

# Markus Arndt

## List of Publications by Citations

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156  
papers

6,164  
citations

40  
h-index

75  
g-index

172  
ext. papers

6,937  
ext. citations

6.3  
avg, IF

5.65  
L-index

#	Paper	IF	Citations
156	Wave-particle duality of C(60) molecules. <i>Nature</i> , <b>1999</b> , 401, 680-2	50.4	787
155	Colloquium: Quantum interference of clusters and molecules. <i>Reviews of Modern Physics</i> , <b>2012</b> , 84, 157-173	17.5	239
154	Matter-wave interferometer for large molecules. <i>Physical Review Letters</i> , <b>2002</b> , 88, 100404	7.4	232
153	Quantum interference of large organic molecules. <i>Nature Communications</i> , <b>2011</b> , 2, 263	17.4	228
152	Decoherence of matter waves by thermal emission of radiation. <i>Nature</i> , <b>2004</b> , 427, 711-4	50.4	224
151	Testing the limits of quantum mechanical superpositions. <i>Nature Physics</i> , <b>2014</b> , 10, 271-277	16.2	207
150	Collisional decoherence observed in matter wave interferometry. <i>Physical Review Letters</i> , <b>2003</b> , 90, 160401	7.4	187
149	Atomic Wave Diffraction and Interference Using Temporal Slits. <i>Physical Review Letters</i> , <b>1996</b> , 77, 4-7	7.4	183
148	Wave nature of biomolecules and fluorofullerenes. <i>Physical Review Letters</i> , <b>2003</b> , 91, 090408	7.4	163
147	Matter-wave interference of particles selected from a molecular library with masses exceeding 10,000 amu. <i>Physical Chemistry Chemical Physics</i> , <b>2013</b> , 15, 14696-700	3.6	157
146	A Kapitza-Dirac-Talbot-Lau interferometer for highly polarizable molecules. <i>Nature Physics</i> , <b>2007</b> , 3, 711-715	16.2	156
145	Quantum interference experiments with large molecules. <i>American Journal of Physics</i> , <b>2003</b> , 71, 319-325	0.7	134
144	Quantum physics meets biology. <i>HFSP Journal</i> , <b>2009</b> , 3, 386-400		118
143	Realization of optical carpets in the Talbot and Talbot-Lau configurations. <i>Optics Express</i> , <b>2009</b> , 17, 20966-74	3.74	106
142	Cavity cooling of free silicon nanoparticles in high vacuum. <i>Nature Communications</i> , <b>2013</b> , 4, 2743	17.4	103
141	Observation of a Zero-Energy Resonance in Cs-Cs Collisions. <i>Physical Review Letters</i> , <b>1997</b> , 79, 625-628	7.4	101
140	Real-time single-molecule imaging of quantum interference. <i>Nature Nanotechnology</i> , <b>2012</b> , 7, 297-300	28.7	88

