Physical Review A

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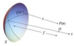
HIGHLIGHTED ARTICLES

EDITORS' SUGGESTION

Conservation laws for partially coherent waves

Mengdi Li, Hugo F. Schouten, and Taco D. Visser

Phys. Rev. A **114**, 022211 (2026) - Published 18 August, 2026



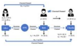
The authors establish a relation between the conservation of coherence and the conservation of energy. They analyze partially coherent fields in the focal region of a converging lens, and show topological differences between the coherence flux and the energy flux.

EDITORS' SUGGESTION

Robust device-independent characterization of sharpness and incompatibility of unsharp instruments

Qian Zhang, Kai-Yu Yuan, Yan-Xin Rong, Zhen Shang, Yong-Jian Gu, and Ya Xiao

Phys. Rev. A **114**, 022411 (2026) - Published 6 August, 2026



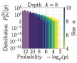
The authors present a device-independent protocol for characterizing unsharp quantum instruments using an entanglement-assisted code with restricted classical communication between two parties. They experimentally demonstrate the predicted enhancement in decoding probability by implementing tunable unsharp measurements with a Mach-Zehnder interferometer.

EDITORS' SUGGESTION

Distributions of noisy expectation values over sets of measurement operators

Matthew Duschenes, Roger G. Melko, Juan Carrasquilla, and Raymond Laflamme

Phys. Rev. A **114**, 022434 (2026) - Published 17 August, 2026



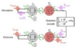
The authors extend analytical derivations for expectation value distributions to random mixed quantum states and general measurement operator sets, using a combinatorics framework to calculate their moments. Using simulated noisy brickwork circuits, they introduce an effective global depolarizing model that accounts for empirical peak behaviors and reveal that non-symmetric measurement sets yield distinct multimodal distributions.

EDITORS' SUGGESTION

Optimal absorption and emission of itinerant fields into a spin-ensemble memory

Linda Greggio, Tristan Lorriaux, Alexandru Petrescu, Mazyar Mirrahimi, and Audrey Bienfait

Phys. Rev. A **114**, 022615 (2026) - Published 14 August, 2026



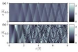
The authors calculate quantum memory efficiency in a cavity-coupled ensemble of spins by examining absorption and emission efficiency. Based on this they design a method for storage and retrieval that involves modulating the coupling strength between the cavity and the ensemble.

EDITORS' SUGGESTION

Soliton turbulence of a strongly driven one-dimensional Bose gas

Manon Ballu, Romain Dubessy, Aurélien Perrin, Hélène Perrin, and Anna Minguzzi

Phys. Rev. A **114**, 023310 (2026) - Published 10 August, 2026



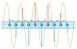
The authors investigate the out-of-equilibrium dynamics of a periodically driven one-dimensional Bose gas in a box trap, demonstrating a transition from a dilute soliton gas to a regime of soliton turbulence with strongly intertwined defects as the drive strength increases. Using an inverse scattering transform analysis, they identify distinct power-law decays in the momentum distribution that characterize each regime and discuss their feasibility for experimental observation.

EDITORS' SUGGESTION

Theory of the collective many-body subradiance in waveguide QED

Xin Wang, Junjun He, and Zeyang Liao

Phys. Rev. A **114**, 023711 (2026) - Published 12 August, 2026



The authors develop an analytical theory for the complex subradiant eigenvalues of a finite one-dimensional emitter array coupled to an ideal or nonideal waveguide. They demonstrate that while Bragg-edge destructive interference drives an N^{-3} linewidth scaling with deep-subwavelength parity oscillations, near-field dipole-dipole interactions dominate the collective energy shift, which exhibits a distinct N^{-2} finite-size correction.

LETTERS

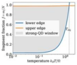
Fundamental concepts

LETTER

Hamiltonian thresholds for objective records

Jie Gu

Phys. Rev. A **114**, L020201 (2026) - Published 13 August, 2026



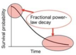
The author demonstrates that quantum objectivity does not scale monotonically with environment size, but instead exists within a certified “two-edge” observer window bounded by record distinguishability and residual dephasing. By identifying local environmental asymmetry as the fundamental resource driving readable records, this study exposes why a bath can efficiently decohere a system while still failing to forge a shared classical reality.

LETTER

Fractional power-law decay in the spontaneous emission of a two-level system

Hiroki Nakabayashi, Hayato Kinkawa, Takano Taira, and Naomichi Hatano

Phys. Rev. A **114**, L020202 (2026) - Published 25 August, 2026



The authors reveal a fractional power-law decay in the spontaneous emission of a two-level system in the short- and long-time regimes. The fractional exponent is determined by the dispersion relation and spatial dimension of the environment.

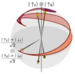
Quantum information science

LETTER

Error-correcting transition pulses for colocated spin ensembles without frequency selectivity

K. L. Wood and W. A. Terrano

Phys. Rev. A **114**, L020401 (2026) - Published 13 August, 2026


$|\uparrow_1\rangle \otimes |\uparrow_2\rangle$
$\frac{|\uparrow_1\rangle + |\downarrow_1\rangle}{\sqrt{2}}$
$\otimes$
$\frac{|\uparrow_2\rangle + |\downarrow_2\rangle}{\sqrt{2}}$

The authors present a geometric approach to designing robust, simultaneous control pulses that approach the time-energy uncertainty limit. Robustness against errors in background fields, pulse area and coil alignment is demonstrated on colocated nuclear spin ensembles; due to the geometric nature of the approach it should be readily extensible to other pairs of qubits.

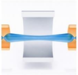
Atomic and molecular structure and dynamics; high-precision experiments; chemical physics

LETTER

Geometry-enabled radiation from structured paraxial electrons

M. S. Epov, I. E. Shenderovich, and S. S. Baturin

Phys. Rev. A **114**, L020801 (2026) - Published 3 August, 2026



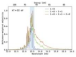
The authors show how the transverse geometry of a structured electron controls photon emission from a finite, locally field-free region. The resulting boundary radiation depends on wavefront curvature inherited from the electron’s prior evolution in a magnetic field.

LETTER

Resolving the blueshift in calculations of the EUV spectrum of multiply charged tin ions

M. L. Reitsma, J. Sheil, O. O. Versolato, E. V. Kahl, and J. C. Berengut

Phys. Rev. A **114**, L020802 (2026) - Published 26 August, 2026



The authors report calculations of the EUV emission spectrum of Sn^{12+} with complete configuration interaction within the $n = 4$ shell and core-valence correlation. Their approach places the dominant emission feature at the experimental wavelength of 13.5 nm without any empirical fitting.

