Ana Mara Rey

List of Publications by Citations

127 papers	6,111 citations	39 h-index	76 g-index
136 ext. papers	7,670 ext. citations	9.4 avg, IF	6.14 L-index

#	Paper	IF	Citations
127	Observation of dipolar spin-exchange interactions with lattice-confined polar molecules. *Nature*, **2013**, 501, 521-5	50.4	508
126	Two-orbital S U(N) magnetism with ultracold alkaline-earth atoms. *Nature Physics*, **2010**, 6, 289-295	16.2	457
125	Measuring out-of-time-order correlations and multiple quantum spectra in a trapped-ion quantum magnet. *Nature Physics*, **2017**, 13, 781-786	16.2	269
124	Quantum spin dynamics and entanglement generation with hundreds of trapped ions. *Science*, **2016**, 352, 1297-301	33.3	256
123	Quantum simulation. Spectroscopic observation of SU(N)-symmetric interactions in Sr orbital magnetism. *Science*, **2014**, 345, 1467-73	33.3	229
122	Tunable superfluidity and quantum magnetism with ultracold polar molecules. *Physical Review Letters*, **2011**, 107, 115301	7.4	194
121	Cold molecules: Progress in quantum engineering of chemistry and quantum matter. *Science*, **2017**, 357, 1002-1010	33.3	192
120	Long-lived dipolar molecules and Feshbach molecules in a 3D optical lattice. *Physical Review Letters*, **2012**, 108, 080405	7.4	180
119	Mott insulators of ultracold fermionic alkaline Earth atoms: underconstrained magnetism and chiral spin liquid. *Physical Review Letters*, **2009**, 103, 135301	7.4	172
118	Ultracold Fermi gases with emergent SU(N) symmetry. *Reports on Progress in Physics*, **2014**, 77, 124401	14.4	166
117	Spin-orbit-coupled fermions in an optical lattice clock. *Nature*, **2017**, 542, 66-70	50.4	139
116	Two-particle quantum interference in tunnel-coupled optical tweezers. *Science*, **2014**, 345, 306-9	33.3	131
115	A quantum many-body spin system in an optical lattice clock. *Science*, **2013**, 341, 632-6	33.3	119
114	Many-body dynamics of dipolar molecules in an optical lattice. *Physical Review Letters*, **2014**, 113, 195302	7.4	119
113	Suppression of collisional shifts in a strongly interacting lattice clock. *Science*, **2011**, 331, 1043-6	33.3	115
112	Collective atomic scattering and motional effects in a dense coherent medium. *Nature Communications*, **2016**, 7, 11039	17.4	113
111	Quantum magnetism with polar alkali-metal dimers. *Physical Review A*, **2011**, 84,	2.6	111

110	Entangling two transportable neutral atoms via local spin exchange. *Nature*, **2015**, 527, 208-11	50.4	89
109	Bogoliubov approach to superfluidity of atoms in an optical lattice. *Journal of Physics B: Atomic, Molecular and Optical Physics*, **2003**, 36, 825-841	1.3	81
108	Synthetic Spin-Orbit Coupling in an Optical Lattice Clock. *Physical Review Letters*, **2016**, 116, 035301	7.4	80
107	Ultracold atoms confined in an optical lattice plus parabolic potential: A closed-form approach. *Physical Review A*, **2005**, 72,	2.6	79
106	Suppressing the loss of ultracold molecules via the continuous quantum Zeno effect. *Physical Review Letters*, **2014**, 112, 070404	7.4	78
105	Probing the Kondo lattice model with alkaline-earth-metal atoms. *Physical Review A*, **2010**, 81,	2.6	76
104	Nonequilibrium dynamics of optical-lattice-loaded Bose-Einstein-condensate atoms: Beyond the Hartree-Fock-Bogoliubov approximation. *Physical Review A*, **2004**, 69,	2.6	75
103	Far-from-equilibrium quantum magnetism with ultracold polar molecules. *Physical Review Letters*, **2013**, 110, 075301	7.4	73
102	Cavity-mediated collective spin-exchange interactions in a strontium superradiant laser. *Science*, **2018**, 361, 259-262	33.3	72
101	Topological phases in ultracold polar-molecule quantum magnets. *Physical Review B*, **2013**, 87,	3.3	72
100	Bragg spectroscopy of ultracold atoms loaded in an optical lattice. *Physical Review A*, **2005**, 72,	2.6	68
99	Unifying scrambling, thermalization and entanglement through measurement of fidelity out-of-time-order correlators in the Dicke model. *Nature Communications*, **2019**, 10, 1581	17.4	65
98	Many-Body Quantum Spin Dynamics with Monte Carlo Trajectories on a Discrete Phase Space. *Physical Review X*, **2015**, 5,	9.1	65
97	Synchronization of interacting quantum dipoles. *New Journal of Physics*, **2015**, 17, 083063	2.9	63
96	Verification of a Many-Ion Simulator of the Dicke Model Through Slow Quenches across a Phase Transition. *Physical Review Letters*, **2018**, 121, 040503	7.4	61
95	Quantum correlations and entanglement in far-from-equilibrium spin systems. *Physical Review A*, **2014**, 90,	2.6	61
94	SU(N) magnetism in chains of ultracold alkaline-earth-metal atoms: Mott transitions and quantum correlations. *Physical Review A*, **2011**, 84,	2.6	58
93	Relating Out-of-Time-Order Correlations to Entanglement via Multiple-Quantum Coherences. *Physical Review Letters*, **2018**, 120, 040402	7.4	56

