

Ana Mara Rey

List of Publications by Year in Descending Order

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

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	Engineering infinite-range SU(n) interactions with spin-orbit-coupled fermions in an optical lattice. <i>Physical Review A</i> , 2022 , 105,	2.6	2
126	Disentangling Pauli Blocking of Atomic Decay from Cooperative Radiation and Atomic Motion in a 2D Fermi Gas.. <i>Physical Review Letters</i> , 2022 , 128, 093001	7.4	1
125	Reactions between layer-resolved molecules mediated by dipolar spin exchange.. <i>Science</i> , 2022 , 375, 1299-1303	33.3	0
124	Quantum Enhanced Cavity QED Interferometer with Partially Delocalized Atoms in Lattices. <i>Physical Review Letters</i> , 2021 , 127, 210401	7.4	2
123	Dynamical Generation of Spin Squeezing in Ultracold Dipolar Molecules. <i>Physical Review Letters</i> , 2021 , 126, 113401	7.4	4
122	Cavity-QED Quantum Simulator of Dynamical Phases of a Bardeen-Cooper-Schrieffer Superconductor. <i>Physical Review Letters</i> , 2021 , 126, 173601	7.4	1
121	Effect of Active Photons on Dynamical Frustration in Cavity QED. <i>Physical Review Letters</i> , 2021 , 126, 133603	7.4	3
120	Characterizing the dynamical phase diagram of the Dicke model via classical and quantum probes. <i>Physical Review Research</i> , 2021 , 3,	3.9	5
119	Dipole-Dipole Frequency Shifts in Multilevel Atoms. <i>Physical Review Letters</i> , 2021 , 127, 013401	7.4	0
118	Quantum-enhanced sensing of displacements and electric fields with two-dimensional trapped-ion crystals. <i>Science</i> , 2021 , 373, 673-678	33.3	11
117	Collective P-Wave Orbital Dynamics of Ultracold Fermions. <i>Physical Review Letters</i> , 2021 , 127, 143401	7.4	0
116	Spin qudit tomography and state reconstruction error. <i>Physical Review A</i> , 2021 , 104,	2.6	2
115	Detecting Out-of-Time-Order Correlations via Quasiadiabatic Echoes as a Tool to Reveal Quantum Coherence in Equilibrium Quantum Phase Transitions. <i>Physical Review Letters</i> , 2020 , 125, 240605	7.4	5
114	Protocol for Precise Field Sensing in the Optical Domain with Cold Atoms in a Cavity. <i>Physical Review Letters</i> , 2020 , 124, 193602	7.4	7
113	Generating Multipartite Spin States with Fermionic Atoms in a Driven Optical Lattice. <i>Physical Review Letters</i> , 2020 , 124, 240401	7.4	
112	Short-time expansion of Heisenberg operators in open collective quantum spin systems. <i>Physical Review A</i> , 2020 , 101,	2.6	2
111	Exploring dynamical phase transitions with cold atoms in an optical cavity. <i>Nature</i> , 2020 , 580, 602-607	50.4	30

