echo Rephasing of Spontaneous Emission. Physical Review Letters, 2012, 109, 093603.	3.4	9
33	Reducing decoherence in optical and spin transitions in rare-earth-metal-ion-doped materials. Physical Review A, 2012, 85, .	7.8	27
34	Photo-ionisation spectra of single erbium centres by charge sensing with a nano transistor. , 2012, , .	2.5	42
35	Photon-echo quantum memories in inhomogeneously broadened two-level atoms. Physical Review A, 2011, 84, .		0
36	Photon-echo quantum memories in inhomogeneously broadened two-level atoms. Physical Review A, 2011, 84, .	2.5	58

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37	Photon echo without a free induction decay in a double- $\lambda$ system. <i>Optics Letters</i> , 2011, 36, 1272.	3.3	15
38	Spin-wave generation and storage in a solid state system. , 2011, , .		0
39	High Efficiency Gradient Echo Memory with 3-Level Atoms. , 2011, , .		0
40	Characterisation of $\text{EuCl}_3 \cdot 6\text{H}_2\text{O}$ for multi-qubit quantum processing. , 2011, , .		0
41	Photon echo quantum memory in solid state systems. <i>Laser and Photonics Reviews</i> , 2010, 4, 244-267.	8.7	351
42	Nonclassical photon streams using rephased amplified spontaneous emission. <i>Physical Review A</i> , 2010, 81, .	2.5	36
43	Coherent heterodyne-assisted pulsed spectroscopy: sub-Doppler two-photon spectra of krypton, characterizing a tunable nonlinear-optical ultraviolet light source. <i>Applied Physics B: Lasers and Optics</i> , 2010, 99, 609-612.	2.2	8
44	superhyperfine structure due to magnetic dipole-dipole interactions with in. <i>Journal of Luminescence</i> , 2010, 130, 1594-1597.	3.1	6
45	Efficient quantum memory for light. <i>Nature</i> , 2010, 465, 1052-1056.	27.8	495
46	Observation and control of blinking nitrogen-vacancy centres in discrete nanodiamonds. <i>Nature Nanotechnology</i> , 2010, 5, 345-349.	31.5	417
47	Ligand isotope structure of the optical $F$ transition	3.2	23
48	Demonstration of the reduction of decoherent errors in a solid-state qubit using dynamic decoupling techniques. <i>Physical Review A</i> , 2009, 80, .	2.5	22
49	Strong-coupling cavity QED using rare-earth-metal-ion dopants in monolithic resonators: What you can do with a weak oscillator. <i>Physical Review A</i> , 2009, 80, .	2.5	64
50	Analytic treatment of controlled reversible inhomogeneous broadening quantum memories for light using two-level atoms. <i>Physical Review A</i> , 2008, 78, .	2.5	52
51	Electro-Optic Quantum Memory for Light Using Two-Level Atoms. <i>Physical Review Letters</i> , 2008, 100, 023601.	7.8	172
52	Infrared emission of the NV centre in diamond: Zeeman and uniaxial stress studies. <i>New Journal of Physics</i> , 2008, 10, 103024.	2.9	125
53	Multimodal Properties and Dynamics of Gradient Echo Quantum Memory. <i>Physical Review Letters</i> , 2008, 101, 203601.	7.8	62
54	Gradient echo quantum memory for light using two-level atoms. , 2007, , .		1

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55	Measurement of the ground-state hyperfine coherence time of $^{151}\text{Eu}^{3+}:\text{Y}_2\text{SiO}_5$ . Journal of the Optical Society of America B: Optical Physics, 2007, 24, 2479.	2.1	31
56	Coherent information storage with photon echoes produced by switching electric fields. Journal of Luminescence, 2007, 127, 94-97.	3.1	25
57	Measurement of the optically induced spin polarisation of N-V centres in diamond. Diamond and Related Materials, 2006, 15, 586-588.	3.9	81
58	VLSI quantum computer in diamond. , 2006, 6130, 65.		1
59	Characterization of the hyperfine interaction in europium-doped yttrium orthosilicate and europium chloride hexahydrate. Physical Review B, 2006, 74, .	3.2	65
60	Photon Echoes Produced by Switching Electric Fields. Physical Review Letters, 2006, 96, 043602.	7.8	221
61	Nitrogen-vacancy center in diamond: Model of the electronic structure and associated dynamics. Physical Review B, 2006, 74, .	3.2	501
62	Dynamic Decoherence Control of a Solid-State Nuclear-Quadrupole Qubit. Physical Review Letters, 2005, 95, 030506.	7.8	183
63	Stopped Light with Storage Times Greater than One Second Using Electromagnetically Induced Transparency in a Solid. Physical Review Letters, 2005, 95, 063601.	7.8	448
64	Phase-dependent decoherence of optical transitions in $\text{Pr}^{3+}:\text{LaF}_3$ in the presence of a driving field. Physical Review B, 2004, 69, .	3.2	4
65	Optical spin polarisation of the N-V centre in diamond. Journal of Luminescence, 2004, 107, 245-248.	3.1	91
66	$\text{Pr}^{3+}:\text{Y}_2\text{SiO}_5$ interaction in $\text{Pr}^{3+}:\text{Y}_2\text{SiO}_5$ . Journal of Luminescence, 2004, 107, 347-350.	3.1	15
67	Investigation of static electric dipole-dipole coupling induced optical inhomogeneous broadening in $\text{Eu}^{3+}:\text{Y}_2\text{SiO}_5$ . Journal of Luminescence, 2004, 107, 150-154.	3.1	20
68	Experimental demonstration of quantum-state tomography and qubit-qubit interactions for rare-earth-metal-ion-based solid-state qubits. Physical Review A, 2004, 69, .	2.5	78
69	Method of Extending Hyperfine Coherence Times in $\text{Pr}^{3+}:\text{Y}_2\text{SiO}_5$ . Physical Review Letters, 2004, 92, 077601.	7.8	154
70	Demonstration of Conditional Quantum Phase Shift Between Ions in a Solid. Physical Review Letters, 2004, 93, 130503.	7.8	88
71	Hyperfine interaction in ground and excited states of praseodymium-doped yttrium orthosilicate. Physical Review B, 2002, 66, .	3.2	46
72	Site selective excitation, upconversion and laser operation in $\text{Er}^{3+}:\text{LiKYF}_5$ . Optics Communications, 2001, 188, 219-232.	2.1	26

