PHYSICAL REVIEW A™

For editorial and subscription correspondence, please see inside front cover
(ISSN: 2469-9926)

PERIODICALS
Postmaster send address changes to:

APS Subscription Services
P.O. Box 41
Annapolis Junction, MD 20701

THIRD SERIES, VOLUME 108, NUMBER 3
PARTS A AND B

CONTENTS

SEPTEMBER 2023

The Table of Contents is a total listing of Parts A and B.
Part A consists of pages 030001–032818, and Part B pages 033101–039901(E).

PART A

EDITORIALS AND ANNOUNCEMENTS

Editorial: To Review Is to Be *(1 page)* 030001
Randall D. Kamien

Perspectives

Cooperative quantum-optical planar arrays of atoms *(33 pages)* 030101
Janne Ruostekoski

LETTERS

Atomic and molecular structure and dynamics; high-precision experiments

Screening of the electric field and nuclear electric dipole moment in nonstationary states of atoms and molecules *(4 pages)* L030801
V. V. Flambaum

Light-induced processes in atomic-scale systems

Feedback cooling the fundamental torsional mechanical mode of a tapered optical fiber to 30 mK *(5 pages)* L031101
Felix Tebbenjohanns, Jihao Jia, Michael Antesberger, Adarsh Shankar Prasad, Sebastian Pucher, Arno Rauschenbeutel, Jürgen Volz, and Philipp Schneeweiss

Quantum optics

Deterministic single-photon source in the ultrastrong-coupling regime *(8 pages)* L031701
Jie Peng, Jianing Tang, Pinghua Tang, Zhongzhou Ren, Junlong Tian, Nancy Barraza, Gabriel Alvarado Barrios, Lucas Lamata, Enrique Solano, and F. Albarrán-Arriagada

ARTICLES

Fundamental concepts

Device-independent witness for the nonobjectivity of quantum dynamics *(12 pages)* 032201
Davide Poderini, Giovanni Rodari, George Moreno, Emanuele Polino, Ranieri Nery, Alessia Suprano, Cristhiano Duarte, Fabio Sciarrino, and Rafael Chaves

(Continued)

2469-9926(202309)108:3:A;1-R

The editors and referees of PRA find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. A 88, 020001 (2013).

PHYSICAL REVIEW A **THIRD SERIES, VOLUME 108, NUMBER 3** **SEPTEMBER 2023**

Extreme violation of the Leggett-Garg inequality in nonunitary dynamics with complex energies *(8 pages)* 032202
Anant V. Varma, Jacob E. Muldoon, Sourav Paul, Yogesh N. Joglekar, and Sourin Das

Thermodynamic uncertainty relation in nondegenerate and degenerate maser heat engines *(12 pages)* 032203
Varinder Singh, Vahid Shaghaghi, Özgür E. Müstecaplıoğlu, and Dario Rosa

Simulations of quantum nonlocality with local negative bits *(6 pages)* 032204
Kelvin Onggadinata, Pawel Kurzynski, and Dagomir Kaszlikowski

Rise and fall of entanglement between two qubits in a non-Markovian bath *(13 pages)* 032205
Sayan Roy, Christian Otto, Raphaël Menu, and Giovanna Morigi

Uncertainty relations in pre- and postselected systems *(16 pages)* 032206
Sahil, Sohail, and Sibasish Ghosh

NMR investigations of dynamical tunneling in spin systems *(13 pages)* 032207
V. R. Krithika, M. S. Santhanam, and T. S. Mahesh

Entanglement statistics of randomly interacting spins *(7 pages)* 032208
Paulo Freitas Gomes, Marcel Novaes, and Fernando Parisio

Impossibility of bosonic autonomous entanglement engines in the weak-coupling limit *(7 pages)* 032209
Bradley Longstaff, Michael G. Jabbour, and Jonatan Bohr Brask

Leggett-Garg inequalities in the quantum field theory of neutrino oscillations *(7 pages)* 032210
Massimo Blasone, Fabrizio Illuminati, Luciano Petruzziello, and Luca Smaldone

General method for solving electromagnetic radiation problems in an arbitrary linear medium *(13 pages)* 032211
Farhang Loran and Ali Mostafazadeh

Complete positivity, positivity, and long-time asymptotic behavior in a two-level open quantum system *(10 pages)* 032212
G. Théret and D. Sugny

