Markus Arndt

List of Publications by Year
in descending order

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166 papers	7,630 citations	61945 43 h-index	54882 84 g-index
172 all docs	172 docs citations	172 times ranked	3743 citing authors

#	Article	IF	Citations
1	Waveâ€“particle duality of C60 molecules. Nature, 1999, 401, 680-682.	13.7	1,003
2	Colloquium: Quantum interference of clusters and molecules. Reviews of Modern Physics, 2012, 84, 157-173.	16.4	288
3	Quantum interference of large organic molecules. Nature Communications, 2011, 2, 263.	5.8	285
4	Testing the limits of quantum mechanical superpositions. Nature Physics, 2014, 10, 271-277.	6.5	283
5	Matter-Wave Interferometer for Large Molecules. Physical Review Letters, 2002, 88, 100404.	2.9	273
6	Decoherence of matter waves by thermal emission of radiation. Nature, 2004, 427, 711-714.	13.7	262
7	Collisional Decoherence Observed in Matter Wave Interferometry. Physical Review Letters, 2003, 90, 160401.	2.9	222
8	Atomic Wave Diffraction and Interference Using Temporal Slits. Physical Review Letters, 1996, 77, 4-7.	2.9	214
9	Wave Nature of Biomolecules and Fluorofullerenes. Physical Review Letters, 2003, 91, 090408.	2.9	202
10	Matterâ€“wave interference of particles selected from a molecular library with masses exceeding 10â€‰000 amu. Physical Chemistry Chemical Physics, 2013, 15, 14696.	1.3	197
11	Quantum interference experiments with large molecules. American Journal of Physics, 2003, 71, 319-325.	0.3	190
12	A Kapitzaâ€“Diracâ€“Talbotâ€“Lau interferometer for highly polarizable molecules. Nature Physics, 2007, 3, 711-715.	6.5	175
13	Quantum superposition of molecules beyond 25 kDa. Nature Physics, 2019, 15, 1242-1245.	6.5	170
14	Quantum physics meets biology. HFSP Journal, 2009, 3, 386-400.	2.5	149
15	Realization of optical carpets in the Talbot and Talbot-Lau configurations. Optics Express, 2009, 17, 20966.	1.7	127
16	Cavity cooling of free silicon nanoparticles in high vacuum. Nature Communications, 2013, 4, 2743.	5.8	117
17	Real-time single-molecule imaging of quantum interference. Nature Nanotechnology, 2012, 7, 297-300.	15.6	115
18	Observation of a Zero-Energy Resonance in Cs-Cs Collisions. Physical Review Letters, 1997, 79, 625-628.	2.9	109

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19	Full rotational control of levitated silicon nanorods. Optica, 2017, 4, 356.	4.8	105
20	Diffraction of Complex Molecules by Structures Made of Light. Physical Review Letters, 2001, 87, 160401.	2.9	94
21	Theory of decoherence in a matter wave Talbot-Lau interferometer. Physical Review A, 2004, 70, .	1.0	91
22	Experimental study of quantum and classical limits in microwave ionization of rubidium Rydberg atoms. Physical Review Letters, 1991, 67, 2435-2438.	2.9	89
23	Optical spectroscopy of atoms trapped in solid helium. Physical Review B, 1994, 49, 3645-3647.	1.1	89
24	A universal matter-wave interferometer with optical ionization gratings in the time domain. Nature Physics, 2013, 9, 144-148.	6.5	88
25	Toward Two-Dimensional All-Carbon Heterostructures via Ion Beam Patterning of Single-Layer Graphene. Nano Letters, 2015, 15, 5944-5949.	4.5	85
26	Optically driven ultra-stable nanomechanical rotor. Nature Communications, 2017, 8, 1670.	5.8	83
27	Testing spontaneous localization theories with matter-wave interferometry. Physical Review A, 2011, 83, .	1.0	82
28	Theory and experimental verification of Kapitzaâ€“Diracâ€“Talbotâ€“Lau interferometry. New Journal of Physics, 2009, 11, 043032.	1.2	74
29	Pressure shift and broadening of the resonance line of barium atoms in liquid helium. Physical Review B, 1994, 50, 6296-6302.	1.1	69
30	Polarizability measurements of a molecule via a near-field matter-wave interferometer. Physical Review A, 2007, 76, .	1.0	69
31	Decoherence in a Talbotâ€“Lau interferometer: the influence of molecular scattering. Applied Physics B: Lasers and Optics, 2003, 77, 781-787.	1.1	66
32	Probing macroscopic quantum superpositions with nanorotors. New Journal of Physics, 2018, 20, 122001.	1.2	66
33	Cavity-Assisted Manipulation of Freely Rotating Silicon Nanorods in High Vacuum. Nano Letters, 2015, 15, 5604-5608.	4.5	62
34	Concepts for near-field interferometers with large molecules. Journal of Optics B: Quantum and Semiclassical Optics, 2003, 5, S82-S89.	1.4	59
35	Experimental verification of the Heisenberg uncertainty principle for fullerene molecules. Physical Review A, 2002, 65, .	1.0	56
36	Long Electronic Spin Relaxation Times of Cs Atoms in Solid4He. Physical Review Letters, 1995, 74, 1359-1362.	2.9	53