110	Quantum Computation Toolbox for Decoherence-Free Qubits Using Multi-Band Alkali Atoms. <i>Advanced Quantum Technologies</i> , 2020 , 3, 1900132	4.3	3
109	Controlling dipolar exchange interactions in a dense three-dimensional array of large-spin fermions. <i>Physical Review Research</i> , 2020 , 2,	3.9	10
108	Exploring chemical reactions in a quantum degenerate gas of polar molecules via complex formation. <i>Physical Review A</i> , 2020 , 102,	2.6	1
107	Relaxation of the Collective Magnetization of a Dense 3D Array of Interacting Dipolar S=3 Atoms. <i>Physical Review Letters</i> , 2020 , 125, 143401	7.4	4
106	40 years of the quantum Hall effect. <i>Nature Reviews Physics</i> , 2020 , 2, 397-401	23.6	18
105	Facilitating spin squeezing generated by collective dynamics with single-particle decoherence. <i>Physical Review A</i> , 2020 , 102,	2.6	1
104	Quantum many-body physics with ultracold polar molecules: Nanostructured potential barriers and interactions. <i>Physical Review A</i> , 2020 , 102,	2.6	2
103	Thermodynamics of a deeply degenerate SU(N)-symmetric Fermi gas. <i>Nature Physics</i> , 2020 , 16, 1216-12216.2	14	
102	Simulation of XXZ Spin Models Using Sideband Transitions in Trapped Bosonic Gases. <i>Physical Review Letters</i> , 2020 , 125, 240504	7.4	5
101	Atom-light entanglement for precise field sensing in the optical domain. <i>Physical Review A</i> , 2020 , 102,	2.6	1
100	Spin Squeezing with Short-Range Spin-Exchange Interactions. <i>Physical Review Letters</i> , 2020 , 125, 2234017.4	4	
99	Subradiance of multilevel fermionic atoms in arrays with filling $n\bar{2}$. <i>Physical Review A</i> , 2020 , 101,	2.6	7
98	Spin squeezing and many-body dipolar dynamics in optical lattice clocks. <i>Physical Review A</i> , 2019 , 100,	2.6	11
97	Dynamics of quantum information. <i>Nature Reviews Physics</i> , 2019 , 1, 627-634	23.6	19
96	Dynamics of an itinerant spin-3 atomic dipolar gas in an optical lattice. <i>Physical Review A</i> , 2019 , 100,	2.6	3
95	Driven-dissipative quantum dynamics in ultra-long-lived dipoles in an optical cavity. <i>Physical Review A</i> , 2019 , 99,	2.6	21
94	Cavity-QED simulator of slow and fast scrambling. <i>Physical Review A</i> , 2019 , 99,	2.6	21
93	Unifying scrambling, thermalization and entanglement through measurement of fidelity out-of-time-order correlators in the Dicke model. <i>Nature Communications</i> , 2019 , 10, 1581	17.4	65

92	Out-of-equilibrium quantum magnetism and thermalization in a spin-3 many-body dipolar lattice system. <i>Nature Communications</i> , 2019 , 10, 1714	17.4	22
91	Cluster State Generation with Spin-Orbit Coupled Fermionic Atoms in Optical Lattices. <i>Physical Review Letters</i> , 2019 , 122, 160402	7.4	9
90	Quantum dynamics of disordered spin chains with power-law interactions. <i>Physical Review A</i> , 2019 , 99,	2.6	22
89	Effective multi-body SU(N)-symmetric interactions of ultracold fermionic atoms on a 3D lattice. <i>New Journal of Physics</i> , 2019 , 21, 043039	2.9	2
88	A generalized phase space approach for solving quantum spin dynamics. <i>New Journal of Physics</i> , 2019 , 21, 082001	2.9	11
87	Observation of a transition between dynamical phases in a quantum degenerate Fermi gas. <i>Science Advances</i> , 2019 , 5, eaax1568	14.3	35
86	Engineering spin squeezing in a 3D optical lattice with interacting spin-orbit-coupled fermions. <i>Physical Review Research</i> , 2019 , 1,	3.9	12
85	Variational Spin-Squeezing Algorithms on Programmable Quantum Sensors. <i>Physical Review Letters</i> , 2019 , 123, 260505	7.4	29
84	Dark States of Multilevel Fermionic Atoms in Doubly Filled Optical Lattices. <i>Physical Review Letters</i> , 2019 , 123, 223601	7.4	13
83	Doublon dynamics of Bose-Fermi mixtures in optical lattices. <i>Physical Review A</i> , 2019 , 100,	2.6	1
82	Dynamics of interacting fermions under spin-orbit coupling in an optical lattice clock. <i>Nature Physics</i> , 2018 , 14, 399-404	16.2	35
81	Spin mixing and protection of ferromagnetism in a spinor dipolar condensate. <i>Physical Review A</i> , 2018 , 97,	2.6	6
80	Relating Out-of-Time-Order Correlations to Entanglement via Multiple-Quantum Coherences. <i>Physical Review Letters</i> , 2018 , 120, 040402	7.4	56
79	Spectrum Estimation of Density Operators with Alkaline-Earth Atoms. <i>Physical Review Letters</i> , 2018 , 120, 025301	7.4	2
78	Verification of a Many-Ion Simulator of the Dicke Model Through Slow Quenches across a Phase Transition. <i>Physical Review Letters</i> , 2018 , 121, 040503	7.4	61
77	Cavity-mediated collective spin-exchange interactions in a strontium superradiant laser. <i>Science</i> , 2018 , 361, 259-262	33.3	72
76	Measurement-Based Entanglement of Noninteracting Bosonic Atoms. <i>Physical Review Letters</i> , 2018 , 120, 193602	7.4	15
75	Robust Spin Squeezing via Photon-Mediated Interactions on an Optical Clock Transition. <i>Physical Review Letters</i> , 2018 , 121, 070403	7.4	25