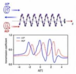
Light-induced processes in atomic-scale systems

LETTER

Strong collective chiroptical response from electric-dipole interactions in atomic systems

Marcella L. Xavier, Felipe A. Pinheiro, and Romain Bachelard

Phys. Rev. A **114**, L021101 (2026) - Published 19 August, 2026



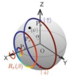
Chiral arrangements of cold atoms can exhibit a strong collective chiroptical response mediated entirely by electric-dipole interactions, providing a route to probe chirality without relying on weak magnetic-dipole transitions. The response is tunable through probe detuning and strongly enhanced in the subwavelength regime, where it is associated with the formation of subradiant collective modes.

LETTER

Femtosecond chiroptical switching mediated by a geometric phase

Yang Liu, Peipei Ge, Yueming Zhou, Xiaosong Zhu, Min Li, and Peixiang Lu

Phys. Rev. A **114**, L021102 (2026) - Published 25 August, 2026



The authors propose a femtosecond chiroptical switch in atomic hydrogen that maps the otherwise unobservable global phase of a Rabi-oscillating system onto the chirality of a bound electron wave packet. They demonstrate that this global phase is dominated by a geometric phase accumulated during cyclic evolution on the Bloch sphere, which endows the switch with high robustness against variations in the control-pulse area.

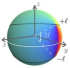
Ultracold systems and matter waves

LETTER

Vortex dipoles in expanding shell-shaped Bose-Einstein condensates

A. Tononi

Phys. Rev. A **114**, L021301 (2026) - Published 13 August, 2026



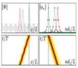
Vortex dipoles in expanding shell-shaped Bose-Einstein condensates induce measurable aspect-ratio variations determined by their displacement on a curved surface, enabling their experimental detection.

LETTER

Topological transport of solitons in composite linear-nonlinear lattices

Yaroslav V. Kartashov, Vladimir V. Konotop, and Dmitry A. Zezyulin

Phys. Rev. A **114**, L021302 (2026) - Published 13 August, 2026



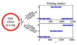
The combination of a static, topologically trivial optical lattice with a moving nonlinear lattice enables quantized soliton transport. In the topological regime, the soliton displacement can be predicted beforehand from the Chern number of the effective Hamiltonian.

LETTER

Engineering the winding number of a toroidal Bose condensate by accelerating dark solitons

Xiao-Lin Li, Ming Gong, Yu-Hao Wang, and Li-Chen Zhao

Phys. Rev. A **114**, L021303 (2026) - Published 24 August, 2026



The authors demonstrate that the winding number of a toroidal Bose-Einstein condensate can be deterministically and robustly engineered by manipulating the motion of dark solitons via nonlinear coupling with the localized waves driven by external forces. The increment or decrement of the winding number is determined by the direction in which the soliton velocity crosses zero, and accelerating multiple dark solitons enables versatile tailoring of the winding number.

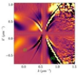
Quantum optics

LETTER

Momentum correlations of the Hawking effect in a quantum fluid

Marcos Gil de Olivera, Malo Joly, Antonio Z. Khoury, Alberto Bramati, and Maxime J. Jacquet

Phys. Rev. A **114**, L021701 (2026) - Published 21 August, 2026



The authors calculate correlations between Hawking radiation, its partner wave inside the horizon, and greybody factors near an acoustic horizon in a driven-dissipative fluid of light. Resolving the correlations in the frequency domain allows one to weigh the contributions of each pair to the total output quantum state

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ARTICLES

Fundamental concepts

Universal scaling of quantum caustics in the dynamics of interacting particles

Monalisa Singh Roy, Jesse Mumford, Amit Ozer, Oded Porat, D. H. J. O'Dell, and Emanuele G. Dalla Torre

Phys. Rev. A **114**, 022201 (2026) - Published 4 August, 2026

Quantum refrigerator embedded in spin-star environments: Scalings of temperature and refrigeration time

Sukrut Mondkar, Aparajita Bhattacharyya, and Ujjwal Sen

Phys. Rev. A **114**, 022202 (2026) - Published 5 August, 2026

Input phase noise in Gaussian boson sampling

Magdalena Parýzková, Craig S. Hamilton, Igor Jex, Michael Stefszky, and Christine Silberhorn

Phys. Rev. A **114**, 022203 (2026) - Published 5 August, 2026

Photon position eigenstates in configuration space

Artemio González-López and Luis Martínez Alonso

Phys. Rev. A **114**, 022204 (2026) - Published 6 August, 2026

Giant-atom quantum battery

Lei Qiao and P. Z. Zhao

Phys. Rev. A **114**, 022205 (2026) - Published 10 August, 2026

Optimal nonlocality transfer matrix in quantum chains with translational symmetry breaking

Xue-Yi Lei, Hong-Guang Cheng, Zihan Xu, Ian P. McCulloch, Liang Yan, and Zhao-Yu Sun

Phys. Rev. A **114**, 022206 (2026) - Published 11 August, 2026

Typicality of contextuality

Vinicius P. Rossi, Beata Zjawin, Roberto D. Baldijão, David Schmid, John H. Selby, and Ana Bélen Sainz

Phys. Rev. A **114**, 022207 (2026) - Published 13 August, 2026

Clauser-Horne-Shimony-Holt game, Tsirelson's bound, and causal locality

Jacob A. Barandes, Mahmudul Hasan, and David Kagan

Phys. Rev. A **114**, 022208 (2026) - Published 17 August, 2026

Dynamics of two particles with quasiperiodic long-range interactions

Yun Zou

Phys. Rev. A **114**, 022209 (2026) - Published 17 August, 2026

Boosting the performance of a Lipkin-Meshkov-Glick quantum battery via symmetry-breaking quenches or a single-mode bosonic charger

Le Bin Ho, Duc Tuan Hoang, Tran Duong Anh-Tai, Thomas Busch, and Thomás Fogarty

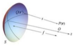
Phys. Rev. A **114**, 022210 (2026) - Published 18 August, 2026

EDITORS' SUGGESTION

Conservation laws for partially coherent waves

Mengdi Li, Hugo F. Schouten, and Taco D. Visser

Phys. Rev. A **114**, 022211 (2026) - Published 18 August, 2026



The authors establish a relation between the conservation of coherence and the conservation of energy. They analyze partially coherent fields in the focal region of a converging lens, and show topological differences between the coherence flux and the energy flux.

