Michael R Tarbutt

List of Publications by Year
in descending order

95 papers	4,333 citations	136950 32 h-index	110387 64 g-index
97 all docs	97 docs citations	97 times ranked	1797 citing authors

#	Article	IF	Citations
1	Improved measurement of the shape of the electron. Nature, 2011, 473, 493-496.	27.8	584
2	Measurement of the Electron Electric Dipole Moment Using YbF Molecules. Physical Review Letters, 2002, 89, 023003.	7.8	359
3	Molecules cooled below the Doppler limit. Nature Physics, 2017, 13, 1173-1176.	16.7	268
4	Laser cooling and slowing of CaF molecules. Physical Review A, 2014, 89, .	2.5	238
5	Slowing Heavy, Ground-State Molecules using an Alternating Gradient Decelerator. Physical Review Letters, 2004, 92, 173002.	7.8	163
6	Laser Cooled YbF Molecules for Measuring the Electronâ€™s Electric Dipole Moment. Physical Review Letters, 2018, 120, 123201.	7.8	146
7	Submillikelvin Dipolar Molecules in a Radio-Frequency Magneto-Optical Trap. Physical Review Letters, 2016, 116, 063004.	7.8	141
8	Measurement of the electron's electric dipole moment using YbF molecules: methods and data analysis. New Journal of Physics, 2012, 14, 103051.	2.9	105
9	Ultracold molecules for quantum simulation: rotational coherences in CaF and RbCs. Quantum Science and Technology, 2019, 4, 014010.	5.8	96
10	Design for a fountain of YbF molecules to measure the electron's electric dipole moment. New Journal of Physics, 2013, 15, 053034.	2.9	91
11	Magnetic Trapping and Coherent Control of Laser-Cooled Molecules. Physical Review Letters, 2018, 120, 163201.	7.8	91
12	Ultracold polar molecules as qudits. New Journal of Physics, 2020, 22, 013027.	2.9	84
13	A search for varying fundamental constants using hertz-level frequency measurements of cold CH molecules. Nature Communications, 2013, 4, 2600.	12.8	77
14	Magneto-optical trapping forces for atoms and molecules with complex level structures. New Journal of Physics, 2015, 17, 015007.	2.9	69
15	Laser cooling of molecules. Contemporary Physics, 2018, 59, 356-376.	1.8	68
16	Alternating gradient focusing and deceleration of polar molecules. Journal of Physics B: Atomic, Molecular and Optical Physics, 2006, 39, R263-R291.	1.5	64
17	Prospects for measuring the electric dipole moment of the electron using electrically trapped polar molecules. Faraday Discussions, 2009, 142, 37.	3.2	61
18	An intense, cold, velocity-controlled molecular beam by frequency-chirped laser slowing. New Journal of Physics, 2017, 19, 022001.	2.9	58

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19	Deep Laser Cooling and Efficient Magnetic Compression of Molecules. Physical Review Letters, 2019, 123, 033202.	7.8	58
20	Characteristics of a magneto-optical trap of molecules. New Journal of Physics, 2017, 19, 113035.	2.9	54
21	Three-dimensional Doppler, polarization-gradient, and magneto-optical forces for atoms and molecules with dark states. New Journal of Physics, 2016, 18, 123017.	2.9	50
22	Surface-induced heating of cold polar molecules. Physical Review A, 2008, 78, .	2.5	49
23	Anticipated X-ray and VUV spectroscopic data from ITERwith appropriate diagnostic instrumentation. Canadian Journal of Physics, 2008, 86, 277-284.	1.1	47
24	Modeling magneto-optical trapping of CaF molecules. Physical Review A, 2015, 92, .	2.5	47
25	Modeling sympathetic cooling of molecules by ultracold atoms. Physical Review A, 2015, 92, .	2.5	47
26	Robust entangling gate for polar molecules using magnetic and microwave fields. Physical Review A, 2020, 101, .	2.5	47
27	Lifetime of the<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mrow><mml:mi>A</mml:mi><mml:mrow><mml:mo>(</mml:mo><mml:msup><mml:mi>v</mml:mi><mml:mo>′</mml:mo></mml:msup><mml:mo>=</mml:mo><mml:mn>0</mml:mn><mml:mo>)</mml:mo></mml:mrow></mml:mrow></mml:math> and Franck-Condon factor of the<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML"		