139	Theory of decoherence in a matter wave Talbot-Lau interferometer. <i>Physical Review A</i> , <b>2004</b> , 70,	2.6	83
138	Diffraction of complex molecules by structures made of light. <i>Physical Review Letters</i> , <b>2001</b> , 87, 160401	7.4	82
137	Full rotational control of levitated silicon nanorods. <i>Optica</i> , <b>2017</b> , 4, 356	8.6	81
136	Experimental study of quantum and classical limits in microwave ionization of rubidium Rydberg atoms. <i>Physical Review Letters</i> , <b>1991</b> , 67, 2435-2438	7.4	81
135	Quantum superposition of molecules beyond 25 kDa. <i>Nature Physics</i> , <b>2019</b> , 15, 1242-1245	16.2	73
134	Toward Two-Dimensional All-Carbon Heterostructures via Ion Beam Patterning of Single-Layer Graphene. <i>Nano Letters</i> , <b>2015</b> , 15, 5944-9	11.5	73
133	Testing spontaneous localization theories with matter-wave interferometry. <i>Physical Review A</i> , <b>2011</b> , 83,	2.6	73
132	A universal matter-wave interferometer with optical ionization gratings in the time-domain. <i>Nature Physics</i> , <b>2013</b> , 9, 144-148	16.2	71
131	Pressure shift and broadening of the resonance line of barium atoms in liquid helium. <i>Physical Review B</i> , <b>1994</b> , 50, 6296-6302	3.3	66
130	Theory and experimental verification of Kapitza-Dirac-Talbot-Lau interferometry. <i>New Journal of Physics</i> , <b>2009</b> , 11, 043032	2.9	65
129	Polarizability measurements of a molecule via a near-field matter-wave interferometer. <i>Physical Review A</i> , <b>2007</b> , 76,	2.6	62
128	Decoherence in a Talbot-Lau interferometer: the influence of molecular scattering. <i>Applied Physics B: Lasers and Optics</i> , <b>2003</b> , 77, 781-787	1.9	61
127	Optically driven ultra-stable nanomechanical rotor. <i>Nature Communications</i> , <b>2017</b> , 8, 1670	17.4	60
126	Optical spectroscopy of atoms trapped in solid helium. <i>Physical Review B</i> , <b>1994</b> , 49, 3645-3647	3.3	56
125	Cavity-Assisted Manipulation of Freely Rotating Silicon Nanorods in High Vacuum. <i>Nano Letters</i> , <b>2015</b> , 15, 5604-8	11.5	53
124	Concepts for near-field interferometers with large molecules. <i>Journal of Optics B: Quantum and Semiclassical Optics</i> , <b>2003</b> , 5, S82-S89		50
123	Experimental methods of molecular matter-wave optics. <i>Reports on Progress in Physics</i> , <b>2013</b> , 76, 086402	14.4	46
122	Long electronic spin relaxation times of Cs atoms in solid <sup>4</sup> He. <i>Physical Review Letters</i> , <b>1995</b> , 74, 1359-1362	3.2	45

121	Can paramagnetic atoms in superfluid helium be used to search for permanent electric dipole moments?. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , <b>1993</b> , 174, 298-303	2.3	44
120	Pressure shift of atomic resonance lines in liquid and solid helium. <i>European Physical Journal B</i> , <b>1995</b> , 98, 371-376	1.2	43
119	Wave and particle in molecular interference lithography. <i>Physical Review Letters</i> , <b>2009</b> , 103, 263601	7.4	41
118	Experimental verification of the Heisenberg uncertainty principle for fullerene molecules. <i>Physical Review A</i> , <b>2002</b> , 65,	2.6	41
117	Rotational cavity cooling of dielectric rods and disks. <i>Physical Review A</i> , <b>2016</b> , 94,	2.6	40
116	Matter-wave metrology as a complementary tool for mass spectrometry. <i>Angewandte Chemie - International Edition</i> , <b>2008</b> , 47, 6195-8	16.4	40
115	Atom optics in the time domain. <i>Physical Review A</i> , <b>1996</b> , 53, 3369-3378	2.6	40
114	Experimental challenges in fullerene interferometry. <i>Journal of Modern Optics</i> , <b>2000</b> , 47, 2811-2821	1.1	39
113	Elementary Sisyphus process close to a dielectric surface. <i>Physical Review A</i> , <b>1996</b> , 54, 4292-4298	2.6	38
112	Probing macroscopic quantum superpositions with nanorotors. <i>New Journal of Physics</i> , <b>2018</b> , 20, 122001	2.9	37
111	An atomically thin matter-wave beamsplitter. <i>Nature Nanotechnology</i> , <b>2015</b> , 10, 845-8	28.7	36
110	Probing the limits of the quantum world. <i>Physics World</i> , <b>2005</b> , 18, 35-40	0.5	36
109	Implantation and spectroscopy of metal atoms in solid helium. <i>European Physical Journal B</i> , <b>1995</b> , 98, 377-381	1.2	36
108	Multiple time scales in the microwave ionization of Rydberg atoms. <i>Physical Review Letters</i> , <b>1995</b> , 75, 3818-3821	7.4	35
107	Slow beams of massive molecules. <i>European Physical Journal D</i> , <b>2008</b> , 46, 307-313	1.3	33
106	Concept of an ionizing time-domain matter-wave interferometer. <i>New Journal of Physics</i> , <b>2011</b> , 13, 075002	2	31
105	Influence of conformational molecular dynamics on matter wave interferometry. <i>Physical Review A</i> , <b>2010</b> , 81,	2.6	27
104	Optical polarizabilities of large molecules measured in near-field interferometry. <i>Applied Physics B: Lasers and Optics</i> , <b>2007</b> , 89, 469-473	1.9	25

