

# Carlo Gabbanini

## List of Publications by Year in descending order

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96  
papers

3,027  
citations

304743

22  
h-index

161849

54  
g-index

96  
all docs

96  
docs citations

96  
times ranked

4705  
citing authors

#	ARTICLE	IF	CITATIONS
1	Measurement of the Positive Muon Anomalous Magnetic Moment to 0.46Âppm. Physical Review Letters, 2021, 126, 141801.	7.8	991
2	Observation of a Dipolar Quantum Gas with Metastable Supersolid Properties. Physical Review Letters, 2019, 122, 130405.	7.8	288
3	Cold Rubidium Molecules Formed in a Magneto-Optical Trap. Physical Review Letters, 2000, 84, 2814-2817.	7.8	167
4	The formation and interactions of cold and ultracold molecules: new challenges for interdisciplinary physics. Reports on Progress in Physics, 2009, 72, 086401.	20.1	159
5	Supersolid symmetry breaking from compressional oscillations in a dipolar quantum gas. Nature, 2019, 574, 382-385.	27.8	140
6	Measurement of the anomalous precession frequency of the muon in the Fermilab Muon Experiment. Physical Review D, 2021, 103, .	4.7	105
7	Determination of the $87\text{Rb}$ $5p$ state dipole matrix element and radiative lifetime from the photoassociation spectroscopy of the $\text{Rb}_2$ long-range state. Physical Review A, 2002, 66, .	2.5	65
8	Evidence of superfluidity in a dipolar supersolid from nonclassical rotational inertia. Science, 2021, 371, 1162-1165.	12.6	54
9	Magnetic-field measurement and analysis for the Muon Experiment at Fermilab. Physical Review A, 2021, 103, .	2.5	52
10	Cold rubidium molecule formation through photoassociation: A spectroscopic study of the $0g$ -long-range state of $87\text{Rb}_2$ . European Physical Journal D, 2001, 15, 189-198.	1.3	51
11	Detection by two-photon ionization and magnetic trapping of cold $\text{Rb}_2$ triplet state molecules. European Physical Journal D, 2006, 39, 261-269.	1.3	47
12	Photoionization cross section measurement in a Rb vapor cell trap. Optics Communications, 1997, 141, 25-28.	2.1	41
13	Formation of ultracold metastable $\text{RbCs}$ molecules by short-range photoassociation. Physical Chemistry Chemical Physics, 2011, 13, 18905.	2.8	41
14	Water vapor overtones pressure line broadening and shifting measurements. European Physical Journal D, 2000, 8, 223-226.	1.3	39
15	Photoionization cross sections for excited laser-cooled cesium atoms. Physical Review A, 1998, 57, R4110-R4113.	2.5	36
16	Studies of an array of $\text{PbF}_2$ Cherenkov crystals with large-area SiPM readout. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2015, 783, 12-21.	1.6	36
17	Beam dynamics corrections to the Run-1 measurement of the muon anomalous magnetic moment at Fermilab. Physical Review Accelerators and Beams, 2021, 24, .	1.6	32
18	Energy-pooling collisions for $\text{K}(4P)+\text{Rb}(5P)$ and $\text{Na}(3P)+\text{Rb}(5P)$ heteronuclear systems. Physical Review A, 1989, 39, 6148-6153.	2.5	31