74	Topological superfluidity with repulsive fermionic atoms 2018 , 126-146		
73	Shattered time: can a dissipative time crystal survive many-body correlations?. <i>New Journal of Physics</i> , 2018 , 20, 123003	2.9	32
72	An approach to spin-resolved molecular gas microscopy. <i>New Journal of Physics</i> , 2018 , 20, 043031	2.9	11
71	Emergence of multi-body interactions in a fermionic lattice clock. <i>Nature</i> , 2018 , 563, 369-373	50.4	37
70	Bang-bang shortcut to adiabaticity in the Dicke model as realized in a Penning trap experiment. <i>New Journal of Physics</i> , 2018 , 20, 055013	2.9	23
69	Measuring out-of-time-order correlations and multiple quantum spectra in a trapped-ion quantum magnet. <i>Nature Physics</i> , 2017 , 13, 781-786	16.2	269
68	Spin-orbit-coupled fermions in an optical lattice clock. <i>Nature</i> , 2017 , 542, 66-70	50.4	139
67	Boson-mediated quantum spin simulators in transverse fields: XY model and spin-boson entanglement. <i>Physical Review A</i> , 2017 , 95,	2.6	22
66	Nonequilibrium dynamics of spin-boson models from phase-space methods. <i>Physical Review A</i> , 2017 , 96,	2.6	22
65	Exploring many-body localization and thermalization using semiclassical methods. <i>Physical Review A</i> , 2017 , 96,	2.6	14
64	Cold molecules: Progress in quantum engineering of chemistry and quantum matter. <i>Science</i> , 2017 , 357, 1002-1010	33.3	192
63	Doublon dynamics and polar molecule production in an optical lattice. <i>Nature Communications</i> , 2016 , 7, 11279	17.4	31
62	Realizing exactly solvable SU(2) magnets with thermal atoms. <i>Physical Review A</i> , 2016 , 93,	2.6	16
61	Synthetic-gauge-field stabilization of the chiral-spin-liquid phase. <i>Physical Review A</i> , 2016 , 93,	2.6	14
60	Synthetic Spin-Orbit Coupling in an Optical Lattice Clock. <i>Physical Review Letters</i> , 2016 , 116, 035301	7.4	80
59	Collective atomic scattering and motional effects in a dense coherent medium. <i>Nature Communications</i> , 2016 , 7, 11039	17.4	113
58	Dynamics of Interacting Fermions in Spin-Dependent Potentials. <i>Physical Review Letters</i> , 2016 , 117, 195302		17
57	Emergent Weyl excitations in systems of polar particles. <i>Nature Communications</i> , 2016 , 7, 13543	17.4	19