103	Influence of molecular temperature on the coherence of fullerenes in a near-field interferometer. <i>Physical Review A</i> , <b>2005</b> , 71,	2.6	25
102	Magneto-optical effects with cold lithium atoms. <i>Journal of Physics B: Atomic, Molecular and Optical Physics</i> , <b>2001</b> , 34, 2527-2536	1.3	25
101	Quantum interference distinguishes between constitutional isomers. <i>Chemical Communications</i> , <b>2010</b> , 46, 4145-7	5.8	24
100	Matter wave explorer of gravity (MWXG). <i>Experimental Astronomy</i> , <b>2009</b> , 23, 611-649	1.3	24
99	Silicon microcavity arrays with open access and a finesse of half a million. <i>Light: Science and Applications</i> , <b>2019</b> , 8, 37	16.7	23
98	Absolute absorption cross sections from photon recoil in a matter-wave interferometer. <i>Physical Review Letters</i> , <b>2014</b> , 112, 250402	7.4	23
97	Master equation for the motion of a polarizable particle in a multimode cavity. <i>New Journal of Physics</i> , <b>2010</b> , 12, 083003	2.9	23
96	Electric moments in molecule interferometry. <i>New Journal of Physics</i> , <b>2011</b> , 13, 043033	2.9	23
95	UV and VUV ionization of organic molecules, clusters, and complexes. <i>Journal of Physical Chemistry A</i> , <b>2009</b> , 113, 9952-7	2.8	23
94	From coherent to noise-induced microwave ionization of Rydberg atoms. <i>Physical Review A</i> , <b>1995</b> , 51, 4862-4876	2.6	21
93	Quantum technology: from research to application. <i>Applied Physics B: Lasers and Optics</i> , <b>2016</b> , 122, 1	1.9	21
92	Quantum-Assisted Metrology of Neutral Vitamins in the Gas Phase. <i>Angewandte Chemie - International Edition</i> , <b>2017</b> , 56, 10947-10951	16.4	20
91	Gas-phase formation of large neutral alkaline-earth metal tryptophan complexes. <i>Journal of the American Society for Mass Spectrometry</i> , <b>2008</b> , 19, 1021-6	3.5	20
90	Exploration of gold nanoparticle beams for matter wave interferometry. <i>Optics Communications</i> , <b>2006</b> , 264, 326-332	2	20
89	New Prospects for de Broglie Interferometry. <i>Foundations of Physics</i> , <b>2012</b> , 42, 98-110	1.2	19
88	In search of multipath interference using large molecules. <i>Science Advances</i> , <b>2017</b> , 3, e1602478	14.3	19
87	Photofragmentation beam splitters for matter-wave interferometry. <i>Physical Review Letters</i> , <b>2014</b> , 113, 233001	7.4	19
86	Macroscopic Matter Wave Interferometry. <i>Springer Theses</i> , <b>2014</b> ,	0.1	19