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73	Spectral hole burning and Raman heterodyne signals associated with an avoided crossing in the NV centre in diamond. <i>Journal of Luminescence</i> , 2000, 86, 355-362.	3.1	11
74	Optical non-Bloch behaviour observed using an optical Carré-Purcell-Meiboom-Gill pulse sequence. <i>Journal of Luminescence</i> , 2000, 86, 279-283.	3.1	1
75	50kHz absorption line in Y2SiO5:Eu3+. <i>Journal of Luminescence</i> , 2000, 87-89, 833-835.	3.1	11
76	Electric-field-induced broadening of spectral holes in zinc phthalocyanine. <i>Chemical Physics Letters</i> , 2000, 327, 189-196.	2.6	3
77	Solid State Coherent Transient Measurements Using Hard Optical Pulses. <i>Physical Review Letters</i> , 2000, 84, 1152-1155.	7.8	56
78	Magneto-optic measurements of spectral holes in metallo-porphyrin derivatives in polymer matrices. <i>Physical Chemistry Chemical Physics</i> , 2000, 2, 3993-3999.	2.8	1
79	Experimental demonstration of data erasure for time-domain optical memories. <i>Journal of the Optical Society of America B: Optical Physics</i> , 1999, 16, 805.	2.1	5
80	Direct observation of radiation locking using phase-sensitive detection. <i>Journal of Luminescence</i> , 1998, 76-77, 137-140.	3.1	3
81	Resolved isotopic energy shift and hole burning in EuCl3·6H2O. <i>Journal of Luminescence</i> , 1998, 78, 19-24.	3.1	11
82	Breaking the Stokes-anti-Stokes symmetry in Raman heterodyne detection of magnetic-resonance transitions. <i>Physical Review A</i> , 1998, 58, 4961-4966.	2.5	6
83	Effect of the Bloch - Siegert shift in a strongly driven transition: asymmetric Autler - Townes profile. <i>Journal of Physics B: Atomic, Molecular and Optical Physics</i> , 1997, 30, 2735-2745.	1.5	14
84	Accurate measurement of the 12.6 GHz "clock" transition in trapped <sup>171</sup> Yb <sup>+</sup> ions. <i>IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control</i> , 1997, 44, 344-354.	3.0	82
85	Energy transfer and upconversions in cubic Cs2NaYCl6:Er3+ and Cs2NaErCl6. <i>Physical Review B</i> , 1997, 56, 4518-4528.	3.2	23
86	Very high Q microwave spectroscopy on trapped <sup>171</sup> Yb <sup>+</sup> ions: application as a frequency standard. <i>IEEE Transactions on Instrumentation and Measurement</i> , 1995, 44, 113-116.	4.7	40
87	Performance of a prototype microwave frequency standard based on laser-detected, trapped <sup>171</sup> Yb <sup>+</sup> ions. <i>Applied Physics B: Lasers and Optics</i> , 1995, 60, 519-527.	2.2	24
88	Hole burning of rare earth ions with kHz resolution. <i>Journal of Luminescence</i> , 1995, 64, 19-23.	3.1	7
89	Zeeman measurements of transient holes at MHz frequencies. <i>Journal of Luminescence</i> , 1994, 60-61, 135-137.	3.1	0
90	Long-time spectral diffusion in LaF3:Pr3+. <i>Journal of Luminescence</i> , 1994, 58, 188-190.	3.1	6

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91	Time-resolved ultranarrow optical hole burning of a crystalline solid: Y <sub>2</sub> O <sub>3</sub> :Eu <sup>3+</sup> . Journal of the Optical Society of America B: Optical Physics, 1994, 11, 1468.	2.1	33