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37	Prospects for sympathetic cooling of molecules in electrostatic, ac and microwave traps. European Physical Journal D, 2011, 65, 141-149.	1.3	29
38	Traveling-wave deceleration of heavy polar molecules in low-field-seeking states. Physical Review A, 2012, 86, .	2.5	29
39	Nonadiabatic transitions in a Stark decelerator. Physical Review A, 2010, 81, .	2.5	28
40	Long Rotational Coherence Times of Molecules in a Magnetic Trap. Physical Review Letters, 2020, 124, 063001.	7.8	28
41	Versatile high resolution crystal spectrometer with x-ray charge coupled device detector. Review of Scientific Instruments, 2003, 74, 2388-2408.	1.3	27
42	Stark deceleration of lithium hydride molecules. New Journal of Physics, 2009, 11, 055038.	2.9	27
43	Radiative branching ratios for excited states of <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" altimg="si18.gif" overflow="scroll"><mml:mrow><mml:msup><mml:mrow /><mml:mn>174</mml:mn></mml:msup></mml:mrow></mml:math>YbF: Application to laser cooling. Journal of Molecular Spectroscopy, 2014, 300, 3-6.	1.2	27
44	Production and characterization of a dual species magneto-optical trap of cesium and ytterbium. Review of Scientific Instruments, 2016, 87, 023105.	1.3	27
45	Principles and Design of a Zeeman-Sisyphus Decelerator for Molecular Beams. ChemPhysChem, 2016, 17, 3609-3623.	2.1	27
46	Characterization of a cryogenic beam source for atoms and molecules. Physical Chemistry Chemical Physics, 2013, 15, 12299.	2.8	25
47	Vibrational branching ratios and hyperfine structure of 11BH and its suitability for laser cooling. Frontiers in Physics, 2014, 2, .	2.1	25
48	Methods for measuring the electronâ€™s electric dipole moment using ultracold YbF molecules. Quantum Science and Technology, 2021, 6, 014006.	5.8	24
49	Blue-Detuned Magneto-Optical Trap. Physical Review Letters, 2018, 120, 083201.	7.8	23
50	Doppler-free laser spectroscopy of buffer-gas-cooled molecular radicals. New Journal of Physics, 2009, 11, 123026.	2.9	22
51	Laser cooling and magneto-optical trapping of molecules analyzed using optical Bloch equations and the Fokker-Planck-Kramers equation. Physical Review A, 2018, 98, .	2.5	22
52	New techniques for a measurement of the electronâ€™s electric dipole moment. New Journal of Physics, 2020, 22, 053031.	2.9	22
53	Measurement of the ground-state Lamb shift of hydrogen-like Ti21+. Journal of Physics B: Atomic, Molecular and Optical Physics, 2002, 35, 1467-1478.	1.5	21
54	Direct loading of a large Yb MOT on the ${}^{1}{{m{S}}}_{0};o {}^{3}{{m{P}}}_{1}$ transition. Journal of Physics B: Atomic, Molecular and Optical Physics, 2016, 49, 145006.	1.5	21

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55	The [557]-X2Î£+ and [561]-X2Î£+ bands of ytterbium fluoride, 174YbF. Journal of Molecular Spectroscopy, 2017, 338, 81-90.	1.2	20
56	Measurement of the1s2p3P0â€“3P1fine-structure interval in heliumlike magnesium. Physical Review A, 1999, 61, .	2.5	19
57	Stark deceleration of CaF molecules in strong- and weak-field seeking states. Physical Chemistry Chemical Physics, 2011, 13, 18991.	2.8	19
58	A versatile dual-species Zeeman slower for caesium and ytterbium. Review of Scientific Instruments, 2016, 87, 043109.	1.3	18
59	An ultracold molecular beam for testing fundamental physics. Quantum Science and Technology, 2021, 6, 044005.	5.8	18
60	Characterising molecules for fundamental physics: an accurate spectroscopic model of methyltrioxorhenium derived from new infrared and millimetre-wave measurements. Physical Chemistry Chemical Physics, 2017, 19, 4576-4587.	2.8	16
61	A supersonic beam of cold lithium hydride molecules. Journal of Chemical Physics, 2007, 126, 124314.	3.0	15
62	High-resolution mid-infrared spectroscopy of buffer-gas-cooled methyltrioxorhenium molecules. New Journal of Physics, 2017, 19, 053006.	2.9	15
63	Injection of various metallic elements into an electron beam ion trap: Techniques needed for systematic investigations of isoelectronic sequences. Review of Scientific Instruments, 2000, 71, 684-686.	1.3	14
64	Nonlinear dynamics in an alternating gradient guide for neutral particles. New Journal of Physics, 2008, 10, 073011.	2.9	14
65	Transport of polar molecules by an alternating-gradient guide. Physical Review A, 2009, 80, .	2.5	14
66	Probing the Electron EDM with Cold Molecules. AIP Conference Proceedings, 2006, , .	0.4	12
67	MEASUREMENT OF THE LOWEST MILLIMETER-WAVE TRANSITION FREQUENCY OF THE CH RADICAL. Astrophysical Journal, 2014, 780, 71.	4.5	12
68	A high quality, efficiently coupled microwave cavity for trapping cold molecules. Journal of Physics B: Atomic, Molecular and Optical Physics, 2015, 48, 045001.	1.5	12
69	Enhancing Dipolar Interactions between Molecules Using State-Dependent Optical Tweezer Traps. Physical Review Letters, 2020, 125, 243201.	7.8	12
70	Microwave trap for atoms and molecules. Physical Review Research, 2019, 1, .	3.6	11
71	Measuring the stability of fundamental constants with a network of clocks. EPJ Quantum Technology, 2022, 9, .	6.3	11
72	Pulsed beams as field probes for precision measurement. Physical Review A, 2007, 76, .	2.5	10