92	Nonequilibrium dynamics of arbitrary-range Ising models with decoherence: An exact analytic solution. *Physical Review A*, **2013**, 87,	2.6	52
91	Kitaev honeycomb and other exotic spin models with polar molecules. *Molecular Physics*, **2013**, 111, 1908-1916	1.7	44
90	Light scattering from dense cold atomic media. *Physical Review A*, **2016**, 94,	2.6	44
89	High-temperature properties of fermionic alkaline-earth-metal atoms in optical lattices. *Physical Review A*, **2012**, 85,	2.6	40
88	Dynamics of correlations in two-dimensional quantum spin models with long-range interactions: a phase-space Monte-Carlo study. *New Journal of Physics*, **2015**, 17, 065009	2.9	38
87	Emergence of multi-body interactions in a fermionic lattice clock. *Nature*, **2018**, 563, 369-373	50.4	37
86	Dynamics of interacting fermions under spin–orbit coupling in an optical lattice clock. *Nature Physics*, **2018**, 14, 399-404	16.2	35
85	Observation of a transition between dynamical phases in a quantum degenerate Fermi gas. *Science Advances*, **2019**, 5, eaax1568	14.3	35
84	Heavy fermions in an optical lattice. *Physical Review A*, **2010**, 82,	2.6	35
83	Many-body treatment of the collisional frequency shift in fermionic atoms. *Physical Review Letters*, **2009**, 103, 260402	7.4	35
82	Many-body protected entanglement generation in interacting spin systems. *Physical Review A*, **2008** , 77,	2.6	35
81	Spin-orbital dynamics in a system of polar molecules. *Nature Communications*, **2014**, 5, 5391	17.4	33
80	Operating a (87)Sr optical lattice clock with high precision and at high density. *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control*, **2012**, 59, 416-25	3.2	33
79	Adiabatic loading of one-dimensional SU(N) alkaline-earth-atom fermions in optical lattices. *Physical Review Letters*, **2012**, 109, 205305	7.4	32
78	Shattered time: can a dissipative time crystal survive many-body correlations?. *New Journal of Physics*, **2018**, 20, 123003	2.9	32
77	Doublon dynamics and polar molecule production in an optical lattice. *Nature Communications*, **2016**, 7, 11279	17.4	31
76	Exploring dynamical phase transitions with cold atoms in an optical cavity. *Nature*, **2020**, 580, 602-607	50.4	30
75	Simulating generic spin-boson models with matrix product states. *Physical Review A*, **2016**, 94,	2.6	30

74	Variational Spin-Squeezing Algorithms on Programmable Quantum Sensors. *Physical Review Letters*, **2019**, 123, 260505	7.4	29
73	Robust Spin Squeezing via Photon-Mediated Interactions on an Optical Clock Transition. *Physical Review Letters*, **2018**, 121, 070403	7.4	25
72	Steady-state many-body entanglement of hot reactive fermions. *Physical Review Letters*, **2012**, 109, 230501	7.4	25
71	Bang-bang shortcut to adiabaticity in the Dicke model as realized in a Penning trap experiment. *New Journal of Physics*, **2018**, 20, 055013	2.9	23
70	Boson-mediated quantum spin simulators in transverse fields: XY model and spin-boson entanglement. *Physical Review A*, **2017**, 95,	2.6	22
69	Out-of-equilibrium quantum magnetism and thermalization in a spin-3 many-body dipolar lattice system. *Nature Communications*, **2019**, 10, 1714	17.4	22
68	Quantum dynamics of disordered spin chains with power-law interactions. *Physical Review A*, **2019**, 99,	2.6	22
67	Nonequilibrium dynamics of spin-boson models from phase-space methods. *Physical Review A*, **2017**, 96,	2.6	22
66	Driven-dissipative quantum dynamics in ultra-long-lived dipoles in an optical cavity. *Physical Review A*, **2019**, 99,	2.6	21
65	Cavity-QED simulator of slow and fast scrambling. *Physical Review A*, **2019**, 99,	2.6	21
64	Self-trapping in an array of coupled 1D Bose gases. *Physical Review Letters*, **2013**, 110, 033001	7.4	21
63	Dynamics of quantum information. *Nature Reviews Physics*, **2019**, 1, 627-634	23.6	19
62	Emergent Weyl excitations in systems of polar particles. *Nature Communications*, **2016**, 7, 13543	17.4	19
61	d-wave superfluidity in optical lattices of ultracold polar molecules. *Physical Review A*, **2011**, 84,	2.6	19
60	40 years of the quantum Hall effect. *Nature Reviews Physics*, **2020**, 2, 397-401	23.6	18
59	Dynamics of Interacting Fermions in Spin-Dependent Potentials. *Physical Review Letters*, **2016**, 117, 195302	7.4	17
58	Quantum kinetic theory of a Bose-Einstein gas confined in a lattice. *Physical Review A*, **2005**, 72,	2.6	17
57	Realizing exactly solvable SU() magnets with thermal atoms. *Physical Review A*, **2016**, 93,	2.6	16