85	Focus on modern frontiers of matter wave optics and interferometry. <i>New Journal of Physics</i> , <b>2012</b> , 14, 125006	2.9	18
84	Coherence in the presence of absorption and heating in a molecule interferometer. <i>Nature Communications</i> , <b>2015</b> , 6, 7336	17.4	15
83	De Broglie meter stick: Making measurements with matter waves. <i>Physics Today</i> , <b>2014</b> , 67, 30-36	0.9	15
82	Nanoparticle detection in an open-access silicon microcavity. <i>Applied Physics Letters</i> , <b>2017</b> , 111, 253107	3.4	15
81	Thermal and electrical properties of porphyrin derivatives and their relevance for molecule interferometry. <i>Journal of Chemical Physics</i> , <b>2007</b> , 126, 164304	3.9	15
80	The Hyperfine Structure of Cs Atoms in the b.c.c. Phase of Solid 4 He. <i>Europhysics Letters</i> , <b>1995</b> , 30, 233-237		15
79	Laser-induced acoustic desorption of natural and functionalized biochromophores. <i>Analytical Chemistry</i> , <b>2015</b> , 87, 5614-9	7.8	14
78	Matter-wave interference of a native polypeptide. <i>Nature Communications</i> , <b>2020</b> , 11, 1447	17.4	14
77	A Green's function approach to modeling molecular diffraction in the limit of ultra-thin gratings. <i>Annalen Der Physik</i> , <b>2015</b> , 527, 580-591	2.6	14
76	GAUGE: the GrAnd Unification and Gravity Explorer. <i>Experimental Astronomy</i> , <b>2009</b> , 23, 549-572	1.3	14
75	Absolute absorption spectroscopy based on molecule interferometry. <i>Physical Review A</i> , <b>2008</b> , 78,	2.6	14
74	Spin physics in solid helium: Experimental results and applications. <i>European Physical Journal B</i> , <b>1995</b> , 98, 359-362	1.2	14
73	Immobilization of zinc porphyrin complexes on pyridine-functionalized glass surfaces. <i>Langmuir</i> , <b>2010</b> , 26, 10822-6	4	13
72	Sensitivity of a superconducting nanowire detector for single ions at low energy. <i>Nanotechnology</i> , <b>2012</b> , 23, 065501	3.4	12
71	Gas phase sorting of fullerenes, polypeptides and carbon nanotubes. <i>Nanotechnology</i> , <b>2008</b> , 19, 045502	3.4	11
70	Single-photon ionization of organic molecules beyond 10 kDa. <i>Journal of the American Society for Mass Spectrometry</i> , <b>2013</b> , 24, 602-8	3.5	10
69	Sublimation enthalpy of dye molecules measured using fluorescence. <i>Journal of Chemical Physics</i> , <b>2004</b> , 121, 6935-40	3.9	10
68	Perspectives for quantum interference with biomolecules and biomolecular clusters. <i>Physica Scripta</i> , <b>2016</b> , 91, 063007	2.6	10

67	Tailoring the volatility and stability of oligopeptides. <i>Journal of Mass Spectrometry</i> , <b>2017</b> , 52, 550-556	2.2	9
66	Cavity stabilization using the weak intrinsic birefringence of dielectric mirrors. <i>Optics Letters</i> , <b>2011</b> , 36, 3720-2	3	9
65	A novel design for electric field deflectometry on extended molecular beams. <i>Measurement Science and Technology</i> , <b>2008</b> , 19, 055801	2	9
64	UV-VIS absorption spectroscopy of large molecules for applications in matter wave interferometry. <i>Laser Physics</i> , <b>2007</b> , 17, 583-589	1.2	9
63	Wo ist die Grenze der Quantenwelt?: Selbst hei Molekle aus 70 Atomen haben mitunter Welleneigenschaften. <i>Physik Journal</i> , <b>2000</b> , 56, 69-71		9
62	Tailored photocleavable peptides: fragmentation and neutralization pathways in high vacuum. <i>Physical Chemistry Chemical Physics</i> , <b>2018</b> , 20, 11412-11417	3.6	8
61	Synthesis of Highly Fluoroalkyl-Functionalized Oligoporphyrin Systems. <i>European Journal of Organic Chemistry</i> , <b>2014</b> , 2014, 6884-6895	3.2	8
60	Quantum coherent propagation of complex molecules through the frustule of the alga <i>Amphipleura pellucida</i> . <i>New Journal of Physics</i> , <b>2013</b> , 15, 083004	2.9	8
59	A superconducting NbN detector for neutral nanoparticles. <i>Nanotechnology</i> , <b>2009</b> , 20, 455501	3.4	8
58	Improved accuracy fullerene polarizability measurements in a long-baseline matter-wave interferometer. <i>Physical Review Research</i> , <b>2019</b> , 1,	3.9	8
57	Conformer Selection by Matter-Wave Interference. <i>Physical Review Letters</i> , <b>2018</b> , 121, 173002	7.4	8
56	Concepts for long-baseline high-mass matter-wave interferometry. <i>Physica Scripta</i> , <b>2019</b> , 94, 034001	2.6	7
55	Simulated Interactive Research Experiments as Educational Tools for Advanced Science. <i>Scientific Reports</i> , <b>2015</b> , 5, 14108	4.9	7
54	Testing macroscopic realism through high-mass interferometry. <i>Physical Review A</i> , <b>2014</b> , 90,	2.6	7
53	Interferometry with large molecules: exploration of coherence, decoherence and novel beam methods. <i>Brazilian Journal of Physics</i> , <b>2005</b> , 35,	1.2	7
52	Bragg Diffraction of Large Organic Molecules. <i>Physical Review Letters</i> , <b>2020</b> , 125, 033604	7.4	7
51	Refined model for Talbot-Lau matter-wave optics with pulsed photodepletion gratings. <i>Journal of the Optical Society of America B: Optical Physics</i> , <b>2015</b> , 32, 114	1.7	6
50	Isotope-selective high-order interferometry with large organic molecules in free fall. <i>New Journal of Physics</i> , <b>2018</b> , 20, 033016	2.9	6