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73	A robust floating nanoammeter. Review of Scientific Instruments, 2008, 79, 126102.	1.3	10
74	Microwave spectroscopy of <mml:math altimg="si54.gif" overflow="scroll" xmlns:xocs="http://www.elsevier.com/xml/xocs/dtd" xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://www.elsevier.com/xml/ja/dtd" xmlns:ja="http://www.elsevier.com/xml/ja/dtd" xmlns:mml="http://www.w3.org/1998/Math/MathML" xmlns:tb="http://www.elsevier.com/xml/common/table/dtd" xmlns:sb="http://www.elsevier.com/xml/common/struct-bib/dtd" xmlns:ce="http://www.elsevier.com/x	1.2	10
75	Measurements of the Zeeman effect in the A2Î and B2Î£+ states of calcium fluoride. Journal of Molecular Spectroscopy, 2015, 317, 1-9.	1.2	9
76	Ionization balance in EBIT and tokamak plasmas. Review of Scientific Instruments, 2001, 72, 1250-1255.	1.3	8
77	Stark shift of the A2Î1âˆ•2 state in YbF174. Journal of Chemical Physics, 2005, 123, 231101.	3.0	8
78	Inner-shell excitation in the YbF molecule and its impact on laser cooling. Journal of Molecular Spectroscopy, 2022, 386, 111625.	1.2	8
79	Collisions in a dual-species magneto-optical trap of molecules and atoms. New Journal of Physics, 2021, 23, 075004.	2.9	7
80	Title is missing!. , 2000, 127, 323-328.		4
81	High energy operation of the Tokyo-electron beam ion trap/present status. Review of Scientific Instruments, 2000, 71, 687-689.	1.3	4
82	Prospects for the measurement of the electron electric dipole moment using YbF. Physics Procedia, 2011, 17, 175-180.	1.2	4
83	Stochastic multi-channel lock-in detection. New Journal of Physics, 2014, 16, 013005.	2.9	4
84	General approach to state-dependent optical-tweezer traps for polar molecules. Physical Review Research, 2021, 3, .	3.6	4
85	Time reversal symmetry violation in the YbF molecule. Hyperfine Interactions, 2013, 214, 119-126.	0.5	2
86	Characteristics of unconventional Rb magneto-optical traps. Physical Review A, 2018, 98, .	2.5	2
87	Accurate Measurements of Visible M1 Transitions of Titanium-like Ions using an Electron Beam Ion Trap. Physica Scripta, 2001, T92, 144-148.	2.5	2
88	Precision Lamb shift measurement in hydrogenic nitrogen by fast beam laser spectroscopy. , 2000, 127, 329-332.		1
89	Title is missing!. , 2000, 127, 333-337.		1
90	TOWARDS A NEW MEASUREMENT OF THE ELECTRON'S ELECTRIC DIPOLE MOMENT. , 2005, , .		1

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91	Response to â€œComment on â€˜A robust floating nanoammeterâ€™â€•[Rev. Sci. Instrum. 80, 057101 (2009)]. Review of Scientific Instruments, 2009, 80, 057102.	1.3	0
92	From Hot Beams to Trapped Ultracold Molecules: Motivations, Methods andÂFuture Directions. , 2021, , 491-516.		0
93	Measurement of the 1s2p 3P0 - 3P1 Fine Structure Interval in Helium-Like Magnesium. Lecture Notes in Physics, 2001, , 679-687.	0.7	0
94	Preparation and Manipulation of Molecules for Fundamental Physics Tests. , 2009, , .		0
95	Time reversal symmetry violation in the YbF molecule. , 2013, , 119-126.		0