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19	Dynamic behavior of bistability in a laser with a saturable absorber. Journal of the Optical Society of America B: Optical Physics, 1987, 4, 892.	2.1	30
20	Diode laser spectroscopy of overtone bands of acetylene. Applied Physics B: Lasers and Optics, 1996, 63, 277-282.	2.2	30
21	Dysprosium dipolar Bose-Einstein condensate with broad Feshbach resonances. Physical Review A, 2018, 97, .	2.5	28
22	Atom cooling by white light. Applied Physics B, Photophysics and Laser Chemistry, 1992, 54, 428-433.	1.5	22
23	Design and performance of SiPM-based readout of $\text{PbF}_2$ crystals for high-rate, precision timing applications. Journal of Instrumentation, 2017, 12, P01009-P01009.	1.2	22
24	Diode laser spectroscopy of methane overtone transitions. Applied Optics, 1993, 32, 5211.	2.1	21
25	Dimensional Crossover in the Superfluid-Supersolid Quantum Phase Transition. Physical Review X, 2022, 12, .	8.9	21
26	Wall effects on light-induced drift. Optics Communications, 1992, 88, 341-346.	2.1	20
27	Formation of ultracold RbCs molecules by photoassociation. Laser Physics, 2012, 22, 1502-1512.	1.2	20
28	Experimental study of the formation of ultracold RbCs molecules by short-range photoassociation. Physical Review A, 2013, 87, .	2.5	20
29	Partial photoionization cross section measurement in a Rb magneto-optical trap. Journal of Physics B: Atomic, Molecular and Optical Physics, 1998, 31, 4143-4148.	1.5	18
30	ENERGY-POOLING PROCESSES IN LASER-EXCITED ALKALI VAPORS : AN UPDATE ON EXPERIMENTS. Journal De Physique Colloque, 1985, 46, C1-61-C1-73.	0.2	17
31	Light-induced drift dynamics in an optically thin regime: Monochromatic and broadband laser excitations. Physical Review A, 1989, 40, 6349-6353.	2.5	16
32	Cross-section measurement and theoretical evaluation for the energy-transfer collision $\text{Na}(3P)+\text{Na}(3P)\rightarrow\text{Na}(4F)+\text{Na}(3S)$ . Physical Review A, 1985, 32, 2068-2076.	2.5	15
33	Light-Induced Drift by Nonmonochromatic Laser Radiation. Europhysics Letters, 1988, 7, 505-510.	2.0	15
34	An optical trap for cold rubidium molecules. Optics Communications, 2004, 243, 203-208.	2.1	15
35	Atomic lithography with barium atoms. Applied Surface Science, 2005, 248, 196-199.	6.1	15
36	Experimental evidence for an isotopic effect in the formation of ultracold ground-state rubidium dimers. Journal of Physics B: Atomic, Molecular and Optical Physics, 2007, 40, 3283-3293.	1.5	15

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37	Electron beam test of key elements of the laser-based calibration system for the muon $g - 2$ experiment. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2017, 842, 86-91.	1.6	14
38	The laser-based gain monitoring system of the calorimeters in the Muon $g\hat{a}^2$ experiment at Fermilab. Journal of Instrumentation, 2019, 14, P11025-P11025.	1.2	14
39	Scaling laws in magneto-optical traps. Europhysics Letters, 1997, 37, 251-256.	2.0	13
40	Toward a Rydberg constant measurement on circular atoms. IEEE Transactions on Instrumentation and Measurement, 1993, 42, 331-334.	4.7	12
41	Test of candidate light distributors for the muon $g - 2$ experiment. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2015, 788, 43-48.	1.6	12
42	Excitation of inner-shell electrons by energy-pooling collisions. Physical Review A, 1992, 46, R9-R12.	2.5	11
43	A beam of laser-cooled lithium Rydberg atoms for precision microwave spectroscopy. Optics Communications, 1993, 101, 342-346.	2.1	11
44	Photoionization spectroscopy of excited states of cold caesium dimers. Molecular Physics, 2010, 108, 2355-2368.	1.7	11
45	Ion processes in the photoionization of laser cooled alkali atoms. Optics Communications, 2000, 173, 223-232.	2.1	10
46	Performance of the Muon $g\hat{a}^2$ calorimeter and readout systems measured with test beam data. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2019, 945, 162558.	1.6	10
47	A new setup for experiments with ultracold dysprosium atoms. European Physical Journal: Special Topics, 2017, 226, 2775-2780.	2.6	8
48	Magnetic induction imaging with a cold-atom radio frequency magnetometer. Applied Physics Letters, 2020, 117, .	3.3	8
49	Vapor drift induced by resonance radiation pressure. Physical Review A, 1991, 43, 5005-5011.	2.5	7
50	On the measurement of pressure induced shift by diode lasers and harmonic detection. Optics Communications, 1998, 147, 55-60.	2.1	7
51	The calibration system of the new $g\hat{a}^2$ experiment at Fermilab. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2016, 824, 716-717.	1.6	7
52	The laser control of the muon $g\hat{a}^2$ experiment at Fermilab. Journal of Instrumentation, 2018, 13, T02009-T02009.	1.2	7
53	Na-Cs Hornbeck-Molnar ionization. Journal of Physics B: Atomic, Molecular and Optical Physics, 1991, 24, 3807-3814.	1.5	6
54	Laser cooling and photoionization of alkali atoms. Applied Surface Science, 2000, 154-155, 527-535.	6.1	6