Contextuality with vanishing coherence and maximal robustness to dephasing *(10 pages)* 032213
Vinicius P. Rossi, David Schmid, John H. Selby, and Ana Belén Sainz

Effect of quantum jumps on non-Hermitian systems *(11 pages)* 032214
Xiangyu Niu, Jianning Li, S. L. Wu, and X. X. Yi

Experimental discrimination of two-qubit orthogonal states via local operations and classical communication *(8 pages)* 032215
Xiaoqian Zhang, Maolin Luo, Guifang Yu, and Xiaoqi Zhou

Cooling and work extraction under memory-assisted Markovian thermal processes *(15 pages)* 032216
Yuancheng Liu and Xueyuan Hu

Multiple entropy production for multitime quantum processes *(15 pages)* 032217
Zhiqiang Huang (黄志强)

Fluctuations, uncertainty relations, and the geometry of quantum state manifolds *(13 pages)* 032218
Balázs Hetényi and Péter Lévay

Quantum effects on the synchronization dynamics of the Kuramoto model *(13 pages)* 032219
Anna Delmonte, Alessandro Romito, Giuseppe E. Santoro, and Rosario Fazio

(Continued)

The editors and referees of PRA find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. A 88, 020001 (2013).

PHYSICAL REVIEW A **THIRD SERIES, VOLUME 108, NUMBER 3** **SEPTEMBER 2023**

Multispin probes for thermometry in the strong-coupling regime *(11 pages)* 032220
Marlon Brenes and Dvira Segal

Quantum information science

Optimized control for high-fidelity state transmission in open systems *(10 pages)* 032401
Yang-Yang Xie, Feng-Hua Ren, Arapat Ablimit, Xiang-Han Liang, and Zhao-Ming Wang

Engineering the unidirectional topological excitation transmission and topological diode in the Rice-Mele model *(13 pages)* 032402
Lu Qi, Ning Han, Shi Hu, and Ai-Lei He

Quantum algorithms for optimal effective theory of many-body systems *(10 pages)* 032403
Yongdan Yang, Zongkang Zhang, Xiaosi Xu, Bing-Nan Lu, and Ying Li

Localizing genuine multipartite entanglement in noisy stabilizer states *(32 pages)* 032404
Harikrishnan K. J. and Amit Kumar Pal

Solving graph problems with single photons and linear optics *(15 pages)* 032405
Rawad Mezher, Ana Filipa Carvalho, and Shane Mansfield

Fourier expansion in variational quantum algorithms *(14 pages)* 032406
Nikita A. Nemkov, Evgeniy O. Kiktenko, and Aleksey K. Fedorov

High-fidelity low-loss state detection of alkali-metal atoms in optical tweezer traps *(13 pages)* 032407
Matthew N. H. Chow, Bethany J. Little, and Yuan-Yu Jau

℘ Error mitigation for quantum approximate optimization *(11 pages)* 032408
Anita Weidinger, Glen Bigan Mbeng, and Wolfgang Lechner

Stochastic optimization algorithms for quantum applications *(21 pages)* 032409
J. Gidi, B. Candia, A. D. Muñoz-Moller, A. Rojas, L. Pereira, M. Muñoz, L. Zambrano, and A. Delgado

Synchronized Bell protocol for detecting nonlocality between modes of light *(11 pages)* 032410
Madhura Ghosh Dastidar, Gniewomir Sarbicki, and Vidya Praveen Bhallamudi

Noiseless linear amplification and loss-tolerant quantum relay using coherent-state superpositions *(14 pages)* 032411
Joshua J. Guanzon, Matthew S. Winnel, Austin P. Lund, and Timothy C. Ralph

Absolutely maximally entangled state equivalence and the construction of infinite quantum solutions to the problem of 36 officers of Euler *(11 pages)* 032412
Suhail Ahmad Rather, N. Ramadas, Vijay Kodiyalam, and Arul Lakshminarayan

Quantifying information extraction using generalized quantum measurements *(23 pages)* 032413
Dominik Šafránek and Juzar Thingna

Existence of Pauli-like stabilizers for every quantum error-correcting code *(17 pages)* 032414
Jhih-Yuan Kao and Hsi-Sheng Goan

Resource theory of dephasing estimation in multiqubit systems *(12 pages)* 032415
Zishi Chen and Xueyuan Hu

Hidden non–n-locality in linear networks *(12 pages)* 032416
Kaushiki Mukherjee, Soma Mandal, Tapaswini Patro, and Nirman Ganguly

(Continued)

℘ The editors and referees of PRA find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. A 88, 020001 (2013).