56	Measurement-Based Entanglement of Noninteracting Bosonic Atoms. *Physical Review Letters*, **2018**, 120, 193602	7.4	15
55	Evaporative cooling of reactive polar molecules confined in a two-dimensional geometry. *Physical Review A*, **2013**, 88,	2.6	15
54	Mean-field treatment of the damping of the oscillations of a one-dimensional Bose gas in an optical lattice. *Physical Review A*, **2006**, 73,	2.6	15
53	Synthetic-gauge-field stabilization of the chiral-spin-liquid phase. *Physical Review A*, **2016**, 93,	2.6	14
52	Exploring many-body localization and thermalization using semiclassical methods. *Physical Review A*, **2017**, 96,	2.6	14
51	Thermodynamics of a deeply degenerate SU(N)-symmetric Fermi gas. *Nature Physics*, **2020**, 16, 1216-1221	16.2	14
50	Dark States of Multilevel Fermionic Atoms in Doubly Filled Optical Lattices. *Physical Review Letters*, **2019**, 123, 223601	7.4	13
49	Bose-Einstein-condensate superfluid–Mott-insulator transition in an optical lattice. *Physical Review A*, **2006**, 73,	2.6	12
48	Engineering spin squeezing in a 3D optical lattice with interacting spin-orbit-coupled fermions. *Physical Review Research*, **2019**, 1,	3.9	12
47	Spin squeezing and many-body dipolar dynamics in optical lattice clocks. *Physical Review A*, **2019**, 100,	2.6	11
46	A generalized phase space approach for solving quantum spin dynamics. *New Journal of Physics*, **2019**, 21, 082001	2.9	11
45	Spectroscopy of dipolar fermions in layered two-dimensional and three-dimensional lattices. *Physical Review A*, **2011**, 84,	2.6	11
44	An approach to spin-resolved molecular gas microscopy. *New Journal of Physics*, **2018**, 20, 043031	2.9	11
43	Quantum-enhanced sensing of displacements and electric fields with two-dimensional trapped-ion crystals. *Science*, **2021**, 373, 673-678	33.3	11
42	Demagnetization dynamics of noninteracting trapped fermions. *Physical Review A*, **2015**, 92,	2.6	10
41	Controlling dipolar exchange interactions in a dense three-dimensional array of large-spin fermions. *Physical Review Research*, **2020**, 2,	3.9	10
40	Cluster State Generation with Spin-Orbit Coupled Fermionic Atoms in Optical Lattices. *Physical Review Letters*, **2019**, 122, 160402	7.4	9
39	Effective many-body parameters for atoms in nonseparable Gaussian optical potentials. *Physical Review A*, **2015**, 92,	2.6	9