Dynamics and Stokes phases in multilevel non-Hermitian Landau-Zener transitions

Z. H. Zhou, Xin Wang, and H. D. Liu

Phys. Rev. A **114**, 022212 (2026) - Published 19 August, 2026

Nonstationary hierarchical equations of motion in complex time

Mauro Cirio and Pengfei Liang

Phys. Rev. A **114**, 022213 (2026) - Published 19 August, 2026

Algebraic structure of Fock-state lattices

Piergiorgio Ferraro, Caio B. Naves, and Jonas Larson

Phys. Rev. A **114**, 022214 (2026) - Published 20 August, 2026

Localization without disorder: Quantum walks on structured graphs

Shyam Dhamapurkar and K. Venkata Subrahmanyam

Phys. Rev. A **114**, 022215 (2026) - Published 20 August, 2026

Torsion-induced gauge structure in curved quantum waveguides

Xu-Yang Hou, Xianlong Gao, and Hao Guo

Phys. Rev. A **114**, 022216 (2026) - Published 21 August, 2026

Nonreciprocal Landau-Zener tunneling with heat-bath colored noise

Yi Cao and Jie Liu

Phys. Rev. A **114**, 022217 (2026) - Published 24 August, 2026

Correlated decoherence in a common environment activated by relative motion

Yang Wang, Zhilei Sun, Feiyi Liu, Min Guo, Yuhan Jiang, and Mingyang Liu

Phys. Rev. A **114**, 022218 (2026) - Published 28 August, 2026

Quantum information science

Quantum-error-correction-inspired multiparameter quantum metrology

Sivaprasad Omanakuttan, Jonathan A. Gross, and Tyler Volkoff

Phys. Rev. A **114**, 022401 (2026) - Published 3 August, 2026

Learning spectral density functions in open quantum systems

Felipe Peleteiro, João Victor Shiguetsugo Kawanami Lima, Pedro Marcelo Prado, Felipe Fernandes Fanchini, and Ariel Norambuena

Phys. Rev. A **114**, 022402 (2026) - Published 3 August, 2026

Non-Hermitian skin effect in a semi-infinite Fock-state lattice

Zhi Jiao Deng, Xing Yao Mi, Ruo Kun Cai, Chun Wang Wu, and Ping Xing Chen

Phys. Rev. A **114**, 022403 (2026) - Published 4 August, 2026

Quantum Davis-Putnam-Logemann-Loveland and generalized constraints in iterative quantum algorithms

Lucas T. Brady and Stuart Hadfield

Phys. Rev. A **114**, 022404 (2026) - Published 4 August, 2026

Floquet-informed learning of time-periodic Hamiltonians

Keren Li

Phys. Rev. A **114**, 022405 (2026) - Published 4 August, 2026

Non-normality and dissipation in Markovian quantum dynamics: Implications for quantum simulation

Shakib Daryanoosh

Phys. Rev. A **114**, 022406 (2026) - Published 4 August, 2026

Advantage of flexible catalysis for entanglement and quantum thermodynamics

Jingsong Ao, Aby Philip, and Alexander Streltsov

Phys. Rev. A **114**, 022407 (2026) - Published 5 August, 2026

Upper bounds on the purity of Wigner non-negative quantum states that verify the Wigner entropy conjecture

Qipeng Qian and Christos N. Gagatsos

Phys. Rev. A **114**, 022408 (2026) - Published 5 August, 2026

Overflow-safe polylog-time parallel minimum-weight perfect-matching decoder: Toward feasible implementation

Ryo Mikami and Hayata Yamasaki

Phys. Rev. A **114**, 022409 (2026) - Published 5 August, 2026

Restriction-based certificate of bipartite Schmidt rank in hypergraph states

C. Fajardo and M. Paraschiv

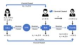
Phys. Rev. A **114**, 022410 (2026) - Published 6 August, 2026

EDITORS' SUGGESTION

Robust device-independent characterization of sharpness and incompatibility of unsharp instruments

Qian Zhang, Kai-Yu Yuan, Yan-Xin Rong, Zhen Shang, Yong-Jian Gu, and Ya Xiao

Phys. Rev. A **114**, 022411 (2026) - Published 6 August, 2026



The authors present a device-independent protocol for characterizing unsharp quantum instruments using an entanglement-assisted code with restricted classical communication between two parties. They experimentally demonstrate the predicted enhancement in decoding probability by implementing tunable unsharp measurements with a Mach-Zehnder interferometer.

Asymptotically optimal joint phase and dephasing-strength estimation using spin-squeezed states

Arkadiusz Kobus and Rafał Demkowicz-Dobrzański

Phys. Rev. A **114**, 022412 (2026) - Published 6 August, 2026

Experimental prime factorization via feedback quantum control

K. B. Hari Krishnan, Vishal Varma, and T. S. Mahesh

Phys. Rev. A **114**, 022413 (2026) - Published 7 August, 2026

Variational quantum operator simulation

Satoru Shoji, Kosuke Ito, Yukihiro Shimizu, and Keisuke Fujii

Phys. Rev. A **114**, 022414 (2026) - Published 7 August, 2026

Pre-distillation of magic states via composite schemes

Muhammad Erew, Moshe Goldstein, Yaron Oz, and Haim Suchowski

Phys. Rev. A **114**, 022415 (2026) - Published 10 August, 2026

Universal operator-norm bounds on instantaneous rates in quantum batteries

Sen-Yan Guo, Lu Wang, Na-Na Li, Rui-Yuan Li, Feng-lin Wu, and Si-Yuan Liu

Phys. Rev. A **114**, 022416 (2026) - Published 10 August, 2026

Equivalence between exponential concentration in quantum machine learning kernels and barren plateaus in variational algorithms

Pranav Kairon, Jonas Jäger, and Roman V. Krems

Phys. Rev. A **114**, 022417 (2026) - Published 10 August, 2026

Mitigating barren plateaus in quantum denoising diffusion probabilistic models

Haipeng Cao, Kaining Zhang, Dacheng Tao, and Zhaofeng Su

Phys. Rev. A **114**, 022418 (2026) - Published 10 August, 2026

Tabletop reversibility of phase-covariant operations

Fangzhen Chen and Xueyuan Hu

Phys. Rev. A **114**, 022419 (2026) - Published 11 August, 2026

Quantum coherence and entanglement in wireless quantum batteries

Jun-Jie Jiang, Jin-Di Cao, Yu-Fei Zhang, Meng-Long Song, and Dong Wang

Phys. Rev. A **114**, 022420 (2026) - Published 11 August, 2026

Geometric and resource-theoretic characterization of nonstabilizerness in quantum algorithms