PHYSICAL REVIEW A **THIRD SERIES, VOLUME 108, NUMBER 3** **SEPTEMBER 2023**

Demonstration of a quantum-classical coprocessing protocol for simulating nuclear reactions *(11 pages)* 032417
F. Turro, T. Chistolini, A. Hashim, Y. Kim, W. Livingston, J. M. Kreikebaum, K. A. Wendt, J. L. Dubois, F. Pederiva, S. Quaglioni, D. I. Santiago, and I. Siddiqi

Variational quantum algorithms for Poisson equations based on the decomposition of sparse Hamiltonians *(15 pages)* 032418
Hui-Min Li, Zhi-Xi Wang, and Shao-Ming Fei

Efficient quantum process tomography for Clifford circuits *(9 pages)* 032419
Shichuan Xue, Guangyao Huang, Yong Liu, Dongyang Wang, Weixu Shi, Yingwen Liu, Xiang Fu, Anqi Huang, Mingtang Deng, and Junjie Wu

Macroscopic maximally-entangled-state preparation between two atomic ensembles *(13 pages)* 032420
Manish Chaudhary, Ebubechukwu O. Ilo-Okeke, Valentin Ivannikov, and Tim Byrnes

Perfect state transfer and maximal entanglement in a trimer of three-level systems *(15 pages)* 032421
Abuenameh Aiyejina, Ethan Wyke, Roger Andrews, and Andrew D. Greentree

Optimizing the rodeo projection algorithm *(15 pages)* 032422
Thomas D. Cohen and Hyunwoo Oh

Quantum technologies

Accelerated super-robust nonadiabatic holonomic quantum gates *(9 pages)* 032601
Pu Shen, Yan Liang, Tao Chen, and Zheng-Yuan Xue

Superadditivity effects of quantum capacity decrease with the dimension for qudit depolarizing channels *(9 pages)* 032602
Josu Etxezarreta Martinez, Antonio deMarti iOlius, and Pedro M. Crespo

Quantum simulation of partial differential equations: Applications and detailed analysis *(20 pages)* 032603
Shi Jin, Nana Liu, and Yue Yu

Time-synchronization error in twin-field quantum key distribution *(6 pages)* 032604
Zhi-Yuan Xu (徐致远), Jia-Liang Wang (王家亮), Jun Teng (滕俊), Guan-Jie Fan-Yuan (范元冠杰), and You-Zhen Gui (桂有珍)

Optimal single-qubit tomography: Realization of locally optimal measurements on a quantum computer *(14 pages)* 032605
Bacui Li, Lorcán O. Conlon, Ping Koy Lam, and Syed M. Assad

Pauli-based model of quantum computation with higher-dimensional systems *(14 pages)* 032606
Filipa C. R. Peres

Perspectives of microwave quantum key distribution in the open air *(14 pages)* 032607
F. Fesquet, F. Kronowetter, M. Renger, Q. Chen, K. Honasoge, O. Gargiulo, Y. Nojiri, A. Marx, F. Deppe, R. Gross, and K. G. Fedorov

Dual-recycled interference-based weak value metrology *(7 pages)* 032608
Zi-Rui Zhong, Wei-Jun Tan, Yue Chen, and Qing-Lin Wu

Error metric for non-trace-preserving quantum operations *(15 pages)* 032609
Yu Shi and Edo Waks

(Continued)

The editors and referees of PRA find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. A 88, 020001 (2013).

PHYSICAL REVIEW A **THIRD SERIES, VOLUME 108, NUMBER 3** **SEPTEMBER 2023**

Data centers with quantum random access memory and quantum networks *(17 pages)* 032610
Junyu Liu, Connor T. Hann, and Liang Jiang

Deterministic realization of trace-preserving channels in linear-optical systems *(11 pages)* 032611
Xiang Zhan, Dengke Qu, and Peng Xue

Genuinely noncyclic geometric gates in two-pulse schemes *(7 pages)* 032612
Nils Eivarsson and Erik Sjöqvist

