

The Table of Contents is a total listing of Parts A, B, and C.
Part A consists of pages L060201–062467, Part B pages 062601–063327, and Part C pages 063501–069903(E).

PART A

LETTERS

Fundamental concepts

Revealing emergent many-body phenomena by analyzing large-scale space-time records of monitored quantum systems (8 pages) L060201

Marcel Cech, Cecilia De Fazio, María Cea, Mari Carmen Bañuls, Igor Lesanovsky, and Federico Carollo

Necessity of entanglement for the typicality argument in statistical mechanics (6 pages) L060202

Pedro S. Correia, Gabriel Dias Carvalho, and Thiago R. de Oliveira

Quantum information science

Optimal quantum reservoir learning in proximity to universality (8 pages) L060401

Moein N. Ivaki, Matias Karjula, and Tapio Ala-Nissila

Fractal structure of multipartite entanglement in monitored quantum circuits (6 pages) L060402

Vaibhav Sharma and Erich J. Mueller

Quantum-to-classical transition via single-shot generalized measurements (7 pages) L060403

Zhenyu Xu

Protecting quantum states via the super-Zeno effect and anticohherence (6 pages) L060404

C. Chryssomalakos, A. G. Flores-Delgado, E. Guzmán-González, and L. Hanotel

Probe of generic quantum contextuality and nonlocality resources for qubits (7 pages) L060405

Wei Li, Min-Xuan Zhou, Yun-Hao Shi, Z. D. Wang, Heng Fan, and Yan-Kui Bai

Many-body time evolution from a correlation-efficient quantum algorithm (6 pages) L060406

Michael Rose and David A. Mazziotti

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

Th:SBO single crystal: A multifunction material for solid-state nuclear optical clocks (6 pages) L060801

Lin Li, Qiaorui Gong, Yuxiang Li, Runzhe Yang, Guoliang Deng, Shanming Li,
Peixiong Zhang, Chengchun Zhao, Yin Hang, Longsheng Ma, and Shining Zhu



(Continued)



2469-9926(202606)113:6:A;1-Q

CONTENTS - *Continued*

PHYSICAL REVIEW A	THIRD SERIES, VOLUME 113, NUMBER 6	JUNE 2026
Beyond qubits: Multilevel quantum sensing for dark matter (7 pages)		L060802
Xiaolin Ma, Volodymyr Takhistov, Norikazu Mizuochi, and Ernst David Herbschleb		
Direct measurement of the $5s5p\ ^1P_1 \rightarrow 5s4d\ ^1D_2$ decay rate in strontium (5 pages)		L060803
Naohiro Okamoto, Takatoshi Aoki, and Yoshio Torii		
Light-induced processes in atomic-scale systems		
Differential momentum measurement of strong-field double ionization of Mg atoms (7 pages)		L061101
Libin Zheng, Linna Zhang, Huipeng Kang, and Xiaojun Liu		
Ultracold systems and matter waves		
Entanglement-enhanced correlation propagation in the one-dimensional $SU(N)$ Fermi-Hubbard model (6 pages)		L061301
Mathias Mikkelsen and Ippei Danshita		
Tuning glassy dynamics using programmable disorder in tweezer arrays (6 pages)		L061302
K. Mukherjee, G. W. Biedermann, and R. J. Lewis-Swan		
Photonics, nonlinear optics, and optomechanics		
Cryogenic photonic resonator with 10^{-17} /s drift (5 pages)		L061501
Wei Zhang, William R. Milner, Jun Ye, and Scott B. Papp		
Proposals for realizing a Josephson diode in atomtronic circuits (7 pages)		L061502
Nalinikanta Pradhan, Rina Kanamoto, M. Bhattacharya, and Pankaj Kumar Mishra		
Quantum optics		
Exact many-body quantum dynamics in one-dimensional baths via collective spins (7 pages)		L061701
Joseph T. Lee, Silvia Cardenas-Lopez, Stuart J. Masson, Rahul Trivedi, and Ana Asenjo-Garcia		
On-demand single-to-biphoton conversion in an atom-coupled chiral waveguide (6 pages)		L061702
Mao-Hua Wang, M. Artoni, G. C. La Rocca, and Jin-Hui Wu		
Non-Gaussian phase transition and cascade of instabilities in the dissipative quantum Rabi model (8 pages)		L061703
Mingyu Kang, Yikang Zhang, Kenneth R. Brown, and Thomas Barthel		
ARTICLES		
Fundamental concepts		
Spin entanglement of two atoms through coupling to their thermal motion (11 pages)		062201
Poramaporn Ruksasakchai, Lucile Sanchez, Marvin Weyland, Mikkel F. Andersen, Scott Parkins, and Stuart S. Szigeti		
Separation of quantum time evolution into holonomic and dynamical parts (9 pages)		062202
Adam Fredriksson and Erik Sjöqvist		
Failure of epistemic models to explain the antidistinguishability of quantum mixed preparations (17 pages)		062203
Sagnik Ray, Visweshwaran R, and Debashis Saha		

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW A

THIRD SERIES, VOLUME 113, NUMBER 6

JUNE 2026

Probing the crossover between dynamical phases with local correlations in a Rydberg-atom array (<i>14 pages</i>)	062204
Xiaofeng Wu, Xin Wang, Sixun Jia, and Bo Xiong	
Out-of-time-order correlators for the Swanson Hamiltonian with interaction terms (<i>11 pages</i>)	062205
M. W. AlMasri and Marta Reboiro	
Equation-of-motion approach to double-excitation dynamics of the extended Jaynes-Cummings model (<i>8 pages</i>)	062206
Tao Luo, Yun-An Yan, and Haitao Cui	
Equilibration and the eigenstate thermalization hypothesis as limits to observing macroscopic quantum superpositions (<i>8 pages</i>)	062207
Gabriel Dias Carvalho, Pedro S. Correia, and Thiago R. de Oliveira	
Nonequilibrium thermometry via an ensemble of initially correlated qubits (<i>19 pages</i>)	062208
Enrico Trombetti, Marco Malitesta, Marco Pezzutto, and Stefano Gherardini	
Global versus local discrimination of locally implementable multipartite unitaries (<i>7 pages</i>)	062209
Satyaki Manna, Sneha Suresh, Anandamay Das Bhowmik, and Debashis Saha	
Minimum uncertainty states and squeezed states from a sum uncertainty relation (<i>5 pages</i>)	062210
Yatindra Kumar, Yashraj Jha, and Namrata Shukla	
Diffusion minimization via optimal smearing in collapse and hybrid classical-quantum gravitational models (<i>19 pages</i>)	062211
Nicolò Piccione	
Exceptional points of arbitrary high orders induced by non-Markovian dynamics (<i>9 pages</i>)	062212
Timofey T. Sergeev, Evgeny S. Andrianov, and Alexander A. Zyablovsky	
Biorthogonal scattering and generalized unitarity in non-Hermitian systems (<i>10 pages</i>)	062213
Jung-Wan Ryu, Henning Schomerus, and Hee Chul Park	
Limitations of quantum measurements and operations of scattering type under the energy conservation law (<i>15 pages</i>)	062214
Ryota Katsube, Masanao Ozawa, and Masahiro Hotta	
Almost sure minimality of the set of experiments with classical Kirkwood-Dirac representations (<i>11 pages</i>)	062215
Christopher Langrenez, Wilfred Salmon, Stephan De Bièvre, Jonathan J. Thio, Christopher K. Long, and David R. M. Arvidsson-Shukur	
Power of quantum catalytic local operations (<i>5 pages</i>)	062216
Patrik Lipka-Bartosik, Jessica Bavaresco, Nicolas Brunner, and Pavel Sekatski	
Entropic limitations on fixed causal order (<i>12 pages</i>)	062217
Matheus Capela and Kaumudibikash Goswami	
Theory of anomalous Landau-Zener tunneling induced by nonlinear coupling (<i>10 pages</i>)	062218
Wen-Yuan Wang and Hong-Juan Meng	
Resolution of the hyperfine puzzle and its significance for two-fermion Dirac atoms (<i>9 pages</i>)	062219
Gordon Baym and Glennys R. Farrar	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW A