Tom Krueger and Wolfgang Mauerer

Phys. Rev. A **114**, 022421 (2026) - Published 11 August, 2026

Comparing quantum to simulated reverse annealing in mean-field models

Christopher L. Baldwin

Phys. Rev. A **114**, 022422 (2026) - Published 12 August, 2026

Noise tolerance via reinforcement in the quantum search problem

Marjan Homayouni-Sangari and Abolfazl Ramezanpour

Phys. Rev. A **114**, 022423 (2026) - Published 12 August, 2026

More global randomness from less-random local gates

Ryotaro Suzuki, Hosho Katsura, Yosuke Mitsuhashi, Tomohiro Soejima, Jens Eisert, and Nobuyuki Yoshioka

Phys. Rev. A **114**, 022424 (2026) - Published 12 August, 2026

In situ rewiring of two-dimensional ion lattice interactions using metastable state shelving

Ilyoung Jung, Antonis Kyprianidis, Frank G. Schroer, Thomas W. Burkle, Jack Lyons, and Philip Richerme

Phys. Rev. A **114**, 022425 (2026) - Published 12 August, 2026

Frequency shifts heralding ground-state squeezing and entanglement of two coupled harmonic oscillators

Safoura Mirkhalaf, Helmut Ritsch, and Karol Gietka

Phys. Rev. A **114**, 022426 (2026) - Published 12 August, 2026

Fault-tolerant resource comparison of qudit and qubit encodings for diagonal quadratic operators

Samuel Godwood, Doğa Murat Kürkçüoğlu, Gabriel N. Perdue, Marina Maneyro, and Alessandro Roggero

Phys. Rev. A **114**, 022427 (2026) - Published 12 August, 2026

Local-observable-guided generative quantum circuits for degenerate ground spaces

Yiying Chen (陈怡颖), Lingxia Zhang (张凌霞), Yanzheng Zhu (朱彦铮), Kaiyan Yang (杨恺雁), Xiao Zeng (曾骁), and Zizhu Wang (王子竹)

Phys. Rev. A **114**, 022428 (2026) - Published 13 August, 2026

Joint parameter estimation and multidimensional reconciliation for continuous-variable quantum key distribution

Jisheng Dai, Xue-Qin Jiang, Peng Huang, Tao Wang, and Guihua Zeng

Phys. Rev. A **114**, 022429 (2026) - Published 14 August, 2026

Classical simulation of noisy quantum circuits via locally entanglement-optimal unravelings

Simon Cichy, Paul K. Faehrmann, Lennart Bittel, Jens Eisert, and Hakop Pashayan

Phys. Rev. A **114**, 022430 (2026) - Published 17 August, 2026

Hyperlink representation of entanglement and the inclusion-exclusion principle

Silvia N. Santalla, Sudipto Singha Roy, Germán Sierra, and Javier Rodríguez-Laguna

Phys. Rev. A **114**, 022431 (2026) - Published 17 August, 2026

Characterizing energy transfer and distribution in quantum batteries through continuous-time quantum walks

Lu Wang, Feng-lin Wu, Na-Na Li, Sen-Yan Guo, Rui-Yuan Li, and Si-Yuan Liu

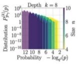
Phys. Rev. A **114**, 022432 (2026) - Published 17 August, 2026

EDITORS' SUGGESTION

Distributions of noisy expectation values over sets of measurement operators

Matthew Duschenes, Roger G. Melko, Juan Carrasquilla, and Raymond Laflamme

Phys. Rev. A **114**, 022434 (2026) - Published 17 August, 2026



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Optimized network-steering inequality based on the distribution character of network parties

Hongyan Li, Shuyuan Yang, Jinchuan Hou, and Kan He

Phys. Rev. A **114**, 022435 (2026) - Published 17 August, 2026

Achieving double-logarithmic precision dependence in optimization-based quantum unstructured search

Zhijian Lai, Dong An, Jiang Hu, and Zaiwen Wen

Phys. Rev. A **114**, 022436 (2026) - Published 17 August, 2026

Information geometry of bosonic Gaussian thermal states

Zixin Huang and Mark M. Wilde

Phys. Rev. A **114**, 022437 (2026) - Published 18 August, 2026

Probing quantum information scrambling via local randomized measurements

Yan-Ming Chen and Dan-Bo Zhang

Phys. Rev. A **114**, 022438 (2026) - Published 19 August, 2026

Experimental realization of an orthogonal-state-encoding quantum cryptography system driven by broadband quantum memory

Mingshuo Sun, Chunhui Zhang, Zhiyuan Zhou, Yun Liu, Gaoxiang Fu, Lechen Xu, Yizhen Luo, Guigen Zeng, Jian Li, and Qin Wang

Phys. Rev. A **114**, 022439 (2026) - Published 19 August, 2026

Spin stiffness and resilience phase transition in a noisy toric-rotor code

Morteza Zarei and Mohammad Hossein Zarei

Phys. Rev. A **114**, 022440 (2026) - Published 19 August, 2026

Sub-Riemannian lift advantage in quantum control

Ryan Choi, Vwani Roychowdhury, and Louis-S. Bouchard

Phys. Rev. A **114**, 022441 (2026) - Published 19 August, 2026

Gravitational decoherence estimation in optomechanical systems

Leonardo A. M. Souza, Olimpio P. de Sá Neto, Enrico Russo, Rosario Lo Franco, and Gerardo Adesso

Phys. Rev. A **114**, 022442 (2026) - Published 20 August, 2026

Entropy density benchmarking of near-term quantum circuits

Marine Demarty, James Mills, Kenza Hammam, and Raúl García-Patrón

Phys. Rev. A **114**, 022443 (2026) - Published 20 August, 2026

Auxiliary-field quantum Monte Carlo on quantum hardware via unitary dilation

Xiantao Li

Phys. Rev. A **114**, 022444 (2026) - Published 20 August, 2026

Spatial Leggett-Garg inequalities

Guillem Müller-Rigat, Donato Farina, Maciej Lewenstein, and Andrea Tononi

Phys. Rev. A **114**, 022446 (2026) - Published 20 August, 2026

Asymmetric and fast Rydberg gate protocol for entanglement outside of the blockade regime