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37	Wave and Particle in Molecular Interference Lithography. Physical Review Letters, 2009, 103, 263601.	2.9	52
38	Can paramagnetic atoms in superfluid helium be used to search for permanent electric dipole moments?. Physics Letters, Section A: General, Atomic and Solid State Physics, 1993, 174, 298-303.	0.9	50
39	Experimental methods of molecular matter-wave optics. Reports on Progress in Physics, 2013, 76, 086402.	8.1	50
40	Rotranslational cavity cooling of dielectric rods and disks. Physical Review A, 2016, 94, .	1.0	48
41	Probing the limits of the quantum world. Physics World, 2005, 18, 35-40.	0.0	45
42	Matterâ€Wave Metrology as a Complementary Tool for Mass Spectrometry. Angewandte Chemie - International Edition, 2008, 47, 6195-6198.	7.2	45
43	Pressure shift of atomic resonance lines in liquid and solid helium. European Physical Journal B, 1995, 98, 371-376.	0.6	44
44	Atom optics in the time domain. Physical Review A, 1996, 53, 3369-3378.	1.0	44
45	Elementary Sisyphus process close to a dielectric surface. Physical Review A, 1996, 54, 4292-4298.	1.0	43
46	Quantum technology: from research to application. Applied Physics B: Lasers and Optics, 2016, 122, 1.	1.1	42
47	An atomically thin matter-wave beamsplitter. Nature Nanotechnology, 2015, 10, 845-848.	15.6	41
48	Silicon microcavity arrays with open access and a finesse of half a million. Light: Science and Applications, 2019, 8, 37.	7.7	40
49	Experimental challenges in fullerene interferometry. Journal of Modern Optics, 2000, 47, 2811-2821.	0.6	39
50	Concept of an ionizing time-domain matter-wave interferometer. New Journal of Physics, 2011, 13, 075002.	1.2	38
51	Slow beams of massive molecules. European Physical Journal D, 2008, 46, 307-313.	0.6	37
52	Implantation and spectroscopy of metal atoms in solid helium. European Physical Journal B, 1995, 98, 377-381.	0.6	36
53	Multiple Time Scales in the Microwave Ionization of Rydberg Atoms. Physical Review Letters, 1995, 75, 3818-3821.	2.9	35
54	Influence of conformational molecular dynamics on matter wave interferometry. Physical Review A, 2010, 81, .	1.0	33

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55	Matter wave explorer of gravity (MWXG). Experimental Astronomy, 2009, 23, 611-649.	1.6	30
56	Master equation for the motion of a polarizable particle in a multimode cavity. New Journal of Physics, 2010, 12, 083003.	1.2	30
57	Influence of molecular temperature on the coherence of fullerenes in a near-field interferometer. Physical Review A, 2005, 71, .	1.0	29
58	Optical polarizabilities of large molecules measured in near-field interferometry. Applied Physics B: Lasers and Optics, 2007, 89, 469-473.	1.1	28
59	Magneto-optical effects with cold lithium atoms. Journal of Physics B: Atomic, Molecular and Optical Physics, 2001, 34, 2527-2536.	0.6	27
60	Electric moments in molecule interferometry. New Journal of Physics, 2011, 13, 043033.	1.2	27
61	Quantum interference distinguishes between constitutional isomers. Chemical Communications, 2010, 46, 4145.	2.2	26
62	Focus on modern frontiers of matter wave optics and interferometry. New Journal of Physics, 2012, 14, 125006.	1.2	26
63	In search of multipath interference using large molecules. Science Advances, 2017, 3, e1602478.	4.7	26
64	Exploration of gold nanoparticle beams for matter wave interferometry. Optics Communications, 2006, 264, 326-332.	1.0	25
65	Absolute Absorption Cross Sections from Photon Recoil in a Matter-Wave Interferometer. Physical Review Letters, 2014, 112, 250402.	2.9	25
66	UV and VUV Ionization of Organic Molecules, Clusters, and Complexes. Journal of Physical Chemistry A, 2009, 113, 9952-9957.	1.1	24
67	Photofragmentation Beam Splitters for Matter-Wave Interferometry. Physical Review Letters, 2014, 113, 233001.	2.9	24
68	New Prospects for de Broglie Interferometry. Foundations of Physics, 2012, 42, 98-110.	0.6	23
69	Matter-wave interference of a native polypeptide. Nature Communications, 2020, 11, 1447.	5.8	23
70	Gas-phase formation of large neutral alkaline-earth metal tryptophan complexes. Journal of the American Society for Mass Spectrometry, 2008, 19, 1021-1026.	1.2	22
71	Quantumâ€Assisted Metrology of Neutral Vitamins in the Gas Phase. Angewandte Chemie - International Edition, 2017, 56, 10947-10951.	7.2	22
72	From coherent to noise-induced microwave ionization of Rydberg atoms. Physical Review A, 1995, 51, 4862-4876.	1.0	21