THIRD SERIES, VOLUME 113, NUMBER 6

JUNE 2026

Scalable quantum resources with short-range interacting spin-1/2 chains (<i>12 pages</i>)	062220
Marcin Płodzień and Jan Chwedeńczuk	
Gleason's theorem for a qubit as part of a composite system (<i>8 pages</i>)	062221
Vincenzo Fiorentino and Stefan Weigert	
Geometric theory of constrained Schrödinger dynamics with application to time-dependent density-functional theory on a finite lattice (<i>31 pages</i>)	062222
Éric Cancès, Théo Duez, Jari van Gog, Asbjørn Bækgaard Lauritsen, Mathieu Lewin, and Julien Toulouse	
Noncommutative index of measurement-only entanglement phase transitions (<i>11 pages</i>)	062223
Zhichen Huang, Chunxiao Du, Yang Zhou, and Zhisong Xiao	
Dynamical irreversibility and local decoherence in quantum many-body chaos (<i>11 pages</i>)	062224
Jose Alfredo de Leon, Miguel Gonzalez, and Carlos Diaz-Mejia	
Emergence of non-Markovian decoherent histories in an integrable environment: A tape-recorder model for local quantum observables (<i>18 pages</i>)	062225
Nataliya Arefyeva and Evgeny Polyakov	
Direct temperature inference in nonequilibrium quantum thermometry (<i>15 pages</i>)	062226
Yan Xie and Junjie Liu	
Quantum information science	
Honest-binding quantum bit commitment from separable operations (<i>10 pages</i>)	062401
Ziad Chaoui, Anna Pappa, and Matteo Rosati	
☞ Probing time-reversal-symmetry breaking using a nonlinear superconducting ring resonator (<i>8 pages</i>)	062402
Nicolas Dirneger, Marie Wesson, Arpit Arora, Ioannis Petrides, Jonathan B. Curtis, Emily M. Been, Amir Yacoby, and Prineha Narang	
Quantum phase recognition via swap-test-based correlation mechanism (<i>11 pages</i>)	062403
Jin-Long Chen, Xin Li, and Zhang-Qi Yin	
Optimality of universal conclusive entanglement concentration protocols (<i>8 pages</i>)	062404
Alexandre C. Orthey Jr., Aby Philip, Tulja Varun Kondra, and Alexander Streltsov	
Differential evolution optimization of entangled SrO pendular qubits: From Bell states to noise-robust and hybrid qutrit-qubit control (<i>10 pages</i>)	062405
Yunxia Huang, Haizhi Fang, Ruiling He, Jinyang Xiao, Meng Cao, Chengying Zhao, Jiaxin Peng, and Shuwu Xu	
Embedding classical partial differential equations in photonic continuous-variable quantum systems (<i>11 pages</i>)	062406
Aditya Ranjan, Tirthak Patel, and Devesh Tiwari	
Quantum speed limit under calibration uncertainty (<i>16 pages</i>)	062407
Salman Sajad Wani and Saif Al-Kuwari	
Semi-device-independent certification of high-dimensional quantum channels (<i>9 pages</i>)	062408
Mengyan Li, Yanning Jia, Fenzhuo Guo, Haifeng Dong, Sujuan Qin, and Fei Gao	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW A	THIRD SERIES, VOLUME 113, NUMBER 6	JUNE 2026
Graph-theoretic quantum contextuality and unextendible product bases (<i>6 pages</i>)		062409
Gurvir Singh and Arvind		
Non-Clifford quantum gate teleportation with generalized lattice surgery (<i>15 pages</i>)		062410
Yifei Wang and Yingfei Gu		
Quantum computing approach to atomic and molecular three-body systems (<i>14 pages</i>)		062411
Mohammad Haidar, Hugo D. Nogueira, and Jean-Philippe Karr		
Robust applicability of continuous dynamical decoupling to decoherence reduction in longitudinal and transverse-noise settings: The role of anisotropy (<i>15 pages</i>)		062412
S. Afonso, J. M. Gomez Llorente, and J. Plata		
Probability-phase mutual information (<i>13 pages</i>)		062413
Cameron Hahn, Nishan Ranabhat, and Fabio Anza		
Stabilizer Rényi entropy for translation-invariant matrix product states (<i>8 pages</i>)		062414
Lei-Yi-Nan Liu, Su Yi, and Jian Cui		
Latent splitting as a causal probe (<i>13 pages</i>)		062415
Santiago Zamora, Pedro Lauand, Isadora Veeren, Davide Poderini, and Rafael Chaves		
Hyperentanglement-based quantum reservoir computing (<i>11 pages</i>)		062416
Boyuan Sun, Yifan Sun, and Xiangdong Zhang		
Effects of the detection loophole on rival entanglement attestation techniques (<i>10 pages</i>)		062417
Paranjoy Chaki, Kornikar Sen, and Ujjwal Sen		
Solovay-Kitaev algorithm and randomized compilation (<i>11 pages</i>)		062418
Oliver Maupin, Ashlyn D. Burch, Christopher G. Yale, Matthew N. H. Chow, Terra Colvin, Jr., Brandon Ruzic, Melissa C. Revelle, Brian K. McFarland, Eduardo Ibarra-García-Padilla, Alejandro Rascon, Andrew J. Landahl, Susan M. Clark, and Peter J. Love		
Traversability dynamics of a minimal wormhole-inspired teleportation protocol with a $\mathcal{PT}$ -symmetric non-Hermitian deformation (<i>12 pages</i>)		062419
Sudhanva Joshi and Sunil Kumar Mishra		
Embedding scheme for the maximum-independent-set problem on three-dimensional Rydberg-atom arrays (<i>16 pages</i>)		062420
Rui Mao, Jin-Guo Liu, Shengminjie Chen, Jialin Zhang, and Xiaoming Sun		
Decoherence across phase-space scales: From compass states to general quantum states (<i>17 pages</i>)		062421
Naeem Akhtar, Jia-Xin Peng, Tan Hailin, Xiaosen Yang, and Dong Wang		
Entanglement with a mode observable via a tunable interaction with a qubit (<i>6 pages</i>)		062422
Małgorzata Strzałka, Radim Filip, and Katarzyna Roszak		
Globalized critical quantum metrology in the dynamics of the quantum Rabi model by an auxiliary nonlinear term (<i>14 pages</i>)		062423
Qiu-Yi Chen, Feng Qiao, and Zu-Jian Ying		
Theory of the correlated quantum Zeno effect in a monitored qubit dimer (<i>12 pages</i>)		062424
Severino Zeni, Gobinda Chakraborty, Alessandro Romito, and Alberto Biella		