56	Quantum spin dynamics and entanglement generation with hundreds of trapped ions. <i>Science</i> , 2016 , 352, 1297-301	33.3	256
55	Synthetic gauge fields for ultracold atoms. <i>National Science Review</i> , 2016 , 3, 166-167	10.8	
54	Simulating generic spin-boson models with matrix product states. <i>Physical Review A</i> , 2016 , 94,	2.6	30
53	Light scattering from dense cold atomic media. <i>Physical Review A</i> , 2016 , 94,	2.6	44
52	Many-Body Quantum Spin Dynamics with Monte Carlo Trajectories on a Discrete Phase Space. <i>Physical Review X</i> , 2015 , 5,	9.1	65
51	Dynamics of correlations in two-dimensional quantum spin models with long-range interactions: a phase-space Monte-Carlo study. <i>New Journal of Physics</i> , 2015 , 17, 065009	2.9	38
50	Entangling two transportable neutral atoms via local spin exchange. <i>Nature</i> , 2015 , 527, 208-11	50.4	89
49	Synchronization of interacting quantum dipoles. <i>New Journal of Physics</i> , 2015 , 17, 083063	2.9	63
48	Effective many-body parameters for atoms in nonseparable Gaussian optical potentials. <i>Physical Review A</i> , 2015 , 92,	2.6	9
47	Demagnetization dynamics of noninteracting trapped fermions. <i>Physical Review A</i> , 2015 , 92,	2.6	10
46	Equilibrium phases of tilted dipolar lattice bosons. <i>New Journal of Physics</i> , 2015 , 17, 123014	2.9	7
45	Quantum Magnetism with Ultracold Molecules 2015 , 3-37		7
44	Spin-orbital dynamics in a system of polar molecules. <i>Nature Communications</i> , 2014 , 5, 5391	17.4	33
43	Beyond the spin model approximation for Ramsey spectroscopy. <i>Physical Review Letters</i> , 2014 , 112, 123001	7.4	5
42	Suppressing the loss of ultracold molecules via the continuous quantum Zeno effect. <i>Physical Review Letters</i> , 2014 , 112, 070404	7.4	78
41	Two-particle quantum interference in tunnel-coupled optical tweezers. <i>Science</i> , 2014 , 345, 306-9	33.3	131
40	Quantum simulation. Spectroscopic observation of SU(N)-symmetric interactions in Sr orbital magnetism. <i>Science</i> , 2014 , 345, 1467-73	33.3	229
39	Quantum correlations and entanglement in far-from-equilibrium spin systems. <i>Physical Review A</i> , 2014 , 90,	2.6	61

38	Many-body dynamics of dipolar molecules in an optical lattice. <i>Physical Review Letters</i> , 2014 , 113, 195307.4	7.4	119
37	Ultracold Fermi gases with emergent SU(N) symmetry. <i>Reports on Progress in Physics</i> , 2014 , 77, 124401	14.4	166
36	Self-trapping dynamics in a two-dimensional optical lattice. <i>Physical Review A</i> , 2013 , 88,	2.6	4
35	A quantum many-body spin system in an optical lattice clock. <i>Science</i> , 2013 , 341, 632-6	33.3	119
34	Far-from-equilibrium quantum magnetism with ultracold polar molecules. <i>Physical Review Letters</i> , 2013 , 110, 075301	7.4	73
33	Observation of dipolar spin-exchange interactions with lattice-confined polar molecules. <i>Nature</i> , 2013 , 501, 521-5	50.4	508
32	Self-trapping in an array of coupled 1D Bose gases. <i>Physical Review Letters</i> , 2013 , 110, 033001	7.4	21
31	Kitaev honeycomb and other exotic spin models with polar molecules. <i>Molecular Physics</i> , 2013 , 111, 1908-7916	7.4	44
30	Topological phases in ultracold polar-molecule quantum magnets. <i>Physical Review B</i> , 2013 , 87,	3.3	72
29	Nonequilibrium dynamics of arbitrary-range Ising models with decoherence: An exact analytic solution. <i>Physical Review A</i> , 2013 , 87,	2.6	52
28	Universality class of quantum criticality in the two-dimensional Hubbard model at intermediate temperatures ($t^2/U \ll T \ll t$). <i>Physical Review B</i> , 2013 , 87,	3.3	3
27	Evaporative cooling of reactive polar molecules confined in a two-dimensional geometry. <i>Physical Review A</i> , 2013 , 88,	2.6	15
26	Operating a $(87)\text{Sr}$ optical lattice clock with high precision and at high density. <i>IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control</i> , 2012 , 59, 416-25	3.2	33
25	High-temperature properties of fermionic alkaline-earth-metal atoms in optical lattices. <i>Physical Review A</i> , 2012 , 85,	2.6	40
24	Long-lived dipolar molecules and Feshbach molecules in a 3D optical lattice. <i>Physical Review Letters</i> , 2012 , 108, 080405	7.4	180
23	Adiabatic loading of one-dimensional SU(N) alkaline-earth-atom fermions in optical lattices. <i>Physical Review Letters</i> , 2012 , 109, 205305	7.4	32
22	Quantum dynamics of solitons in strongly interacting systems on optical lattices. <i>Physical Review A</i> , 2012 , 85,	2.6	7
21	Steady-state many-body entanglement of hot reactive fermions. <i>Physical Review Letters</i> , 2012 , 109, 230501	7.4	25