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73	Macroscopic Matter Wave Interferometry. Springer Theses, 2014, , .	0.0	21
74	Laser-Induced Acoustic Desorption of Natural and Functionalized Biochromophores. Analytical Chemistry, 2015, 87, 5614-5619.	3.2	21
75	A Green's function approach to modeling molecular diffraction in the limit of ultraâ€thin gratings. Annalen Der Physik, 2015, 527, 580-591.	0.9	20
76	Absolute absorption spectroscopy based on molecule interferometry. Physical Review A, 2008, 78, .	1.0	18
77	Nanoparticle detection in an open-access silicon microcavity. Applied Physics Letters, 2017, 111, .	1.5	18
78	The Hyperfine Structure of Cs Atoms in the b.c.c. Phase of Solid ⁴ He. Europhysics Letters, 1995, 30, 233-237.	0.7	17
79	Thermal and electrical properties of porphyrin derivatives and their relevance for molecule interferometry. Journal of Chemical Physics, 2007, 126, 164304.	1.2	17
80	Sensitivity of a superconducting nanowire detector for single ions at low energy. Nanotechnology, 2012, 23, 065501.	1.3	16
81	Coherence in the presence of absorption and heating in a molecule interferometer. Nature Communications, 2015, 6, 7336.	5.8	16
82	Spin physics in solid helium: Experimental results and applications. European Physical Journal B, 1995, 98, 359-362.	0.6	15
83	GAUGE: the GrAnd Unification and Gravity Explorer. Experimental Astronomy, 2009, 23, 549-572.	1.6	15
84	De Broglieâ€™s meter stick: Making measurements with matter waves. Physics Today, 2014, 67, 30-36.	0.3	15
85	Coherent diffraction of hydrogen through the 246 pm lattice of graphene. New Journal of Physics, 2019, 21, 033004.	1.2	15
86	Perspectives for quantum interference with biomolecules and biomolecular clusters. Physica Scripta, 2016, 91, 063007.	1.2	14
87	Immobilization of Zinc Porphyrin Complexes on Pyridine-Functionalized Glass Surfaces. Langmuir, 2010, 26, 10822-10826.	1.6	13
88	Bragg Diffraction of Large Organic Molecules. Physical Review Letters, 2020, 125, 033604.	2.9	13
89	Gas phase sorting of fullerenes, polypeptides and carbon nanotubes. Nanotechnology, 2008, 19, 045502.	1.3	12
90	A superconducting NbN detector for neutral nanoparticles. Nanotechnology, 2009, 20, 455501.	1.3	12