Eliminating thermal infrared background noise by imaging with undetected photons *(5 pages)* 032613
Yue Ma, Nathan Gemmell, Emma Pearce, Rupert Oulton, and Chris Phillips

Deterministic generation of arbitrary ultrasmall excitation of quantum systems by composite pulse sequences *(8 pages)* 032614
Hayk L. Gevorgyan and Nikolay V. Vitanov

Microwave-driven *i*SWAP-like gate for fixed-frequency superconducting transmon qutrits *(12 pages)* 032615
Peng Xu, Qingli Jing, Peng Zhao, and Yang Yu

Machine-learning-inspired quantum optimal control of nonadiabatic geometric quantum computation via reverse engineering *(11 pages)* 032616
Meng-Yun Mao, Zheng Cheng, Yan Xia, Andrzej M. Oleś, and Wen-Long You

Optimal one-shot entanglement sharing *(12 pages)* 032617
Vikesh Siddhu and John Smolin

Suppression of dark-state polariton collapses in a cold-atom quantum memory *(6 pages)* 032618
Katja Gosar, Vesna Pirc Jevšenak, Tadej Mežnaršič, Samo Beguš, Tomasz Krehlik, Dušan Ponikvar, Erik Zupanič, and Peter Jeglič

Simulating quantum transport via collisional models on a digital quantum computer *(10 pages)* 032619
Rebecca Erbanni, Xiansong Xu, Tommaso F. Demarie, and Dario Poletti

Finding, mapping, and classifying optimal protocols for two-qubit entangling gates *(12 pages)* 032620
Ignacio R. Sola, Seokmin Shin, and Bo Y. Chang

Distributed quantum sensing with squeezed-vacuum light in a configurable array of Mach-Zehnder interferometers *(24 pages)* 032621
Marco Malitesta, Augusto Smerzi, and Luca Pezzè

Atomic and molecular structure and dynamics; high-precision experiments

Positron binding to alkane molecules *(11 pages)* 032801
J. R. Danielson, S. Ghosh, E. Arthur-Baidoo, D. R. Witteman, and C. M. Surko

Thermal Casimir interactions in multiparticle systems: Scattering channel approach *(15 pages)* 032802
Yang Li, Kimball A. Milton, and Iver Brevik

Calculating many excited states of the multidimensional time-independent Schrödinger equation using a neural network *(13 pages)* 032803
Jinde Liu, Xilong Dou, Xi He, Chen Yang, and Gang Jiang

Investigating properties of heavy and superheavy atomic systems with p^3 configurations *(19 pages)* 032804
H. X. Liu, Y. M. Yu, B. B. Suo, Y. Liu, and B. K. Sahoo

(Continued)

The editors and referees of PRA find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. A 88, 020001 (2013).

PHYSICAL REVIEW A **THIRD SERIES, VOLUME 108, NUMBER 3** **SEPTEMBER 2023**

Nuclear-spin-dependent corrections to the transition polarizability in cesium *(10 pages)* 032805
D. Xiao, H. B. Tran Tan, and A. Derevianko

Fully self-consistent optimization of the Jastrow-Slater-type wave function using a similarity-transformed Hamiltonian *(17 pages)* 032806
Masayuki Ochi

Algebraic relations from finite-nuclear-mass effects to test atomic transition rates *(9 pages)* 032807
Aaron T. Bondy and G. W. F. Drake

Near-threshold collisional dynamics in the $e^- e^+ p$ system *(12 pages)* 032808
H. B. Ambalampitiya, J. Stallbaumer, I. I. Fabrikant, I. Kalinkin, D. V. Fursa, A. S. Kadyrov, and I. Bray

Radiative decay rate and branching fractions of MgF *(12 pages)* 032809
E. B. Norrgard, Yuly Chamorro, C. C. Cooksey, S. P. Eckel, N. H. Pilgram, K. J. Rodriguez, H. W. Yoon, Lukáš F. Pašteka, and Anastasia Borschevsky

Spectral line shape in the limit of frequent velocity-changing collisions *(12 pages)* 032810
Nikodem Stolarczyk, Piotr Wcisło, and Roman Ciuryło

Continuous gravity measurement with a portable atom gravimeter *(7 pages)* 032811
Chen-Yang Li, Jin-Bao Long, Ming-Qi Huang, Bin Chen, Yu-Meng Yang, Xiao Jiang, Chuan-Fang Xiang, Zhao-Li Ma, De-Qiang He, Luo-Kan Chen, and Shuai Chen