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW A	THIRD SERIES, VOLUME 113, NUMBER 6	JUNE 2026
Two-point quantum approximate optimization algorithm gradients in the frequency domain (<i>18 pages</i>)		062425
Zhaoyang Song, Wei Zhang, Ji Cao, Xuexi Yi, and Hong-Fu Wang		
Optimizing fault-tolerant cat state preparation (<i>16 pages</i>)		062426
Tom Peham, Erik Weilandt, and Robert Wille		
Non-Markovianity-based ultrasensitive parameter estimation (<i>8 pages</i>)		062427
Olli Siltanen		
Scaling bound entanglement through local extensions (<i>10 pages</i>)		062428
Robin Krebs and Mariami Gachechiladze		
Unspeakable coherence concentration (<i>16 pages</i>)		062429
Benjamin Stratton, Chung-Yun Hsieh, and Paul Skrzypczyk		
Hardware-efficient quantum annealing with error mitigation via classical shadow (<i>11 pages</i>)		062430
Takaharu Yoshida, Yuta Shingu, Chihaya Shimada, Tetsuro Nikuni, Hideaki Hakoshima, and Yuichiro Matsuzaki		
Path superposition activating perfect quantum teleportation ability for separable states (<i>18 pages</i>)		062431
Sayan Mondal, Priya Ghosh, and Ujjwal Sen		
Nonadiabatic self-healing of Trotter errors in digitized counterdiabatic dynamics (<i>17 pages</i>)		062432
Mara Vizzuso, Gianluca Passarelli, Giovanni Cantele, Procolo Lucignano, Xi Chen, and Koushik Paul		
Boosting Gaussian boson sampling using optical parametric amplification networks (<i>15 pages</i>)		062433
Yukuan Zhao, Xiao-Ye Xu, Chuan-Feng Li, and Guang-Can Guo		
Universal composite phase gates with tunable target phase (<i>9 pages</i>)		062434
Peter Chernev, Mouhamad Al-Mahmoud, and Andon A. Rangelov		
Unveiling distinguishable non-Gaussian quantum states (<i>15 pages</i>)		062435
Andrea Giani, Moe Z. Win, Peter L. Falb, and Andrea Conti		
Error convergence of quantum linear system solvers (<i>15 pages</i>)		062436
Matias Ginzburg and Ugo Marzolino		
Entanglement dynamics for atoms near a reflecting boundary: Enhancement and suppression by environment-induced interactions (<i>8 pages</i>)		062437
Ying Chen, Hongwei Yu, and Jiawei Hu		
Evolution of quantum state texture under Lorentz transformations: Invariance, competition, and sensitivity in single-particle and bipartite entangled systems (<i>17 pages</i>)		062438
Zhiming Huang		
Increasing entanglement concentration and the role of measurement imaginarity (<i>12 pages</i>)		062439
Indranil Biswas, Subrata Bera, Ujjwal Sen, Indrani Chattopadhyay, and Debasis Sarkar		
Bootstrapping the stationary state of bosonic open quantum systems (<i>6 pages</i>)		062440
Gustave Robichon and Antoine Tilloy		
Tighter asymptotic key rates for intensity-correlated decoy-state quantum key distribution via nonlinear programming (<i>11 pages</i>)		062441
Matej Pivoluska and Mateus Araújo		

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW A	THIRD SERIES, VOLUME 113, NUMBER 6	JUNE 2026
Optimal control of open-quantum-system dynamics predicted by long short-term memory (12 pages)		062442
Jun-Dong Zhong and Zhao-Ming Wang		
Response kinetic uncertainty relation for Markovian open quantum systems (13 pages)		062443
Kangqiao Liu and Jie Gu		
Three-qubit-state preparation: Classification and explicit circuits (16 pages)		062444
Yonghae Lee and Taewan Kim		
Resource theory of interactive quantum instruments (14 pages)		062445
Chung-Yun Hsieh, Armin Tavakoli, Huan-Yu Ku, and Paul Skrzypczyk		
Anticoncentration and state design of doped real Clifford circuits and tensor networks (12 pages)		062446
Beatrice Magni, Markus Heinrich, Lorenzo Leone, and Xhek Turkeshi		
Observing fundamental triple uncertainty relations (7 pages)		062447
Yan Wang, Jie Zhou, Xing-Yan Fan, Ze-Yan Hao, Jia-Kun Li, Zheng-Hao Liu, Ya Xiao, Kai Sun, Jin-Shi Xu, Jing-Ling Chen, Chuan-Feng Li, and Guang-Can Guo		
Hexapartite active nonlinear feedback control in four-wave mixing with a spatially structured pump (13 pages)		062448
Guanjun Zeng, Xiaozhou Pan, Kai Zhang, and Jietai Jing		
Equilibrium thermometry in the multilevel quantum Rabi model (15 pages)		062449
Tabitha Doicin, Luis A. Correa, Jonas Glatthard, Andrew D. Armour, and Gerardo Adesso		
Microwave-enabled continuous-variable measurement-device-independent quantum key distribution in free space (13 pages)		062450
Zhuokuan Jia, Tianai Zhou, Yongxin Feng, and Ying Guo		
Identifying the three-qubit W state with the quantum uncertainty relation (12 pages)		062451
Zhi-Jie Liu, Hao-Nan Qiang, Jie Zhou, Mi Xie, and Jing-Ling Chen		
Quantum states supported by matroids (11 pages)		062452
Xiaowei Huang, Fei Shi, Lijun Zhang, and Lvzhou Li		
Accelerated Rydberg electromagnetically induced transparency quantum memory via shortcuts to adiabaticity (16 pages)		062453
Y. Wei, Changcheng Li, Y. M. Liu, Yuechun Jiao, Weibin Li, and X. Q. Shao		
Accelerated spin-adapted ground-state preparation with nonvariational quantum algorithms (12 pages)		062454
Takumi Kobori, Taichi Kosugi, Hirofumi Nishi, Synge Todo, and Yu-ichiro Matsushita		
Higher-order Liouvillian exceptional points in the dissipative dynamics of quadratic fermions (10 pages)		062455
Mingtao Xu and Wei Yi		
Quantum image encodings for noisy intermediate-scale quantum devices: A comprehensive performance and noise-resilience analysis (27 pages)		062456
Emmanuel Martínez-Guerrero, Guo-Hua Sun, and Shi-Hai Dong		
Spin coherence scale: Operator-ordering sensitivity beyond the Heisenberg-Weyl group (20 pages)		062457
Aaron Z. Goldberg, Andre J. Rodrigues, Y. Batuhan Yilmaz, Aephraim M. Steinberg, and Anaëlle Hertz		