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91	Cavity stabilization using the weak intrinsic birefringence of dielectric mirrors. Optics Letters, 2011, 36, 3720.	1.7	12
92	Sublimation enthalpy of dye molecules measured using fluorescence. Journal of Chemical Physics, 2004, 121, 6935-6940.	1.2	11
93	Highly Fluorous Porphyrins as Model Compounds for Molecule Interferometry. European Journal of Organic Chemistry, 2011, 2011, n/a-n/a.	1.2	11
94	Tailoring the volatility and stability of oligopeptides. Journal of Mass Spectrometry, 2017, 52, 550-556.	0.7	11
95	Isotope-selective high-order interferometry with large organic molecules in free fall. New Journal of Physics, 2018, 20, 033016.	1.2	11
96	A novel design for electric field deflectometry on extended molecular beams. Measurement Science and Technology, 2008, 19, 055801.	1.4	10
97	Single-Photon Ionization of Organic Molecules Beyond 10ÂkDa. Journal of the American Society for Mass Spectrometry, 2013, 24, 602-608.	1.2	10
98	Pushing the mass limit for intact launch and photoionization of large neutral biopolymers. Communications Chemistry, 2018, 1, .	2.0	10
99	Wo ist die Grenze der Quantenwelt?: Selbst heiÃŸe MolekÃ¼le aus 70 Atomen haben mitunter Welleneigenschaften. Physik Journal, 2000, 56, 69-71.	0.1	9
100	UV-VIS absorption spectroscopy of large molecules for applications in matter wave interferometry. Laser Physics, 2007, 17, 583-589.	0.6	9
101	Synthesis of Highly FluoroalkylâEFunctionalized Oligoporphyrin Systems. European Journal of Organic Chemistry, 2014, 2014, 6884-6895.	1.2	9
102	Tailored photocleavable peptides: fragmentation and neutralization pathways in high vacuum. Physical Chemistry Chemical Physics, 2018, 20, 11412-11417.	1.3	9
103	Improved accuracy fullerene polarizability measurements in a long-baseline matter-wave interferometer. Physical Review Research, 2019, 1, .	1.3	9
104	Interferometry with large molecules: exploration of coherence, decoherence and novel beam methods. Brazilian Journal of Physics, 2005, 35, .	0.7	9
105	Quantum coherent propagation of complex molecules through the frustule of the algaAmphipleura pellucida. New Journal of Physics, 2013, 15, 083004.	1.2	8
106	Testing macroscopic realism through high-mass interferometry. Physical Review A, 2014, 90, .	1.0	8
107	Stability of high-mass molecular libraries: the role of the oligoporphyrin core. Journal of Mass Spectrometry, 2015, 50, 235-239.	0.7	8
108	Simulated Interactive Research Experiments as Educational Tools for Advanced Science. Scientific Reports, 2015, 5, 14108.	1.6	8

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109	Conformer Selection by Matter-Wave Interference. Physical Review Letters, 2018, 121, 173002.	2.9	8
110	How to extend quantum experiments. Fortschritte Der Physik, 2009, 57, 1153-1162.	1.5	7
111	On the role of the electric dipole moment in the diffraction of biomolecules at nanomechanical gratings. Fortschritte Der Physik, 2017, 65, 1600025.	1.5	7
112	A Quantum Ruler for Magnetic Deflectometry. Entropy, 2018, 20, 516.	1.1	7
113	Concepts for long-baseline high-mass matter-wave interferometry. Physica Scripta, 2019, 94, 034001.	1.2	7
114	Matterâ€“wave interference and deflection of tripeptides decorated with fluorinated alkyl chains. Journal of Mass Spectrometry, 2020, 55, e4514.	0.7	7
115	Interferometry with Macromolecules: Quantum Paradigms Tested in the Mesoscopic World. , 2002, , 333-350.		7
116	High finesse microcavities in the optical telecom O-band. Applied Physics Letters, 2021, 119, 221112.	1.5	7
117	A roadmap for universal high-mass matter-wave interferometry. AVS Quantum Science, 2022, 4, 020502.	1.8	7
118	Microwave ionization of Rb Rydberg atoms: Frequency dependence. Physical Review A, 1994, 49, 3831-3841.	1.0	6
119	A scalable optical detection scheme for matter wave interferometry. New Journal of Physics, 2005, 7, 224-224.	1.2	6
120	Cold Beams of Biomolecules for Quantum Optics. Acta Physica Hungarica A Heavy Ion Physics, 2006, 26, 87-94.	0.4	6
121	Refined model for Talbotâ€“Lau matter-wave optics with pulsed photodepletion gratings. Journal of the Optical Society of America B: Optical Physics, 2015, 32, 114.	0.9	6
122	Interference of atomic clocks. Science, 2015, 349, 1168-1169.	6.0	6
123	Cooling and manipulation of nanoparticles in high vacuum. Proceedings of SPIE, 2016, , .	0.8	6
124	Selective photodissociation of tailored molecular tags as a tool for quantum optics. Beilstein Journal of Nanotechnology, 2017, 8, 325-333.	1.5	6
125	Experimental challenges in fullerene interferometry. , 0, .		6
126	High contrast interference with C and C. Comptes Rendus Physique, 2001, 2, 581-585.	0.1	5