Daniel C. Cole, Vikas Buchemmavari, and Mark Saffman

Phys. Rev. A **114**, 022447 (2026) - Published 21 August, 2026

Complex heat capacity as a witness of spatio-temporal entanglement

Mia Stamatova and Vlatko Vedral

Phys. Rev. A **114**, 022448 (2026) - Published 24 August, 2026

Correcting non-Pauli noise with detector error models estimated from syndrome measurements

Evangelia Takou and Kenneth R. Brown

Phys. Rev. A **114**, 022449 (2026) - Published 24 August, 2026

Cloning encrypted quantum states in arbitrary dimensions

Filip-Ioan Ceară

Phys. Rev. A **114**, 022450 (2026) - Published 24 August, 2026

Leakage-suppressed parametric entangling gates in a spin-resonator hybrid system

Jin-Rong Liu, Ao-Lin Guo, Bo-Ya Zhang, and Xing-Yu Zhu

Phys. Rev. A **114**, 022451 (2026) - Published 24 August, 2026

Distinguishing universality classes of two entanglement percolation protocols

Haigang Wang, Jinchuan Hou, and Kan He

Phys. Rev. A **114**, 022452 (2026) - Published 24 August, 2026

Measure of set imaginarity

Yu Guo, Jiabo Pan, Yuqin Wang, and Shuanping Du

Phys. Rev. A **114**, 022453 (2026) - Published 24 August, 2026

Multipartite entanglement in the quantum tetrahedron

Robert Amelung and Hanno Sahlmann

Phys. Rev. A **114**, 022454 (2026) - Published 24 August, 2026

Dissipation-protected energy storage in interacting multilevel quantum batteries

Yiğit Perçin and Özgür E. Müstecaplıoğlu

Phys. Rev. A **114**, 022455 (2026) - Published 24 August, 2026

General quantum resources providing advantages in work-extraction tasks

Chung-Yun Hsieh and Manuel Gessner

Phys. Rev. A **114**, 022456 (2026) - Published 25 August, 2026

Asymmetric polaron picture for the quantum Rabi model

Feng Qiao, Qiu-Yi Chen, and Zu-Jian Ying

Phys. Rev. A **114**, 022457 (2026) - Published 25 August, 2026

Symmetry enforcing entanglement at high temperatures

Amir-Reza Negari, Leonardo A. Lessa, and Subhayan Sahu

Phys. Rev. A **114**, 022458 (2026) - Published 27 August, 2026

Squeezed quantum multiplets: Properties and phase space representation

Juan Pablo Paz, Corina Révora, and Christian Tomás Schmiegelow

Phys. Rev. A **114**, 022459 (2026) - Published 25 August, 2026

Qudit gate decomposition for lattice gauge theories on superconducting radio-frequency cavities

Doğa Murat Kürkçüoğlu , Henry Lamm, and Andrea Maestri

Phys. Rev. A **114**, 022460 (2026) - Published 27 August, 2026

Advantage framework for resource engines

Jakub Czartowski and Rafał Bistroń

Phys. Rev. A **114**, 022461 (2026) - Published 26 August, 2026

Dynamical imaginarity measures induced by channel divergences

Peihua Tian and Yuan Sun

Phys. Rev. A **114**, 022462 (2026) - Published 26 August, 2026

Reinforcement learning for robust calibration of multiqudit quantum gates

Amine Jaouadi and Sahel Ashhab

Phys. Rev. A **114**, 022463 (2026) - Published 26 August, 2026

Mixed-dimensional quantum MacWilliams identity: Bounds for codes and absolutely maximally entangled states in heterogeneous systems

David González-Lociga and Simeon Ball

Phys. Rev. A **114**, 022464 (2026) - Published 26 August, 2026

Fisher information of complete quantum measurements

Rakesh Saini, Jukka Kiukas, Daniel Burgarth, and Alexei Gilchrist

Phys. Rev. A **114**, 022465 (2026) - Published 26 August, 2026

Full-state information-disturbance tradeoff for direction estimation with antiparallel spin-coherent pairs

Massimiliano F. Sacchi

Phys. Rev. A **114**, 022466 (2026) - Published 26 August, 2026

Permutation-invariant Holstein-Primakoff spin codes for local and collective noise

Sivaprasad Omanakuttan, Tyler G. Thurtell, Andrew K. Forbes, Vikas Buchemmavari, and Ben Q. Baragiola

Phys. Rev. A **114**, 022467 (2026) - Published 27 August, 2026

General perturbation theory for local quantum uncertainty and its formulation in the linear-response regime

A. A. Jimenez-Romero and F. Rojas

Phys. Rev. A **114**, 022468 (2026) - Published 27 August, 2026

Universality classes split by strong and weak symmetries

Jongjun M. Lee, Myung-Joong Hwang, and Igor Boettcher

Phys. Rev. A **114**, 022469 (2026) - Published 28 August, 2026

Frustration-enhanced quantum annealing correction models with additional inter-replica interactions

Tomohiro Hattori and Shu Tanaka

Phys. Rev. A **114**, 022470 (2026) - Published 31 August, 2026

Dissipative continuation for ground-state preparation at chemical transition states

Thomas W. Watts, Soumya Sarkar, Daniel Collins, Nam Nguyen, Luke Quezada, Michael J. Bremner, and Samuel J. Elman

Phys. Rev. A **114**, 022471 (2026) - Published 31 August, 2026

Experimental demonstration of a brachistochrone nonadiabatic holonomic single-qubit gate scheme in a trapped ion

Xi Wang, Hui Ren, L.-N. Sun, K.-F. Cui, J.-T. Bu, S.-L. Su, L.-L. Yan, and G. Chen

Phys. Rev. A **114**, 022472 (2026) - Published 31 August, 2026

Quantum technologies

Scalable repeater architecture for long-range quantum energy teleportation in gapped systems

M. Y. Abd-Rabbou, Irfan Siddique, Saeed Haddadi, and Cong-Feng Qiao

Phys. Rev. A **114**, 022601 (2026) - Published 3 August, 2026

Optical downlink modeling for low-earth-orbit and medium-earth-orbit satellites under atmospheric turbulence with a quantum-state-tomography use case

Artur Czerwinski, Jakub J. Borkowski, Maciej Wiśniewski, and Saeed Haddadi

Phys. Rev. A **114**, 022602 (2026) - Published 3 August, 2026

Probing an electron-spin ensemble with squeezed microwave signals

P. Oehrl, F. Fesquet, K. E. Honasoge, M. Handschuh, A. Marx, R. Gross, K. G. Fedorov, and H. Huebl

Phys. Rev. A **114**, 022603 (2026) - Published 4 August, 2026

Refrigeration of a one-dimensional gas of microwave photons

Lukas Schamriß, Louis Garbe, and Peter Rabl

Phys. Rev. A **114**, 022604 (2026) - Published 5 August, 2026

Fast quantum calibration using Bayesian optimization with state parameter estimator for non-Markovian environment