20	SU(N) magnetism in chains of ultracold alkaline-earth-metal atoms: Mott transitions and quantum correlations. <i>Physical Review A</i> , 2011 , 84,	2.6	58
19	d-wave superfluidity in optical lattices of ultracold polar molecules. <i>Physical Review A</i> , 2011 , 84,	2.6	19
18	Quantum magnetism with polar alkali-metal dimers. <i>Physical Review A</i> , 2011 , 84,	2.6	111
17	Spectroscopy of dipolar fermions in layered two-dimensional and three-dimensional lattices. <i>Physical Review A</i> , 2011 , 84,	2.6	11
16	Tunable superfluidity and quantum magnetism with ultracold polar molecules. <i>Physical Review Letters</i> , 2011 , 107, 115301	7.4	194
15	Suppression of collisional shifts in a strongly interacting lattice clock. <i>Science</i> , 2011 , 331, 1043-6	33.3	115
14	Two-orbital S U(N) magnetism with ultracold alkaline-earth atoms. <i>Nature Physics</i> , 2010 , 6, 289-295	16.2	457
13	Strong correlations in quantum vortex nucleation of ultracold atomic gases. <i>Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences</i> , 2010 , 466, 1247-1263	2.4	7
12	Heavy fermions in an optical lattice. <i>Physical Review A</i> , 2010 , 82,	2.6	35
11	Probing the Kondo lattice model with alkaline-earth-metal atoms. <i>Physical Review A</i> , 2010 , 81,	2.6	76
10	Many-body treatment of the collisional frequency shift in fermionic atoms. <i>Physical Review Letters</i> , 2009 , 103, 260402	7.4	35
9	Mott insulators of ultracold fermionic alkaline Earth atoms: underconstrained magnetism and chiral spin liquid. <i>Physical Review Letters</i> , 2009 , 103, 135301	7.4	172
8	Many-body protected entanglement generation in interacting spin systems. <i>Physical Review A</i> , 2008 , 77,	2.6	35
7	Bose-Einstein-condensate superfluid-Mott-insulator transition in an optical lattice. <i>Physical Review A</i> , 2006 , 73,	2.6	12
6	Mean-field treatment of the damping of the oscillations of a one-dimensional Bose gas in an optical lattice. <i>Physical Review A</i> , 2006 , 73,	2.6	15
5	Ultracold atoms confined in an optical lattice plus parabolic potential: A closed-form approach. <i>Physical Review A</i> , 2005 , 72,	2.6	79
4	Quantum kinetic theory of a Bose-Einstein gas confined in a lattice. <i>Physical Review A</i> , 2005 , 72,	2.6	17
3	Bragg spectroscopy of ultracold atoms loaded in an optical lattice. <i>Physical Review A</i> , 2005 , 72,	2.6	68

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| 2 | Nonequilibrium dynamics of optical-lattice-loaded Bose-Einstein-condensate atoms: Beyond the Hartree-Fock-Bogoliubov approximation. <i>Physical Review A</i> , 2004 , 69, | 2.6 | 75 |
| 1 | Bogoliubov approach to superfluidity of atoms in an optical lattice. <i>Journal of Physics B: Atomic, Molecular and Optical Physics</i> , 2003 , 36, 825-841 | 1.3 | 81 |