

# Matthew J Sellars

## List of Publications by Year in descending order

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91  
papers

5,591  
citations

136950

32  
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74163

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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. Optics Letters, 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. Laser and Photonics Reviews, 2010, 4, 244-267.	8.7	351
42	Nonclassical photon streams using rephased amplified spontaneous emission. Physical Review A, 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. Applied Physics B: Lasers and Optics, 2010, 99, 609-612.	2.2	8
44	superhyperfine structure due to magnetic dipole-dipole interactions with in. Journal of Luminescence, 2010, 130, 1594-1597.	3.1	6
45	Efficient quantum memory for light. Nature, 2010, 465, 1052-1056.	27.8	495
46	Observation and control of blinking nitrogen-vacancy centres in discrete nanodiamonds. Nature Nanotechnology, 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. Physical Review A, 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. Physical Review A, 2009, 80, .	2.5	64
50	Analytic treatment of controlled reversible inhomogeneous broadening quantum memories for light using two-level atoms. Physical Review A, 2008, 78, .	2.5	52
51	Electro-Optic Quantum Memory for Light Using Two-Level Atoms. Physical Review Letters, 2008, 100, 023601.	7.8	172
52	Infrared emission of the NV centre in diamond: Zeeman and uniaxial stress studies. New Journal of Physics, 2008, 10, 103024.	2.9	125
53	Multimodal Properties and Dynamics of Gradient Echo Quantum Memory. Physical Review Letters, 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