Peng Qian, Shahid Qamar, Xiao Xiao, Yanwu Gu, Xudan Chai, Zhen Zhao, Nicolò Forcellini, and Dong E. Liu

Phys. Rev. A **114**, 022605 (2026) - Published 6 August, 2026

Minimal-energy optimal control of tunable two-qubit gates in superconducting platforms using continuous dynamical decoupling

Adonai Hilário da Silva, Octávio da Motta, Leonardo K. Castelano, and Reginaldo de Jesus Napolitano

Phys. Rev. A **114**, 022606 (2026) - Published 10 August, 2026

Interferometer-based quantum optical generative models with optimized fidelity and success probability

Haosen Chen and Xiangdong Zhang

Phys. Rev. A **114**, 022607 (2026) - Published 10 August, 2026

Developing a universal logical state-purification strategy

Chandrima B. Pushpan, Tanoy Kanti Konar, Aditi Sen(De), and Amit Kumar Pal

Phys. Rev. A **114**, 022608 (2026) - Published 10 August, 2026

Remote high-temperature quantum thermometry using blackbody-radiation-induced shifts of Rydberg electromagnetically induced transparency resonances

Assaf Alassaf and Ramiz Hamid

Phys. Rev. A **114**, 022609 (2026) - Published 10 August, 2026

Parameter trajectory engineering for state transfer and quantum sensing in non-Hermitian two-level systems

Qi-Cheng Wu, Yan-Hui Zhou, Biao-liang Ye, Tong Liu, Yi-Hao Kang, Qi-Ping Su, and Chui-Ping Yang

Phys. Rev. A **114**, 022610 (2026) - Published 10 August, 2026

Continuous-variable quantum key distribution with composable security and tight error-correction bound towards constrained-device implementations

Panagiotis Papanastasiou, Carlo Ottaviani, Stefano Pirandola, Poonam Yadav, and Marco Lucamarini

Phys. Rev. A **114**, 022611 (2026) - Published 11 August, 2026

Agnostic parameter estimation with large spins

Huining Zhang and X. X. Yi

Phys. Rev. A **114**, 022612 (2026) - Published 12 August, 2026

Robust two-qubit gates for semiconductor spin qubits based on dynamical dimensionality reduction

Qi-Pei Liu, Jian Zhou, and Zheng-Yuan Xue

Phys. Rev. A **114**, 022613 (2026) - Published 12 August, 2026

Physical origins of shortest control time from feasibility boundaries in quantum control

I-Yun Hsiao and Yoshiaki Teranishi

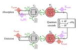
Phys. Rev. A **114**, 022614 (2026) - Published 13 August, 2026

EDITORS' SUGGESTION

Optimal absorption and emission of itinerant fields into a spin-ensemble memory

Linda Greggio, Tristan Lorriaux, Alexandru Petrescu, Mazyar Mirrahimi, and Audrey Bienfait

Phys. Rev. A **114**, 022615 (2026) - Published 14 August, 2026



The authors calculate quantum memory efficiency in a cavity-coupled ensemble of spins by examining absorption and emission efficiency. Based on this they design a method for storage and retrieval that involves modulating the coupling strength between the cavity and the ensemble.

Multipartite entanglement generation via unsharp-measurement-feedback control

Du Ran, Ze-Long He, Peng-Yu Su, Sui-Hu Dang, Ya-dong Li, and Shuai Liu

Phys. Rev. A **114**, 022616 (2026) - Published 19 August, 2026

Radial fast entangling gates under micromotion in trapped-ion quantum computers

Phoebe Grosser, Monica Gutierrez Galan, Isabelle Savill-Brown, Alexander K. Ratcliffe, Haonan Liu, Varun D. Vaidya, Simon A. Haine, C. Ricardo Viteri, Joseph J. Hope, and Zain Mehdi

Phys. Rev. A **114**, 022617 (2026) - Published 20 August, 2026

Four-photon subtraction from picosecond squeezed vacuum demonstrating Wigner negativity without loss correction

Mamoru Endo, Takefumi Nomura, Tatsuki Sonoyama, Kazuma Takahashi, Sachiko Takasu, Daiji Fukuda, Takahiro Kashiwazaki, Asuka Inoue, Takeshi Umeki, Rajveer Nehra, Petr Marek, Radim Filip, Kan Takase, Warit Asavanant, and Akira Furusawa

Phys. Rev. A **114**, 022618 (2026) - Published 24 August, 2026

Adiabatic Ramsey interferometry for measuring weak nonlinearities with super-Heisenberg precision

Venelin P. Pavlov, Bogomila S. Nikolova, and Peter A. Ivanov

Phys. Rev. A **114**, 022619 (2026) - Published 24 August, 2026

Entanglement certification and entropy bounds in the asymmetric Clauser-Horne-Shimony-Holt scenario

Xingyuan Bu, Xin Kuang, and Yunguang Han

Phys. Rev. A **114**, 022620 (2026) - Published 25 August, 2026

Refined coherent control of atomic qubits via a wave-function approach conditioned on no-decay

Yuan Sun

Phys. Rev. A **114**, 022621 (2026) - Published 26 August, 2026

Impact of acoustic phonons on biexciton preparation using shortcuts to adiabaticity

Sutirtha Biswas, Dionisis Stefanatos, and Emmanuel Paspalakis

Phys. Rev. A **114**, 022622 (2026) - Published 26 August, 2026

Encoding computationally hard problems in triangular Rydberg atom arrays

Xi-Wei Pan, Huan-Hai Zhou, Yi-Ming Lu, and Jin-Guo Liu

Phys. Rev. A **114**, 022623 (2026) - Published 31 August, 2026

Collective dynamics versus entanglement in quantum battery performance

Rohit Kumar Shukla, Sunil K. Mishra, and Ujjwal Sen

Phys. Rev. A **114**, 022624 (2026) - Published 31 August, 2026

Atomic and molecular structure and dynamics; high-precision experiments; chemical physics

Breit corrections to moderately charged ions in all-order calculations

Andoni Skoufris and Benjamin M. Roberts

Phys. Rev. A **114**, 022801 (2026) - Published 3 August, 2026

Symmetry-based perturbation theory for electronic structure calculations

Hiromichi Nishimura, Nam Nguyen, Tanvi Gujarati, and Mario Motta

Phys. Rev. A **114**, 022802 (2026) - Published 3 August, 2026

Angular distribution of Auger electrons following dielectronic capture for hydrogenlike ions