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW A

THIRD SERIES, VOLUME 113, NUMBER 6

JUNE 2026

Protection of quantum steering ellipsoids in non-Markovian environments (<i>9 pages</i>)	062458
Wen-Jie Zhang and Jun-Hong An	
Quantum implementation of higher-order power method for estimating geometric entanglement of pure states (<i>20 pages</i>)	062459
Andrii Semenov, Niall Murphy, Simone Patscheider, Alessandra Bernardi, and Elena Blokhina	
Unveiling entropic uncertainty relations for quantum memory in an open quantum system with two coupled double quantum dots (<i>12 pages</i>)	062460
Hao Wang	
Quantum dimension reduction of hidden Markov models (<i>14 pages</i>)	062461
Rishi Sundar and Thomas J. Elliott	
Satellite-based quantum steering with continuous variables (<i>9 pages</i>)	062462
Qianqian Liu, Shu-Min Wu, Cuihong Wen, and Jieci Wang	
Entanglement entropy from correlation functions of scalar fields in and out of equilibrium (<i>21 pages</i>)	062463
Mrinal Kanti Sarkar, Saranyo Moitra, and Rajdeep Sensarma	
Comparison of spin-qubit architectures for quantum error-correcting codes (<i>20 pages</i>)	062464
Mauricio Gutiérrez, Juan S. Rojas-Arias, David Obando, and Chien-Yuan Chang	
Efficient local discrimination of minimal nonlocal sets in multipartite systems using entanglement resources (<i>15 pages</i>)	062465
Ting-Ting Xu, Tian-Qing Cao, and Qiao-Ling Xin	
Non-Hermitian scattering in Su-Schrieffer-Heeger superconducting waveguides: Exact Green's-function reduction and dimerization-sensitive microwave functionalities (<i>18 pages</i>)	062466
J. Zhou, X. X. Zhang, and X. Z. Zhang	
Real-time magnetic field noise correction using trapped-ion monitor qubits (<i>7 pages</i>)	062467
Kyle DeBry, Agustin Valdes Martinez, David Reens, Colin D. Bruzewicz, and John Chiaverini	

PART B

Quantum technologies

Run-length certificates in quantum learning: Sample complexity and noise thresholds (<i>17 pages</i>)	062601
Jeongho Bang	
All-to-all connectivity of Rydberg-atom-based quantum processors with messenger qubits (<i>18 pages</i>)	062602
Ivan V. Dudinets, Stanislav S. Straupe, Aleksey K. Fedorov, and Oleg V. Lychkovskiy	
Time-optimal control of a GdW_{30} molecular spin qudit (<i>12 pages</i>)	062603
Marc Alsina, Ibério de P. R. Moreira, Guillermo Albareda, and Josep Maria Bofill	
Benchmarking quantum devices beyond classical capabilities (<i>27 pages</i>)	062604
Rafał Bistrón, Marcin Rudziński, Ryszard Kukulski, and Karol Życzkowski	
Quantum network-based prediction of cancer driver genes (<i>12 pages</i>)	062605
Patrícia Marques, Andreas Wichert, Duarte Magano, and Bruno Coutinho	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW A

THIRD SERIES, VOLUME 113, NUMBER 6

JUNE 2026

Heisenberg-limited two-parameter estimation with weighted three-mode Schrödinger cat states in a triple-well Bose-Einstein condensate system (11 pages)	062606
Cong Wang, Wei Shan, Jun-Qiao Pan, and Hai-Jun Xing	
Hamiltonian simulation with explicit formulas for digital-analog quantum computing (8 pages)	062607
Mikel Garcia de Andoin, Thorger Müller, and Gonzalo Camacho	
Attributed-graph kernel implementation using local detuning of a neutral-atom Rydberg Hamiltonian (20 pages)	062608
Mehdi Djellabi, Matthias Hecker, and Shaheen Acheche	
Impact of the Unruh effect on the estimation precision of Gaussian channel parameters (19 pages)	062609
Shoukang Chang, Yawen Tang, Wei Ye, Shaoming Fei, Zunlue Zhu, and Xingdong Zhao	
Double-bracket master equations: Phase-space representation and classical limit (16 pages)	062610
Ankit W. Shrestha, Budhaditya Bhattacharjee, and Adolfo del Campo	
Entanglement improving coordination in distributed systems (20 pages)	062611
Francisco Ferreira da Silva and Stephanie Wehner	
OH molecule as a quantum probe to jointly estimate electric and magnetic fields (17 pages)	062612
Luca Previdi, Francesco Albarelli, and Matteo G. A. Paris	
Capacity-time trade-off in highly reliable quantum memory (23 pages)	062613
Miao-Miao Yi (易淼淼), L. X. Cui (崔廉相), Y-M. Du (杜亦牧), and C. P. Sun (孙昌璞)	
Qudit encoding in Rydberg-blockaded arrays of atoms (12 pages)	062614
Achille Robert and Tom Bienaimé	
Two accelerated mirrors in opposite Rindler wedges (6 pages)	062615
Muzzamal I. Shaukat, Anatoly A. Svidzinsky, and Marlan O. Scully	
Demonstration of the universal intrinsic higher-rank spin tensor Hall effect with a trapped ion (9 pages)	062616
Chang Liu, Yue Li, Xingyu Zhao, Xi-Wang Luo, and Yiheng Lin	
Role of overparametrization in quantum approximate optimization (11 pages)	062617
Daniil Rabinovich, Andrey Kardashin, and Soumik Adhikary	
Microwave-free vector magnetic-field measurement using a single nitrogen-vacancy-center spin in diamond (16 pages)	062618
Yuhai Wang, Liye Zhao, and Lumin Ji	
Effects of static dc electric-field orientation on two-photon Rydberg electromagnetically induced transparency (9 pages)	062619
Rob Behary, William Torg, Mykhailo Vorobiov, Nicolas DeStefano, Adam Vernon, Charles T. Fancher, Neel Malvania, Eugeniy E. Mikhailov, Seth Aubin, and Irina Novikova	
Control framework for broadband population transfer in multilevel quantum ensembles with time-dependent dispersions (23 pages)	062620
Vishesh Kaushik and Navin Khaneja	
Spin model for quantum annealing with Kerr parametric oscillators (7 pages)	062621
Leo Stenzel, Roeland ter Hoeven, Ryoji Miyazaki, Tomohiro Yamaji, Masayuki Shirane, and Wolfgang Lechner	

(Continued)