- 49 Stability of high-mass molecular libraries: the role of the oligoporphyrin core. *Journal of Mass Spectrometry*, **2015**, 50, 235-9 2.2 6
- 48 Cold beams of biomolecules for quantum optics. *Acta Physica Hungarica A Heavy Ion Physics*, **2006**, 26, 87-94 6
- 47 Microwave ionization of Rb Rydberg atoms: Frequency dependence. *Physical Review A*, **1994**, 49, 3831-3841 6
- 46 Interferometry with Macromolecules: Quantum Paradigms Tested in the Mesoscopic World **2002**, 333-350 6
- 45 Experimental challenges in fullerene interferometry 6
- 44 Pushing the mass limit for intact launch and photoionization of large neutral biopolymers. *Communications Chemistry*, **2018**, 1, 6.3 6
- 43 QUANTUM MECHANICS. Interference of atomic clocks. *Science*, **2015**, 349, 1168-9 33.3 5
- 42 Coherent diffraction of hydrogen through the 246 pm lattice of graphene. *New Journal of Physics*, **2019**, 21, 033004 2.9 5
- 41 On the role of the electric dipole moment in the diffraction of biomolecules at nanomechanical gratings. *Fortschritte Der Physik*, **2017**, 65, 1600025 5.7 5
- 40 New avenues for matter-wave-enhanced spectroscopy. *Applied Physics B: Lasers and Optics*, **2017**, 123, 3 1.9 5
- 39 How to extend quantum experiments. *Fortschritte Der Physik*, **2009**, 57, 1153-1162 5.7 5
- 38 A Quantum Ruler for Magnetic Deflectometry. *Entropy*, **2018**, 20, 2.8 5
- 37 Matter-wave interference and deflection of tripeptides decorated with fluorinated alkyl chains. *Journal of Mass Spectrometry*, **2020**, 55, e4514 2.2 4
- 36 Fundamental Frontiers of Quantum Science and Technology. *Procedia Computer Science*, **2011**, 7, 77-80 1.6 4
- 35 Highly Fluorous Porphyrins as Model Compounds for Molecule Interferometry. *European Journal of Organic Chemistry*, **2011**, 2011, n/a-n/a 3.2 4
- 34 Materiewelleninterferometrie ergnzt die Massenspektrometrie. *Angewandte Chemie*, **2008**, 120, 6290-6293 4
- 33 Wann wird ein Quantenobjekt klassisch? Interferenzexperimente mit molekularen Quantenwellen. *Physik in Unserer Zeit*, **2006**, 37, 24-29 0.1 4
- 32 Interferometry and Dissipative Optics with Atoms. *Acta Physica Polonica A*, **1998**, 93, 197-209 0.6 4