Yunping Wang, Tianluo Luo, Zhencen He, Zhihao Yang, and Zhimin Hu

Phys. Rev. A **114**, 022803 (2026) - Published 3 August, 2026

Bound-state Compton scattering of linearly polarized photons

Jonas Sommerfeldt, Nick M. Mayer, Anna Maiorova, Wilko Middents, Stephan Fritzsche, Thomas Stöhlker, and Andrey Surzhykov

Phys. Rev. A **114**, 022804 (2026) - Published 4 August, 2026

Criterion for an effective discretization of a continuous Schrödinger spectrum using a pseudostate basis

Tom Kirchner and Marko Horbatsch

Phys. Rev. A **114**, 022805 (2026) - Published 5 August, 2026

Parity nonconservation in the isotope chain of tin

V. A. Dzuba, V. V. Flambaum, D. DeMille, Jianwei Wang, and Geoffrey Zheng

Phys. Rev. A **114**, 022806 (2026) - Published 5 August, 2026

Isotope shifts and hyperfine splitting of the ${}^1S_0 \rightarrow {}^3P_1$ transition in zinc

Felix Waldherr, Lukas Möller, and Simon Stellmer

Phys. Rev. A **114**, 022807 (2026) - Published 10 August, 2026

Single- and double-electron capture at intermediate energies for Ne^{8+} colliding with He

Yadong Liu, Yunyu Wu, Ling Liu, Yong Wu, Xiangjun Chen, and Jianguo Wang

Phys. Rev. A **114**, 022808 (2026) - Published 10 August, 2026

Electronic stopping power of protons in the rare-earth lanthanide metal Gd: Contribution from the p-electron excitation

Yan-Long Fu, Zhi-Yi Ni, Lei Xue, Chao-Yong Feng, Xue-Song Li, Yang Liu, and Feng-Shou Zhang

Phys. Rev. A **114**, 022809 (2026) - Published 11 August, 2026

Vibrational-excitation cross sections by electron impact on the CH radical for nonthermal plasmas

V. Laporta, M. Telmini, R. Ghosh, and K. Chakrabarti

Phys. Rev. A **114**, 022810 (2026) - Published 13 August, 2026

Spin-flip configuration interaction for strong static correlation in molecular cavity quantum electrodynamics

Braden M. Weight, Sergei Tretiak, and Zheng Pei

Phys. Rev. A **114**, 022811 (2026) - Published 12 August, 2026

Electric-field-dependent g factors of $\mathrm{RaOCH_3}$ molecule

Alexander Petrov

Phys. Rev. A **114**, 022812 (2026) - Published 13 August, 2026

Vibronic quantum dynamics of ultralong-range high-ℓ Rydberg molecules

Felix Giering, Rohan Srikumar, and Peter Schmelcher

Phys. Rev. A **114**, 022813 (2026) - Published 13 August, 2026

Effect of an applied magnetic field on $^{84}\mathrm{Sr}$ n^1D_2 ultralong-range Rydberg dimers

S. Yoshida, C. Wang, A. Li, S. K. Kanungo, T. C. Killian, and F. B. Dunning

Phys. Rev. A **114**, 022814 (2026) - Published 13 August, 2026

Signatures of nuclear motion in a model study of ultrafast single-pulse two-photon ionization of diatomic molecules

Jan Dvořák, Robert R. Lucchese, Roger Y. Bello, and C. William McCurdy

Phys. Rev. A **114**, 022815 (2026) - Published 17 August, 2026

Simulation of vibrational dynamics using qubits and qudits

Erik Lötstedt and Kaoru Yamanouchi

Phys. Rev. A **114**, 022816 (2026) - Published 17 August, 2026

Charge transfer in low-energy collisions of ground and metastable states of C^+ ions with H_2 molecules

Yun-Yu Wu, Ya-Dong Liu, Ling Liu, Yong Wu, and Jian-Guo Wang

Phys. Rev. A **114**, 022817 (2026) - Published 24 August, 2026

Applications of the Schwinger multichannel method to the scattering of slow electrons by the Z–C, E–C, and N isomers of cyanomethanimine: Shape resonances, bound states, and dipole bound states

Barbara M. Monaro, Luiz V. S. Dalagnol, and Márcio H. F. Bettega

Phys. Rev. A **114**, 022818 (2026) - Published 24 August, 2026

Robust control for atom-molecule conversion in a heteronuclear triatomic system via optimal inverse engineering

Hong Cao, Hong-cen Liu, and Song-gui Lü

Phys. Rev. A **114**, 022819 (2026) - Published 24 August, 2026

Nonlocal current-response theory of structured-light dichroism

Akihito Kato and Nobuhiko Yokoshi

Phys. Rev. A **114**, 022820 (2026) - Published 24 August, 2026

Precision measurement of the $2\,^3S_1 \rightarrow 2\,^3P_2$ interval in positronium using phase-variation Ramsey spectroscopy

D. M. Newson and D. B. Cassidy

Phys. Rev. A **114**, 022821 (2026) - Published 24 August, 2026

Quantum study of excitation exchange in ultracold $\mathrm{Rb-Sr^+}$ collisions

Tibor Jónás, Romain Vexiau, Nadia Bouloufa-Maafa, Eliane Luc-Koenig, Olivier Dulieu, and Andrea Orbán

Phys. Rev. A **114**, 022822 (2026) - Published 24 August, 2026

Excitation function of detachment with simultaneous target ionization in slow collisions of D^- with He and Ar

M. Schulz, F. Herrmann, W. Zhang, A. B. Voitkiv, B. Najjari, M. Siddiki, A. Dorn, M. Grieser, F. Grussie, H. Kreckel, O. Novotny, A. Wolf, T. Pfeifer, C. D. Schröter, and R. Moshammer

Phys. Rev. A **114**, 022823 (2026) - Published 25 August, 2026

Revealing collective nonradiative coherence with anomalous sidebands in zero-quantum two-dimensional coherent spectroscopy of alkali-metal atoms

YiFeng Geng, Can Ma, Zhong Zuo, SongPo Xu, LinQiang Hua, ShaoGang Yu, and XiaoJun Liu

Phys. Rev. A **114**, 022824 (2026) - Published 25 August, 2026

Collective resonances of two atoms revealed by zero-quantum two-dimensional coherent spectroscopy