Efficient circuit compression by multiqubit entangling gates in linear optical quantum computation (<i>14 pages</i>) . . .	062622
Apurav Tehri and Jaskaran Singh	
Identifying emergent spin excitations through correlation structures (<i>10 pages</i>)	062623
Fan Xia, Xin-Yu Pan, Gang-Qin Liu, and Ping Wang	
Atomic and molecular structure and dynamics; high-precision experiments; chemical physics	
Excited Σ states of the hydrogen-antihydrogen molecule (<i>15 pages</i>)	062801
L. Brumm, J. Schürmann, and A. Saenz	
Characterization of Feshbach resonances in a ${}^6\text{Li} - {}^7\text{Li}$ mixture using improved interaction potentials (<i>14 pages</i>)	062802
Jing-Chen Zhang (张京晨), Paul Julienne, and Yu Liu	
Unified treatment of direct and resonant scattering in low-energy electron- H_2 vibrational excitation: Boomerang oscillations and the $\nu = 0 \rightarrow 1$ excitation (<i>16 pages</i>)	062803
Liam H. Scarlett, Nathan A. Garland, Gregory J. Boyle, Dale L. Muccignat, Ronald D. White, Mark C. Zammit, Ilkhom B. Abdurakhmanov, Maciej Cytowski, Igor Bray, and Dmitry V. Fursa	
Effects of screening and pressure ionization on the electron broadening of spectral lines in dense plasmas (<i>9 pages</i>)	062804
J. P. Kinney, S. B. Hansen, T. A. Gomez, and S. D. Baalrud	
Alternative representation of multichannel Rydberg spectra: A modified K -matrix and Lu-Fano plot applied to the manganese spectroscopy (<i>12 pages</i>)	062805
Justin D. Piel and Chris H. Greene	
Hadronic vacuum polarization effect in muonic atoms (<i>5 pages</i>)	062806
Zoia A. Mandrykina, Moritz Thierfeld, and Natalia S. Oreshkina	
High-resolution spectroscopy of ${}^{162}\text{Dy}$ Rydberg levels (<i>11 pages</i>)	062807
G. Ferioli, P. Lombardi, P. Sekhar, E. Solé Cardona, N. Preti, C. Drevon, N. Antolini, L. Tanzi, G. Modugno, C. Gabbanini, F. Robicheaux, and A. Fioretti	
Application of quantum annealing to computation of molecular properties (<i>10 pages</i>)	062808
Pradyot Pritam Sahoo, V. S. Prasanna, and B. P. Das	
Enhancing collective spin squeezing via one-axis-twisting echo control of individual atoms (<i>10 pages</i>)	062809
Zhiwei Hu, Youwei Zhang, Junlei Duan, Mingfeng Wang, and Yanhong Xiao	
Recoil corrections to muonic hydrogen hyperfine splitting (<i>11 pages</i>)	062810
Andrzej Maroń, Mateusz Pańtak, and Krzysztof Pachucki	
Long-lived metastable states in the $4f^{13}5d6s$ configuration of Yb^+ (<i>8 pages</i>)	062811
Z. E. D. Ackerman, A. Cadarso Quevedo, Ilango Maran, L. P. H. Gallagher, R. J. C. Spreeuw, J. C. Berengut, and R. Gerritsma	
Stark effect in molecular Rydberg states: Calculation of Rydberg-Stark manifolds of H_2 and D_2 including fine and hyperfine structures (<i>20 pages</i>)	062812
I. Doran, L. Jeckel, M. Beyer, Ch. Jungen, and F. Merkt	
Unconventional distance scaling of Casimir-Polder force between atomic arrays (<i>12 pages</i>)	062813
Qihang Ye, Haosheng Fu, Bing Miao, and Lei Ying	

(Continued)

CONTENTS - Continued

PHYSICAL REVIEW A

THIRD SERIES, VOLUME 113, NUMBER 6

JUNE 2026

Intercavity phonons and dynamics in coupled polariton cavities (<i>10 pages</i>)	062814
Iliana Carmona-Moreno, Grover Andrade-Sánchez, Hugo A. Lara-García, Giuseppe Pirruccio, and Arturo Camacho-Guardian	
Probing transition rates, nuclear moments, and electric dipole polarizability in nobelium using multireference Fock-space relativistic coupled-cluster and perturbed relativistic coupled-cluster theories (<i>16 pages</i>)	062815
Ravi Kumar, Palki Gakkhar, D. Angom, and B. K. Mani	
Systematic errors from inhomogeneous alkali-spin polarization in NMR gyroscopes and comagnetometers (<i>19 pages</i>)	062816
Xiangdong Zhang, Jinbo Hu, Juhao Luo, Chaohong Lee, and Nan Zhao	
Parity nonconservation in hydrogen induced by low-mass vector-boson exchange (<i>5 pages</i>)	062817
V. A. Dzuba, V. V. Flambaum, and G. K. Vong	
Light-induced processes in atomic-scale systems	
Solid-state high-order harmonic generation in different bases: Convergence and physical validity of truncated representations (<i>12 pages</i>)	063101
Andi Xin, Liang Li, Pengfei Lan, and Peixiang Lu	
Photoelectron combs in ionization: Influence of rescattering and nondipole effects (<i>14 pages</i>)	063102
J. Z. Kamiński and K. Krajewska	
Optimizing Doppler laser cooling protocols for quantum sensing with three-dimensional ion crystals in a Penning trap (<i>16 pages</i>)	063103
John Zaris, Wes Johnson, Athreya Shankar, John J. Bollinger, Allison L. Carter, Daniel H. E. Dubin, and Scott E. Parker	
Cooperative enhancement of solid-state high-harmonic generation by strain and donor-like local potentials (<i>16 pages</i>)	063104
Tian-Jiao Shao, Ai-Guo Yang, Jia-Cheng Lai, Liming Li, Qiu-Lan Zhang, Fang Hu, and Jinyang Xi	
Coherent radiation of multielectron wave packets in intense laser fields (<i>10 pages</i>)	063105
Dejia Dai, Xiaofei Shen, and Bin Qiao	
Chirped-pulse engineering for robust control of single-molecule orientation in a cavity (<i>10 pages</i>)	063106
Li-Bao Fan, Yu Guo, Shan Ma, and Chuan-Cun Shu	
Limitations of an approximative phase-space description in strong-field quantum optics (<i>15 pages</i>)	063107
Rasmus Vesterager Gothelf, Lars Bojer Madsen, and Christian Saugbjerg Lange	
High-order harmonic generation in argon driven by short laser pulses: Effects of post-pulse propagation and windowing (<i>9 pages</i>)	063108
Aaron T. Bondy and Klaus Bartschat	
Incoherent repumping scheme in the $^{88}\text{Sr}^+$ five-level manifold (<i>9 pages</i>)	063109
Valentin Martimort, Sacha Guesne, Derwell Drapier, Vincent Tugayé, Lilay Gros-Desormeaux, Valentin Cambier, Albane Douillet, Luca Guidoni, and Jean-Pierre Likforman	
Ellipticity- and wavelength-dependent Rydberg-state excitation induced by strong laser fields (<i>8 pages</i>)	063110
Chun Kang, Yang Liu, Qi Chen, Hang Lv, and Haifeng Xu	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW A	THIRD SERIES, VOLUME 113, NUMBER 6	JUNE 2026
Universal approach to saddle-point methods in attosecond science (<i>24 pages</i>)		063111
Anne Weber, Job Feldbrugge, and Emilio Pisanty		
Spin-orbit-coupling effect in resonant multiphoton ionization dynamics (<i>8 pages</i>)		063112
Chang-Tong Liang, Xianhong Zeng, Shilin Hu, Xuanyang Lai, and Jing Chen		
Magnetometry with broadband microwave fields in nitrogen-vacancy centers in diamond (<i>12 pages</i>)		063113
Arezoo Afshar, Andrew Proppe, Noah Lupu-Gladstein, Lilian Childress, Aaron Z. Goldberg, and Khabat Heshami		
Two-color laser cooling with the rubidium optical clock transition (<i>9 pages</i>)		063114
Victor C. Magno and Flavio C. Cruz		
Ultrafast three-dimensional steering of electronic ring currents in benzene: Coherent control of angular momentum (<i>13 pages</i>)		063115
Dongming Jia, Yuteng Zhou, Chunmei Liu, and Yonggang Yang		
Probing strong-field ionization dynamics in elliptical fields using two-color phase-of-the-phase spectroscopy (<i>7 pages</i>)		063116
Wenjia Lu, Peipei Ge, Yang Liu, Weibin Liu, Qinxian Su, Yupeng Liu, Min Li, and Peixiang Lu		
Ultracold systems and matter waves		
One-dimensional asymmetrically interacting quantum droplets in Bose-Bose mixtures (<i>13 pages</i>)		063301
Huiyun Xiao, Xinran Zhang, Junli Liu, Xucong Du, Xiao-Long Chen, and Yunbo Zhang		
Control of dynamical phase transitions and nonergodic relaxation via spinor phases (<i>9 pages</i>)		063302
J. O. Austin-Harris, P. Sigdel, C. Binegar, S. E. Begg, T. Bilitewski, and Y. Liu		
Proposal for realizing unpaired Weyl points in a three-dimensional periodically driven optical Raman lattice (<i>13 pages</i>)		063303
Xiao-Dong Lin, Jinyi Zhang, and Long Zhang		
Preparing quantum backflow states by large momentum transfer (<i>10 pages</i>)		063304
Yuchong Chen and Yijun Tang		
Robust quantum control for Bragg pulse design in atom interferometry (<i>13 pages</i>)		063305
Luke S. Baker, Andre L. P. de Lima, Andrew Harter, Ceren Uzun, Liam P. Keeley, Jr-Shin Li, Anatoly Zlotnik, Michael J. Martin, and Malcolm G. Boshier		
Quantum tidal locking in orbiting Bose-Einstein condensates (<i>7 pages</i>)		063306
Yaoyuan Fan, Shuoyu Shi, Lang Cao, Ziyue He, Qiuxin Zhang, Dong Hu, Yu Wang, Qing Wang, Tianwei Zhou, and Xiaoji Zhou		
Thermal liquid-gas phase transition in a quasi-one-dimensional dipolar Fermi gas (<i>11 pages</i>)		063307
Lanxuan Gao, Koki Takayama, Hiroyuki Tajima, Takahiro M. Doi, and Haozhao Liang		
Excitations and anisotropic sound in planar dipolar supersolids with tilted dipoles (<i>14 pages</i>)		063308
Reuben Cook, Au-Chen Lee, and P. Blair Blakie		
Rabi oscillations with close-range quantum vortex states (<i>8 pages</i>)		063309
Sam Patrick		