31	Quantum-Assisted Measurement of Atomic Diamagnetism. <i>Physical Review X</i> , <b>2020</b> , 10,	9.1	4
30	Cooling and manipulation of nanoparticles in high vacuum <b>2016</b> ,		4
29	Quantum-assisted diamagnetic deflection of molecules. <i>Physical Chemistry Chemical Physics</i> , <b>2020</b> , 22, 14036-14041	3.6	3
28	Coriolis compensation via gravity in a matter-wave interferometer. <i>New Journal of Physics</i> , <b>2020</b> , 22, 033013	2.9	3
27	Selective photodissociation of tailored molecular tags as a tool for quantum optics. <i>Beilstein Journal of Nanotechnology</i> , <b>2017</b> , 8, 325-333	3	3
26	A scalable optical detection scheme for matter wave interferometry. <i>New Journal of Physics</i> , <b>2005</b> , 7, 224-224	2.9	3
25	High contrast interference with C and C. <i>Comptes Rendus Physique</i> , <b>2001</b> , 2, 581-585		3
24	High finesse microcavities in the optical telecom O-band. <i>Applied Physics Letters</i> , <b>2021</b> , 119, 221112	3.4	3
23	Neutralization of insulin by photocleavage under high vacuum. <i>Chemical Communications</i> , <b>2019</b> , 55, 12507-12510	7.81	10
22	Towards Coherent Matter Wave Optics with Macromolecules <b>1999</b> , 221-223		2
21	Long-pulse laser launch and ionization of tailored large neutral silver nanoparticles with atomic mass assignment. <i>Nanoscale</i> , <b>2017</b> , 9, 9175-9180	7.7	1
20	Superpositions of Chiral Molecules. <i>Physics Magazine</i> , <b>2013</b> , 6,	1.1	1
19	Dissipative atom optics. <i>Journal of Modern Optics</i> , <b>1997</b> , 44, 1827-1836	1.1	1
18	On the prospects of interferometry and deflectometry for characterizing large molecules. <i>European Physical Journal: Special Topics</i> , <b>2008</b> , 159, 1-9	2.3	1
17	Fluorescence of surface adsorbed dyes: investigation of a new detector for molecule interferometry. <i>Journal of Physics: Conference Series</i> , <b>2005</b> , 19, 125-133	0.3	1
16	A fiber-based beam profiler for high-power laser beams in confined spaces and ultra-high vacuum. <i>Optics Express</i> , <b>2020</b> , 28, 6164-6171	3.3	1
15	The morphology of doubly-clamped graphene nanoribbons. <i>2D Materials</i> , <b>2021</b> , 8, 025035	5.9	1
14	A roadmap for universal high-mass matter-wave interferometry. <i>AVS Quantum Science</i> , <b>2022</b> , 4, 020502	10.3	1

- 13 Interferometric Tests of Wave-Function Collapse. *Fundamental Theories of Physics*, **2021**, 385-399 0.8 ○
- 12 Kapitza-Dirac Blockade: A Universal Tool for the Deterministic Preparation of Non-Gaussian Oscillator States. *Physical Review Letters*, **2021**, 126, 253601 7.4 ○
- 11 Quanteninterferenzexperimente für die Vermessung von Vitaminen in der Gasphase. *Angewandte Chemie*, **2017**, 129, 11088-11093 3.6
- 10 Diffraction of 80 eV hydrogen through suspended graphene. *Journal of Physics: Conference Series*, **2020**, 1412, 202036 0.3
- 9 New Avenues for Matter-Wave-Enhanced Spectroscopy **2018**, 21-34
- 8 Mesoscopic Quantum Phenomena **2009**, 379-384
- 7 Freie Elektronen an sichtbarem Licht gebeugt: Nach 70 Jahren wurde der Kapitza-Dirac-Effekt eindeutig nachgewiesen. *Physik Journal*, **2001**, 57, 20-20
- 6 Single-, double-, and triple-slit diffraction of molecular matter waves. *American Journal of Physics*, **2021**, 89, 1132-1138 0.7
- 5 Heisenberg's Uncertainty and Matter Wave Interferometry with Large Molecules **2004**, 35-52
- 4 Organic Molecules and Decoherence Experiments in a Molecule Interferometer **2004**, 1-10
- 3 Semi-classical Models **2009**, 697-701
- 2 Otto Stern's Legacy in Quantum Optics: Matter Waves and Deflectometry **2021**, 547-573
- 1 Experimental Decoherence in Molecule Interferometry. *Fundamental Theories of Physics*, **2022**, 65-83 0.8