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55	Assessments of lifetimes and photoionization cross-sections at $10.6\hat{1}4\mu\text{m}$ of nd Rydberg states of Rb measured in a magneto-optical trap. Spectrochimica Acta, Part B: Atomic Spectroscopy, 2006, 61, 196-199.	2.9	6
56	Diode laser spectroscopy: Water vapour detection in the atmosphere. Nuovo Cimento Della Societa Italiana Di Fisica D - Condensed Matter, Atomic, Molecular and Chemical Physics, Biophysics, 1991, 13, 677-685.	0.4	5
57	Associative ionization in collisions between $\text{Na}(3P_{3/2})$ and $\text{Cs}(6P_{3/2})$ . Physical Review A, 1991, 43, 2311-2315.	2.5	5
58	Light-induced vapor jets. Physical Review A, 1992, 46, R3601-R3604.	2.5	5
59	Experimental study of Velocity Changing Collisions on Coherent Population Trapping in sodium. European Physical Journal D, 1999, 6, 127-131.	1.3	5
60	Patterning nonanethiol protected gold films by barium atoms. Applied Physics B: Lasers and Optics, 2004, 79, 539-542.	2.2	5
61	Ultra-Cold Molecules. Physica Scripta, 2004, T112, 13.	2.5	5
62	Formation, detection and trapping of ultracold $\text{Rb}_2$ molecules. Nuclear Physics A, 2007, 790, 757c-761c.	1.5	5
63	Enhancement of Raman scattering by parametric mixing of the pump with its harmonic. Optics Communications, 2012, 285, 3312-3315.	2.1	5
64	The fast non-ferric kicker system for the Muon $\langle \text{mml:math} \text{xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline" id="d1e1042" altimg="si55.svg" \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:mi} \rangle \text{g} \langle \text{mml:mi} \rangle \langle \text{mml:mo} \text{linebreak="goodbreak" linebreakstyle="after"} \rangle \hat{\text{a}} \langle \text{mml:mo} \rangle \langle \text{mml:mn} \rangle 2 \langle \text{mml:mn} \rangle \langle \text{mml:mrow} \rangle \langle \text{mml:math} \rangle$ Experiment at Fermilab. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2021, 1011, 165597.	1.6	5
65	Self-quenching mechanism in caesium Rydberg states. Journal of Physics B: Atomic, Molecular and Optical Physics, 1992, 25, 3145-3154.	1.5	4
66	White-Light-Induced Drift on Sodium Vapour. Europhysics Letters, 1992, 17, 309-314.	2.0	4
67	Electronic energy transfer in a dense level system. Journal of Quantitative Spectroscopy and Radiative Transfer, 1992, 47, 103-112.	2.3	4
68	Diode laser spectroscopy of ammonia overtone transitions. Nuovo Cimento Della Societa Italiana Di Fisica D - Condensed Matter, Atomic, Molecular and Chemical Physics, Biophysics, 1994, 16, 117-126.	0.4	4
69	Time-dependent radiative transfer in magneto-optical traps. Physical Review A, 2003, 68, .	2.5	4
70	A DFB diode laser for monitoring and repumping a barium metastable state. Laser Physics Letters, 2007, 4, 117-120.	1.4	4
71	Analysis of the 2nd Stokes wave generation through stimulated Raman scattering in hydrogen gas under four-wave mixing conditions. Optics Communications, 2009, 282, 2954-2959.	2.1	4
72	Infrared CO2 Laser With Intracavity Absorber: Static And Dynamic Nonlinear Behaviour. , 1986, 0667, 234.		3