38	Protocol for Precise Field Sensing in the Optical Domain with Cold Atoms in a Cavity. *Physical Review Letters*, **2020**, 124, 193602	7.4	7
37	Equilibrium phases of tilted dipolar lattice bosons. *New Journal of Physics*, **2015**, 17, 123014	2.9	7
36	Quantum Magnetism with Ultracold Molecules **2015**, 3-37		7
35	Strong correlations in quantum vortex nucleation of ultracold atomic gases. *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences*, **2010**, 466, 1247-1263	2.4	7
34	Quantum dynamics of solitons in strongly interacting systems on optical lattices. *Physical Review A*, **2012**, 85,	2.6	7
33	Subradiance of multilevel fermionic atoms in arrays with filling n⪡2. *Physical Review A*, **2020**, 101,	2.6	7
32	Spin mixing and protection of ferromagnetism in a spinor dipolar condensate. *Physical Review A*, **2018**, 97,	2.6	6
31	Detecting Out-of-Time-Order Correlations via Quasiadiabatic Echoes as a Tool to Reveal Quantum Coherence in Equilibrium Quantum Phase Transitions. *Physical Review Letters*, **2020**, 125, 240605	7.4	5
30	Beyond the spin model approximation for Ramsey spectroscopy. *Physical Review Letters*, **2014**, 112, 123001	7.4	5
29	Simulation of XXZ Spin Models Using Sideband Transitions in Trapped Bosonic Gases. *Physical Review Letters*, **2020**, 125, 240504	7.4	5
28	Characterizing the dynamical phase diagram of the Dicke model via classical and quantum probes. *Physical Review Research*, **2021**, 3,	3.9	5
27	Self-trapping dynamics in a two-dimensional optical lattice. *Physical Review A*, **2013**, 88,	2.6	4
26	Relaxation of the Collective Magnetization of a Dense 3D Array of Interacting Dipolar S=3 Atoms. *Physical Review Letters*, **2020**, 125, 143401	7.4	4
25	Spin Squeezing with Short-Range Spin-Exchange Interactions. *Physical Review Letters*, **2020**, 125, 223401	7.4	4
24	Dynamical Generation of Spin Squeezing in Ultracold Dipolar Molecules. *Physical Review Letters*, **2021**, 126, 113401	7.4	4
23	Dynamics of an itinerant spin-3 atomic dipolar gas in an optical lattice. *Physical Review A*, **2019**, 100,	2.6	3
22	Quantum Computation Toolbox for Decoherence-Free Qubits Using Multi-Band Alkali Atoms. *Advanced Quantum Technologies*, **2020**, 3, 1900132	4.3	3
21	Universality class of quantum criticality in the two-dimensional Hubbard model at intermediate temperatures (t2/U<<T<<t). *Physical Review B*, **2013**, 87,	3.3	3

20	Effect of Active Photons on Dynamical Frustration in Cavity QED. *Physical Review Letters*, **2021**, 126, 133603	7.4	3
19	Short-time expansion of Heisenberg operators in open collective quantum spin systems. *Physical Review A*, **2020**, 101,	2.6	2
18	Spectrum Estimation of Density Operators with Alkaline-Earth Atoms. *Physical Review Letters*, **2018**, 120, 025301	7.4	2
17	Effective multi-body SU(N)-symmetric interactions of ultracold fermionic atoms on a 3D lattice. *New Journal of Physics*, **2019**, 21, 043039	2.9	2
16	Quantum Enhanced Cavity QED Interferometer with Partially Delocalized Atoms in Lattices. *Physical Review Letters*, **2021**, 127, 210401	7.4	2
15	Quantum many-body physics with ultracold polar molecules: Nanostructured potential barriers and interactions. *Physical Review A*, **2020**, 102,	2.6	2
14	Engineering infinite-range SU(n) interactions with spin-orbit-coupled fermions in an optical lattice. *Physical Review A*, **2022**, 105,	2.6	2
13	Spin qudit tomography and state reconstruction error. *Physical Review A*, **2021**, 104,	2.6	2
12	Exploring chemical reactions in a quantum degenerate gas of polar molecules via complex formation. *Physical Review A*, **2020**, 102,	2.6	1
11	Facilitating spin squeezing generated by collective dynamics with single-particle decoherence. *Physical Review A*, **2020**, 102,	2.6	1
10	Atom-light entanglement for precise field sensing in the optical domain. *Physical Review A*, **2020**, 102,	2.6	1
9	Cavity-QED Quantum Simulator of Dynamical Phases of a Bardeen-Cooper-Schrieffer Superconductor. *Physical Review Letters*, **2021**, 126, 173601	7.4	1
8	Doublon dynamics of Bose-Fermi mixtures in optical lattices. *Physical Review A*, **2019**, 100,	2.6	1
7	Disentangling Pauli Blocking of Atomic Decay from Cooperative Radiation and Atomic Motion in a 2D Fermi Gas.. *Physical Review Letters*, **2022**, 128, 093001	7.4	1
6	Dipole-Dipole Frequency Shifts in Multilevel Atoms. *Physical Review Letters*, **2021**, 127, 013401	7.4	0
5	Collective P-Wave Orbital Dynamics of Ultracold Fermions. *Physical Review Letters*, **2021**, 127, 143401	7.4	0
4	Reactions between layer-resolved molecules mediated by dipolar spin exchange.. *Science*, **2022**, 375, 1299-1303	33.3	0
3	Generating Multipartite Spin States with Fermionic Atoms in a Driven Optical Lattice. *Physical Review Letters*, **2020**, 124, 240401	7.4	

2 Synthetic gauge fields for ultracold atoms. *National Science Review*, **2016**, 3, 166-167 10.8

1 Topological superfluidity with repulsive fermionic atoms **2018**, 126-146