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127	New avenues for matter-wave-enhanced spectroscopy. Applied Physics B: Lasers and Optics, 2017, 123, 3.	1.1	5
128	Neutralization of insulin by photocleavage under high vacuum. Chemical Communications, 2019, 55, 12507-12510.	2.2	5
129	Quantum-Assisted Measurement of Atomic Diamagnetism. Physical Review X, 2020, 10, .	2.8	5
130	Quantum-assisted diamagnetic deflection of molecules. Physical Chemistry Chemical Physics, 2020, 22, 14036-14041.	1.3	5
131	Coriolis compensation via gravity in a matter-wave interferometer. New Journal of Physics, 2020, 22, 033013.	1.2	5
132	Kapitza-Dirac Blockade: A Universal Tool for the Deterministic Preparation of Non-Gaussian Oscillator States. Physical Review Letters, 2021, 126, 253601.	2.9	5
133	Fundamental Frontiers of Quantum Science and Technology. Procedia Computer Science, 2011, 7, 77-80.	1.2	4
134	Interferometry and Dissipative Optics with Atoms. Acta Physica Polonica A, 1998, 93, 197-209.	0.2	4
135	Coherence in molecular nitrogen. Nature Physics, 2005, 1, 19-20.	6.5	2
136	Coherence from spontaneity. Nature Physics, 2011, 7, 375-376.	6.5	2
137	Long-pulse laser launch and ionization of tailored large neutral silver nanoparticles with atomic mass assignment. Nanoscale, 2017, 9, 9175-9180.	2.8	2
138	Towards Coherent Matter Wave Optics with Macromolecules. , 1999, , 221-223.		2
139	A fiber-based beam profiler for high-power laser beams in confined spaces and ultra-high vacuum. Optics Express, 2020, 28, 6164.	1.7	2
140	Single-, double-, and triple-slit diffraction of molecular matter waves. American Journal of Physics, 2021, 89, 1132-1138.	0.3	2
141	Dissipative atom optics. Journal of Modern Optics, 1997, 44, 1827-1836.	0.6	1
142	Fluorescence of surface adsorbed dyes: investigation of a new detector for molecule interferometry. Journal of Physics: Conference Series, 2005, 19, 125-133.	0.3	1
143	On the prospects of interferometry and deflectometry for characterizing large molecules. European Physical Journal: Special Topics, 2008, 159, 1-9.	1.2	1
144	Embracing Quantum Metrology with Wide Arms. Physics Magazine, 2011, 4, .	0.1	1

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145	Free-Falling Interferometry. Physics Magazine, 2013, 6, .	0.1	1
146	New Avenues for Matter-Wave-Enhanced Spectroscopy. , 2018, , 21-34.		1
147	The morphology of doubly-clamped graphene nanoribbons. 2D Materials, 2021, 8, 025035.	2.0	1
148	Interferometric Tests of Wave-Function Collapse. Fundamental Theories of Physics, 2021, , 385-399.	0.1	1
149	<title>Old and new spin physics with atoms in solid helium</title>. , 1996, , .		0
150	<title>Atom optics and interferometry with atomic mirrors</title>. , 1997, 2995, 174.		0
151	Coherence and decoherence in de Broglie interference of fullerenes. , 2000, , .		0
152	Freie Elektronen an sichtbarem Licht gebeugt: Nach 70 Jahren wurde der Kapitzaâ€Diracâ€Effekt eindeutig nachgewiesen. Physik Journal, 2001, 57, 20-20.	0.1	0
153	Decoherence studies using interferometry of massive molecules. , 2003, , .		0
154	Fluorescence methods for matter interferometry with nanosized objects. , 0, , .		0
155	A novel type of matter-wave interferometer for molecules. , 2007, , .		0
156	Molecular lithography - A quantum optical approach. , 2009, , .		0
157	Mesoscopic Quantum Phenomena. , 2009, , 379-384.		0
158	Matter wave interferometry: Exploring the importance of the internal molecular properties. , 2011, , .		0
159	Quanteninterferenzexperimente fÃ¼r die Vermessung von Vitaminen in der Gasphase. Angewandte Chemie, 2017, 129, 11088-11093.	1.6	0
160	Diffraction of 80 eV hydrogen through suspended graphene. Journal of Physics: Conference Series, 2020, 1412, 202036.	0.3	0
161	Otto Sternâ€™s Legacy in Quantum Optics: Matter Waves and Deflectometry. , 2021, , 547-573.		0
162	Heisenbergâ€™s Uncertainty and Matter Wave Interferometry with Large Molecules. , 2004, , 35-52.		0

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163	Organic Molecules and Decoherence Experiments in a Molecule Interferometer. , 2004, , 1-10.		0
164	Semi-classical Models. , 2009, , 697-701.		0
165	CavitÃ©s atomiques. Annales De Physique, 1995, 20, 681-686.	0.2	0
166	Coherence and Decoherence Experiments with Fullerenes. , 2005, , 329-352.		0