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW A

THIRD SERIES, VOLUME 113, NUMBER 6

JUNE 2026

Fast collisional $\sqrt{\text{SWAP}}$ gate for fermionic atoms in an optical superlattice (10 pages)	063310
Rafi Weill, Jonathan Nemirovsky, and Yoav Sagi	
Pattern formation in ring condensates subjected to bichromatic driving (16 pages)	063311
Premabrata Manna, S. I. Mistakidis, P. G. Kevrekidis, and Pankaj Kumar Mishra	
Out-of-equilibrium expansion dynamics of dipolar atoms in an optical lattice (14 pages)	063312
Barnali Chakrabarti, N. D. Chavda, Andrea Trombettoni, and Arnaldo Gammal	
Anomalous thermodynamics of lattice Bose gases in optical cavities (7 pages)	063313
Liang He and Su Yi	
Accelerating evaporative cooling of a strongly interacting Fermi gas by tilting the optical trap with a magnetic field gradient (8 pages)	063314
Bolong Jiao, Shuai Peng, Qinxuan Peng, Shaokun Liu, Mengde Gan, Jiaming Li, and Le Luo	
Stability of current-carrying states in hard-core bosons with long-range hopping on a square lattice (9 pages)	063315
Yoshihiro Yabuuchi and Ippei Danshita	
Properties of Bose-Einstein condensates with altermagnetism (8 pages)	063316
Jia Wang, Zhao Liu, Xia-Ji Liu, and Hui Hu	
High-contrast Bragg atom interferometer for testing continuous spontaneous localization (8 pages)	063317
Huaiyu Zhu, Ju Liu, Tao Zhang, Qin Luo, Zhongkun Hu, and Minkang Zhou	
Equilibrium and dynamical quantum phase transitions in dipolar atomic Josephson junctions (16 pages)	063318
Cesare Vianello, Giovanni Mazzearella, and Luca Salasnich	
 Enhanced performance of sudden-quench quantum Otto cycles via multiparameter control (15 pages)	063319
R. S. Watson and K. V. Kheruntsyan	
Efimov spectrum in the Born-Oppenheimer picture of a $2 + 1$ system with zero-range heavy-light interactions (22 pages)	063320
Hamidreza Saberbaghi	
Phonon scattering from spatial relaxation of one-dimensional Bose gases (14 pages)	063321
Bilal Alilou, Clément Duval, Frederick Del Pozo, and Nicolas Cherroret	
Transformation of the Talbot effect in response to phase disorder (9 pages)	063322
Ilia Mosaki and A. V. Turlapov	
Temperature-driven false-vacuum decay in coherently coupled Bose superfluids (9 pages)	063323
Paniyanchatha Moolayil Sivasankar, Franco Dalfovo, Alessio Recati, and Arko Roy	
Structures and proximity effects of inhomogeneous population-imbalanced Fermi gases with pairing interactions (16 pages)	063324
Bishal Parajuli, Devin J. Gagnon, and Chih-Chun Chien	
Atom-chip interferometer (14 pages)	063325
B. Wirtschafter, C. I. Westbrook, and M. Dupont-Nivet	
Increasing the stability of a superfluid in a rotating necklace potential (13 pages)	063326
Giulio Nesti and Luca Pezzè	

(Continued)

Quantum simulation of fermionic non-Abelian lattice gauge theories in $(2 + 1)$ dimensions with built-in gauge protection (25 pages)	063327
Gaia De Paciani, Lukas Homeier, Jad C. Halimeh, Monika Aidelsburger, and Fabian Grusdt	

PART C

Photonics, nonlinear optics, and optomechanics

Universal scheme towards temporal solitons formation and stabilization via engineered interplay of second-order and third-order nonlinearities (9 pages)	063501
Yuanyuan Liu, Lihong Hong, and Zhi-Yuan Li	
Multiple reentrant topological windows induced by generalized Bernoulli disorder (13 pages)	063502
Ruijiang Ji, Yunbo Zhang, Shu Chen, and Zhihao Xu	
Topologically and spectrally reconfigurable optical skyrmions from liquid crystals (8 pages)	063503
Mufeeduzaman Chavilkkadan and Etienne Brasselet	
Stable two-dimensional dark-soliton molecules in Rydberg atomic gases (10 pages)	063504
Zewei Yu and Chao Hang	
Optical computing implementation of Shor's factorization algorithm (10 pages)	063505
Songyuan Chen, Haosen Chen, Xin Tang, Yifan Sun, and Xiangdong Zhang	
Robust characterization of optical saturation in alkali vapors (7 pages)	063506
Omid Mozafar, Akbar Safari, Varun Sharma, R. Margoth Córdova-Castro, Jeremy Upham, and Robert W. Boyd	
Subcycle light synthesis via space-time plasma mirrors (14 pages)	063507
Rostislav Arkhipov, Mikhail Arkhipov, and Nikolay Rosanov	
Flatband via merging bound states in the continuum for ultraslow light and giant optical nonlinearity (11 pages)	063508
Zhendong Yan, Shurui Fei, Qiuchen Wu, Zhaofu Qin, Ping Gu, and Jing Chen	
Ultrafast parametric interactions without the need of broadband phase-matching (9 pages)	063509
Wentao Zhu, Yanfang Zhang, Peng Yuan, Zhipeng Qin, Jing Wang, Jingui Ma, Heyuan Zhu, and Liejia Qian	
Topological routing in Chern insulators (10 pages)	063510
Mark J. Ablowitz, Justin T. Cole, and Sean D. Nixon	
Bidirectional feedback and correlation analysis of soliton-state transitions mediated by a quasi-continuous-wave background (17 pages)	063511
Xin Yan, Wen-Zhi Lan, Zhen-Tao Ju, Hao-Yu Feng, Hui-Jun Li, Yue-Yue Wang, and Chao-Qing Dai	
Experimental observation of coherent perfect absorption in anti-parity-time-symmetric side-coupled microwave resonators (11 pages)	063512
Jiaxin Wang, Xin Qi, Ye Yu, Bintao Wu, Zhiwei Guo, Haitao Jiang, Hong Chen, and Yong Sun	
Adiabatic transition between Floquet and Bloch topological modes (10 pages)	063513
Xiangnan Li, Tao Jiang, Chenrong Xia, Guoguo Xin, and Wenjing Zhang	
Dynamical distillation of topological boundary states via non-Hermitian masking (12 pages)	063514
Juan Kang, Chaohua Wu, Keran Li, Shuo Liu, Qinglong Zhang, and Gang Chen	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW A