Lexter R. Savio, Ashmita Shah, and Hebin Li

Phys. Rev. A **114**, 022825 (2026) - Published 25 August, 2026

Experimental evidence for projectile electronic structure effects in slow multielectron capture collisions

Akash Srivastav, Sumit Srivastav, and Bhas Bapat

Phys. Rev. A **114**, 022826 (2026) - Published 25 August, 2026

Theory for the Rydberg states of helium: Quantum defect extensions and comparison with experiment up to $n = 102$ for the singlet and triplet P states

G. W. F. Drake and Aaron T. Bondy

Phys. Rev. A **114**, 022827 (2026) - Published 26 August, 2026

Fringe-field-induced spin-orbit angular momentum mixing of twisted electrons
S. V. Gatalina and S. S. Baturin
Phys. Rev. A **114**, 022828 (2026) - Published 28 August, 2026

Electron loss and target excitation in keV-energy proton collisions with B and C^{+}
N. W. Antonio, I. B. Abdurakhmanov, A. Espinosa-Gayosso, and A. S. Kadyrov
Phys. Rev. A **114**, 022829 (2026) - Published 28 August, 2026

Post-pulse dipole instability in adiabatic time-dependent density functional theory: Fact versus artifact
Davood B. Dar, Dhyey Ray, and Neepa T. Maitra
Phys. Rev. A **114**, 022830 (2026) - Published 28 August, 2026

Light-induced processes in atomic-scale systems

X-ray diffraction from chiral molecules with twisted beams
Akilesh Venkatesh, Phay J. Ho, and Jérémy R. Rouxel
Phys. Rev. A **114**, 023101 (2026) - Published 3 August, 2026

Theoretical investigation of near-threshold photoionization of N_2
Conner Penson, Mehdi Ayouz, and Viatcheslav Kokoouline
Phys. Rev. A **114**, 023102 (2026) - Published 10 August, 2026

Absence of far-detuned attractive optical traps for alkali Rydberg atoms
Gabriel E. Patenotte, Youngshin Kim, Samuel Gebretsadkan, and Kang-Kuen Ni
Phys. Rev. A **114**, 023103 (2026) - Published 13 August, 2026

Resolving subcycle phase and amplitude modulation in strong-field ionization
Danish Furekh Dar, Tao Chen, Fang Liu, and Stephan Fritzsche
Phys. Rev. A **114**, 023104 (2026) - Published 12 August, 2026

Influence of the binding energy on Compton-scattering-driven ionization
N. Melzer *et al.*
Phys. Rev. A **114**, 023105 (2026) - Published 12 August, 2026

Transient-energy-backflow-enhanced ergotropy in an open qubit quantum battery assisted by an auxiliary oscillator
Shun-Cai Zhao
Phys. Rev. A **114**, 023106 (2026) - Published 13 August, 2026

Proposal of a waveguide-integrated optical nanolens for near-field single-atom trapping
Aiping Liu, Xiaofeng Jian, Ling-Xiao Wang, Lei Xu, Guang-Jie Chen, Xin-Biao Xu, Yujing Wang, Guo-Yong Xiang, and Chang-Ling Zou
Phys. Rev. A **114**, 023107 (2026) - Published 24 August, 2026

Infrared carrier-envelope-phase modulation of attosecond transient absorption spectra gated by pulse area in a singly excited helium atom
Feier Xu, Yong Fu, Guanglu Yuan, Jiahao You, Shengfei Wu, Bin Lu, Jianan Zhao, Bincheng Wang, and Cheng Jin
Phys. Rev. A **114**, 023108 (2026) - Published 26 August, 2026

Relativistic effects on photoabsorption cross sections of highly charged ions
Anvar Khujakulov and Caterina Cocchi
Phys. Rev. A **114**, 023109 (2026) - Published 26 August, 2026

Double and triple photoionization of the Be-like B^{+} ion: Role of double-K-shell-vacancy states
A. Müller, P.-M. Hillenbrand, S.-X. Wang, S. Schippers, S. Reinwardt, M. Martins, J. Seltmann, F. Trinter, I. Bray, D. V. Fursa, and A. S. Kheifets
Phys. Rev. A **114**, 023110 (2026) - Published 28 August, 2026

Ultracold systems and matter waves

Mott-insulating phases of the Bose-Hubbard model on quasi-one-dimensional ladder lattices
Lorenzo Carfora, Callum W. Duncan, Stefan Kuhr, and Peter Kirton
Phys. Rev. A **114**, 023301 (2026) - Published 3 August, 2026

Continuous accumulation of cold atoms in an optical cavity
Edward Gheorghita, Sebastian Wald, Andrea Pupić, and Onur Hosten
Phys. Rev. A **114**, 023302 (2026) - Published 3 August, 2026

Preparation of a quasi-two-dimensional Bose mixture of ultracold $^{23}\mathrm{Na}$ and $^{87}\mathrm{Rb}$ atoms
Ji-Kai Liao, Hao-Ran Zhang, Xiao-Rong Yu, Ya-Qun Qi, Yi-Cheng Guo, Bo Zhao, Jun Rui, and Jian-Wei Pan
Phys. Rev. A **114**, 023303 (2026) - Published 3 August, 2026

Trapping-potential dependence of the unitary Fermi gas at the BCS-BEC crossover
Silas R. Beane, Adèle Le Borgne, Domenico Orlando, and Susanne Reffert
Phys. Rev. A **114**, 023304 (2026) - Published 4 August, 2026

Determination of the ground-state polarizability of $^{162}\mathrm{Dy}$ near 530 nm
Alexandre Journeaux, Maxime Lecomte, Julie Veschambre, Maxence Lepers, Jean Dalibard, and Raphael Lopes
Phys. Rev. A **114**, 023305 (2026) - Published 4 August, 2026

Gravitationally induced entanglement in atom interferometry
Richard Howl, Nathan Cooper, and Lucia Hackermüller
Phys. Rev. A **114**, 023306 (2026) - Published 5 August, 2026

Asymmetric Floquet sidebands with long-lived symmetric coherence under spin-1 Bose-Einstein-condensate continuous dynamical decoupling
Fangde Liu, Mingqing Yuan, Xinjiang Yao, Yunda Li, Feifan Zhao, Jiahao Wang, Zhuxiong Ye, Liangchao Chen, Lianghui Huang, Pengjun Wang, Wei Han, Jing Zhang, and Zengming Meng
Phys. Rev. A **114**, 023307 (2026) - Published 5 August, 2026