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73	Observation of 3D Light-Induced Drift in a Spherical Cell. Europhysics Letters, 1990, 11, 207-212.	2.0	3
74	Observation of a new near-red band of the NaCs molecule. Physics Letters, Section A: General, Atomic and Solid State Physics, 1991, 159, 266-270.	2.1	3
75	Collisional processes of laser excited Ca with noble gases. Journal of Physics B: Atomic, Molecular and Optical Physics, 1994, 27, 4643-4651.	1.5	3
76	Resonance-enhanced ionization spectroscopy of laser-cooled rubidium atoms. Measurement Science and Technology, 1999, 10, 772-776.	2.6	3
77	Origin of backward to forward wave dominance in broadband Raman scattering in hydrogen. Optics Communications, 2011, 284, 441-445.	2.1	3
78	Geant4 simulations of the lead fluoride calorimeter. Nuclear Instruments & Methods in Physics Research B, 2017, 402, 256-262.	1.4	3
79	Diode laser overtone spectroscopy: a possible atmospheric monitoring technique. , 1993, 1711, 271.		2
80	Optical spectroscopy of trapped neutral atoms. Rivista Del Nuovo Cimento, 1997, 20, 1-37.	5.7	2
81	Coherent population trapping studied through energy transfer and energy-pooling collisions. Optics Communications, 1999, 160, 75-79.	2.1	2
82	The calorimeter system of the new muon g-2 experiment at Fermilab. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2016, 824, 718-720.	1.6	2
83	The Fermilab Muon g-2 experiment: laser calibration system. Journal of Instrumentation, 2017, 12, C08019-C08019.	1.2	2
84	The monitoring electronics of the laser calibration system in the Muon g-2 experiment. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2019, 936, 372-373.	1.6	2
85	The sticking coefficient of barium on a MgO substrate measured by laser induced fluorescence. Applied Physics Letters, 1995, 67, 715-717.	3.3	1
86	A multilens Raman cell as a tool to obtain high optical quality and efficient 1st Stokes backward conversion. Optics Communications, 2010, 283, 2268-2271.	2.1	1
87	Design and Performance of Data Acquisition and Control System for the Muon g-2 Laser Calibration. IEEE Transactions on Nuclear Science, 2020, 67, 832-839.	2.0	1
88	Making Molecules From Laser-Cooled Atoms. , 2002, , 181-200.		1
89	Light-induced drift: last issues. , 1993, , .		0
90	Line-shape study of two-color three-photon ionization of Rb atoms. Physical Review A, 2002, 66, .	2.5	0

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91	The focusing effect on the angular distribution of the Raman antiStokes branch emissions. Optics Communications, 2011, 284, 4667-4672.	2.1	0
92	Muon g-2 calibration system data flow. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2019, 936, 335-336.	1.6	0
93	The calibration system of the Muon gâ€² experiment. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2019, 936, 98-101.	1.6	0
94	An approach to light distribution for the calibration of high energy physics calorimeters. Journal of Instrumentation, 2020, 15, P09014-P09014.	1.2	0
95	Light Induced Drift in a spherical cell. , 1989, , 44-45.		0
96	Energy Pooling Collisions: A Step Towards Ionization. NATO ASI Series Series B: Physics, 1990, , 373-382.	0.2	0