THIRD SERIES, VOLUME 113, NUMBER 6

JUNE 2026

Optical echoes of light near an analog black hole (<i>14 pages</i>)	063517
Suting Ju, Jingxuan Zhang, and Li-Gang Wang	
Demonstration of an interferometric technique for measuring vacuum magnetic birefringence with an optical cavity (<i>12 pages</i>)	063518
Aaron D. Spector, Todd Kozlowski, and Laura Roberts	
Enhanced optical bistability in conjugate topological photonic crystals (<i>9 pages</i>)	063519
Yu-Peng Li, Yu-Jie Jiang, Xu-Jin Wang, Yong Zhang, Peigang Li, and Jie-Yun Yan	
Exceptional points in the scattering resonances of a sphere dimer (<i>11 pages</i>)	063520
Emanuele Corsaro, Filippo Capolino, and Carlo Forestiere	
☞ Dual-state control of lasing and absorption via conjugate exceptional points (<i>8 pages</i>)	063521
Arnab Laha, Somnath Ghosh, Adam Miranowicz, and Lin Wu	
Non-Hermitian cavity magnomechanics with $\mathcal{PT}$ -symmetry-related asymmetric transparency (<i>14 pages</i>)	063522
Cham Oumie, Wu-Ming Liu, and Kashif Ammar Yasir	
Kinetic theory of stimulated Brillouin scattering with velocity-dependent collisional relaxation (<i>6 pages</i>)	063523
Muzzamal I. Shaukat, Cooper K. Watson, Anatoly Svidzinsky, J. Gary Eden, and Marlan O. Scully	
Coherent control of the Goos-Hänchen shift in polariton optomechanics (<i>10 pages</i>)	063524
Shah Fahad and Gao Xianlong	
Three-dimensional electric and magnetic polarization in random evanescent waves (<i>11 pages</i>)	063525
Behnaz Fazlpour, José J. Gil, Ari T. Friberg, Tero Setälä, and Andreas Norrman	
Interband transition-pathway control of high-order harmonics in MgO driven by combined pulses (<i>7 pages</i>)	063527
Yue Qiao, Yupeng Zhang, Ping Chen, Yong Liu, Jigen Chen, Shicheng Jiang, and Yujun Yang	
Scattering symmetries in diffraction gratings (<i>9 pages</i>)	063528
Karim Achouri	
Optimal displacement detection of arbitrarily shaped levitated dielectric objects using optical radiation (<i>11 pages</i>)	063529
Shaun Laing, Shelby Klomp, George Winstone, Alexey Grinin, Andrew Dana, Zhiyuan Wang, Kevin Seca Widyatmodjo, James Bateman, and Andrew A. Geraci	
☞ Geometric representation of higher-order optical modes (<i>5 pages</i>)	063530
Claire Cisowski	
Tunable quantum photonic routing using a coupled giant-atom-like array (<i>10 pages</i>)	063531
Alexis R. Legón, Mario Miranda, and P. A. Orellana	
Polarization-controlled optical backflow in paraxial electromagnetic beams (<i>10 pages</i>)	063532
Tomasz Radożycki	
Spatiotemporal equilibrium thermodynamics of guided optical waves at positive and negative temperatures (<i>22 pages</i>)	063533
Lucas Zanaglia, Josselin Garnier, Claire Michel, Valérie Doya, Mario Ferraro, Stefan Wabnitz, Iacopo Carusotto, and Antonio Picozzi	

(Continued)

Dynamical properties and statistical analysis in integrable turbulence: A study based on a coupled nonlinear Schrödinger system with the four-wave mixing effect (<i>13 pages</i>)	063535
Zhong Du, Xiao-Meng Song, and Jia-Wen Liu	
Generalized Stokes formalism for partially coherent higher-order vector vortex beams (<i>10 pages</i>)	063536
Manisha, Saba N. Khan, Stuti Joshi, Bhaskar Kanseri, and P. Senthilkumaran	
Fractional skyrmions by fractional orbital angular momentum (<i>10 pages</i>)	063537
Yuancong Cao, Ram Nandan Kumar, Hadrian Bezuidenhout, Mingjian Cheng, Lixin Guo, and Andrew Forbes	
Quantum optics	
Homodyne measurement of a non-Hermitian qubit undergoing spontaneous emission (<i>15 pages</i>)	063701
Roson Nongthombam and Amarendra K. Sarma	
No oscillating subradiant correlations in a strongly driven quantum emitter array (<i>10 pages</i>)	063702
Jiaming Shi, Nikita Leppen, Ran Tessler, and Alexander N. Poddubny	
Analytic theory and cavity-QED implementation of a two-qubit refrigerator: Sub-100-mK cavity cooling from a 4-K bath (<i>23 pages</i>)	063703
Daryoosh Vashae and Jahanfar Abouie	
Localization and scattering of a photon in quasiperiodic qubit arrays (<i>11 pages</i>)	063704
Xinyin Zhang, Yongguan Ke, Zhenzhi Peng, Zuerui Chen, Wenjie Liu, Li Zhang, and Chaohong Lee	
Tunable dual-band atomic mirror based on subwavelength atomic arrays under electromagnetically induced transparency (<i>10 pages</i>)	063705
Shiwen Sun, Yi-Xin Wang, Xiao Liu, and Yan Zhang	
Quantum viscosity mechanism of dissipative dynamics in the Dicke model expressed via Lindblad equation of motion (<i>13 pages</i>)	063706
M. E. S. Beck, S. S. Seidov, and S. I. Mukhin	
Fluxonium qubit-based hybrid electromechanical system (<i>12 pages</i>)	063707
Roson Nongthombam, Anshika Ranjan, Amarendra K. Sarma, and Vibhor Singh	
Generation of energy-time-entangled triphotons in a six-level cold atomic system (<i>10 pages</i>)	063708
Ling Niu, Zhiying Duan, Na Liu, Yitong Zhai, Shaoyan Liu, Junsheng Li, Donghai Zhang, and Da Zhang	
Slow-light-enhanced photon drag in a tunneling-coupled quantum-dot system (<i>11 pages</i>)	063709
Muhammad Idrees, Xiaosen Yang, Fazal Badshah, and Zareen A. Khan	
Second-order correlations in directed emissions in sodium atoms (<i>9 pages</i>)	063710
Ara Tonoyan, Sushree Subhadarshinee Sahoo, Anahit Gogyan, Oleg Tretiak, Razmik Aramyan, Alexander Akulshin, and Dmitry Budker	
Arbitrary control of the temporal waveform of photons during spontaneous emission (<i>12 pages</i>)	063711
Carl Thomas, Rebecca Munk, and Boris B. Blinov	
Loss-resistant bright-seeded SU(1,1) quantum interferometer based on joint detection (<i>6 pages</i>)	063712
Xiaochun Li, Yinghui Lv, Jiabin Wang, Shengshuai Liu, and Jietai Jing	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW A

THIRD SERIES, VOLUME 113, NUMBER 6

JUNE 2026

Dressed bound states and non-Markovian dynamics with a whispering-gallery-mode microcavity coupled to a two-level atom and a semi-infinite photonic waveguide (<i>22 pages</i>)	063713
J. Y. Sun, C. Cui, Y. F. Li, Shuang Xu, Cheng Shang, Yan-Hui Zhou, and H. Z. Shen	
Superradiant interactions for relic detection with entangled nuclear spins (<i>27 pages</i>)	063714
Marios Galanis, Onur Hosten, Asimina Arvanitaki, and Savas Dimopoulos	
Experimental demonstration of reference-frame-independent measurement-device-independent quantum key distribution over asymmetric channels (<i>10 pages</i>)	063715
Kaibiao Qin, Xin Liu, Zhicheng Luo, Jiawang Liu, Zhenrong Zhang, and Kejin Wei	
Maximum heralding probabilities of nonclassical-state generation from a two-mode Gaussian state via photon-counting measurements (<i>11 pages</i>)	063716
Jaromír Fiurášek	
Feedback cooling and thermometry of a single trapped ion using a knife edge (<i>8 pages</i>)	063717
Hans Dang, Sebastian Luff, Martin Fischer, Markus Sondermann, and Gerd Leuchs	
Chiral dark mode for nonreciprocal transmission and asymmetric quantum state transfer in a magneto-optical hybrid system (<i>14 pages</i>)	063718
Zi-Hao Li, Wen Huang, Shi-Qi Gan, Ying Wu, and Xin-You Lü	
Photodetection of squeezed light: A Whittaker-Shannon analysis (<i>24 pages</i>)	063719
Jasper Kranias, Christian Drago, Colin Vendromin, and J. E. Sipe	
Hybrid quantum memory leveraging slow light and gradient echo duality (<i>8 pages</i>)	063720
Stanisław Kurzyňa, Mateusz Mazelanik, Wojciech Wasilewski, and Michał Parniak	
Photon-mediated hybridization and dissipative transport in a cavity-QED ring-acceptor architecture (<i>20 pages</i>)	063721
Stephon Alexander, Roger Andrews, Oliver Fox, and Sarben Sarkar	
Tunable bundle emissions of n -phonon and photon-phonon pairs via the Barnett effect (<i>12 pages</i>)	063722
Zhe-Qi Yang, Lei Chen, and Zhi-Rong Zhong	
$\mathcal{PT}$ -symmetric spin-boson model with a continuous bosonic spectrum: Exceptional points and dynamics (<i>10 pages</i>)	063723
Yong-Xin Zhang and Qing-Hu Chen	
Entanglement dynamics of separable squeezed states in finite-memory structured reservoir (<i>14 pages</i>)	063724
Austen Couvertier and Ting Yu	
Geometric invariants of quantum metrology (<i>17 pages</i>)	063725
Christopher Wilson, John Drew Wilson, Luke Coffman, Shah Saad Alam, and Murray J. Holland	
Nonclassical photocounting statistics with a single on-off detector (<i>16 pages</i>)	063726
V. S. Kovtoniuk, M. Bohmann, and A. A. Semenov	
Optimally driving multiphoton transitions in the perturbative single-mode regime (<i>4 pages</i>)	063727
Frieder Lindel, Stefan Yoshi Buhmann, Andreas Buchleitner, and Edoardo G. Carnio	
Application and quantum properties of superpositions of oppositely squeezed states (<i>10 pages</i>)	063728
Hiroo Azuma, William J. Munro, and Kae Nemoto	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW A

THIRD SERIES, VOLUME 113, NUMBER 6

JUNE 2026

Nonreciprocal universal photon blockade in an asymmetrical cavity (<i>9 pages</i>)	063729
Xiuwen Xia, Xinqin Zhang, Xiaobing Luo, Chaofei Liu, Haozhen Li, Jabir Hakami, Jingping Xu, and Yaping Yang	
Remote nonreciprocal optical-microwave entanglement and one-way steering via parametric amplification (<i>13 pages</i>)	063730
Kai-Wei Huang, Yi Ren, Hao Zhai, and Hao Xiong	
Statistical-noise-enhanced multiphoton interference (<i>10 pages</i>)	063731
Rikizo Ikuta	
Triggering and switching of topological phases and non-Hermitian transitions in a Su-Schrieffer-Heeger circuit with long-range hopping and synthetic gauge fields (<i>15 pages</i>)	063732
Jing Cheng, Cheng-Jun Han, Jin-Yan Hu, Mo-Nan Wang, and Y. P. Wang	
Gaussian mode coupling of spectrally broadband photons from bulk spontaneous parametric down-conversion: A spatial-spectral mode analysis of fiber coupling (<i>12 pages</i>)	063733
Carlos Sevilla-Gutiérrez, Varun Raj Kaipalath, and Fabian Steinlechner	
Phase-space open-system dynamics of second-order nonlinear interactions with pulsed quantum light (<i>18 pages</i>)	063734
Emanuel Hubenschmid and Victor Rueskov Christiansen	
Rigorous no-go theorems for heralded linear-optical state generation tasks (<i>11 pages</i>)	063735
Deepesh Singh, Ryan J. Marshman, Luis Villegas-Aguilar, Jens Eisert, and Nora Tischler	
Pseudo-Hermitian symmetry breaking and re-entrant localization in a one-dimensional non-Hermitian chain (<i>14 pages</i>)	063736
Pei-Lin Wang, Ai-Bo Xia, Jun-Bo Zhao, Hong-Tao Fan, and Y. P. Wang	

ERRATA

Erratum: Derivation of quantum theory with superselection rules [Phys. Rev. A 101 , 022104 (2020)] (<i>1 page</i>) . . .	069901(E)
Kenji Nakahira	
Erratum: Coherent anti-Stokes Raman scattering with squeezed light: CARS for quantum-enhanced spectroscopy and imaging [Phys. Rev. A 113 , 013704 (2026)] (<i>2 pages</i>)	069902(E)
Santiago Pinto, Frank Hagelberg, Ali Passian, and Xu Yi	
Erratum: Multichromatic Floquet engineering of quantum dissipation [Phys. Rev. A 109 , 062618 (2024)] (<i>2 pages</i>)	069903(E)
François Impens and David Guéry-Odelin	