Inner energy relaxation and growth of nanosize particles *(15 pages)* 032812
M. Bredice, M. G. Rozman, J. Smucker, E. Farmer, R. Côté, and V. Kharchenko

Shell effects in high-energy atomic scattering *(22 pages)* 032813
M. V. Bondarenco

Motional effects in dynamics of fluorescence of cold atomic ensembles excited by resonance pulse radiation *(8 pages)* 032814
A. S. Kuraptsev and I. M. Sokolov

Multicenter continuum distorted wave with eikonal initial state model for single ionization in ion-molecule collisions: Differential electron emission from water under energetic ion impact *(11 pages)* 032815
L. Gulyás

Resolving vibrations in a polyatomic molecule with femtometer precision via x-ray spectroscopy *(7 pages)* 032816
Patrick Rupprecht, Lennart Aufleger, Simon Heinze, Alexander Magunia, Thomas Ding, Marc Rebholz, Stefano Amberg, Nikola Mollov, Felix Henrich, Maurits W. Haverkort, Christian Ott, and Thomas Pfeifer

Enhanced repulsive Casimir forces between gold and thin magnetodielectric plates *(8 pages)* 032817
C. Shelden, B. Spreng, and J. N. Munday

Anomalous plasma ionization balance induced by $5s$ and $4f$ metastable states *(10 pages)* 032818
Naoki Kimura, Priti, Naoki Numadate, Ryunosuke Kodama, and Nobuyuki Nakamura

PART B

Light-induced processes in atomic-scale systems

Theory of ionization in a crystal with a linear and a circular laser polarization: Influence of the laser wavelength *(9 pages)* 033101
Rachel Nuter

(Continued)

The editors and referees of PRA find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. A 88, 020001 (2013).

PHYSICAL REVIEW A **THIRD SERIES, VOLUME 108, NUMBER 3** **SEPTEMBER 2023**

Blue-detuned molecular magneto-optical trap schemes based on Bayesian optimization *(5 pages)* 033102
S. Xu, R. Li, Y. Xia, M. Siercke, and S. Ospelkaus

Strong-field double ionization in a three-electron atom: Momentum-distribution analysis *(9 pages)* 033103
Dmitry K. Efimov, Artur Maksymov, Jakub Zakrzewski, and Jakub S. Prauzner-Bechcicki

Pump and ionizing-probe dynamics in a simultaneous treatment of electronic and nuclear motion in LiH *(9 pages)* 033104
Roger Y. Bello, Robert R. Lucchese, and C. William McCurdy

Simulations of a frequency-chirped magneto-optical trap of MgF *(9 pages)* 033105
Kayla J. Rodriguez, Nickolas H. Pilgram, Daniel S. Barker, Stephen P. Eckel, and Eric B. Norrgard

Quantum tracking control of the orientation of symmetric-top molecules *(8 pages)* 033106
Alicia B. Magann, Tak-San Ho, Christian Arenz, and Herschel A. Rabitz

Quantum beats in two-color photoionization to the spin-orbit split continuum of Ar *(14 pages)* 033107
M. A. Alarcón, A. Plunkett, J. K. Wood, D. Biswas, C. H. Greene, and A. Sandhu

Proposal of a free-space-to-chip pipeline for transporting single atoms *(8 pages)* 033108
Aiping Liu, Jiawei Liu, Zhanfei Kang, Guang-Jie Chen, Xin-Biao Xu, Xifeng Ren, Guang-Can Guo, Qin Wang, and Chang-Ling Zou

Anisotropic field ionization in nanoclusters mediated by a Brunel-electron-driven plasma wave *(6 pages)* 033109
Xiaohui Gao

Quantum theory of photon emission during strong-laser-field-induced ionization *(9 pages)* 033110
D. B. Milošević

Phase control of the Autler-Townes doublet in multistate systems *(11 pages)* 033111
T. Bayer, K. Eickhoff, D. Köhnke, and M. Wollenhaupt

Phase sensitivity of the pair-creation process in colliding laser pulses *(13 pages)* 033112
C. K. Li, Y. J. Li, Q. Su, and R. Grobe

Strong-field-induced N_2^+ lasing by phase control of free induction decay *(7 pages)* 033113
Siqi Wang, Yao Fu, Erik Lötstedt, Jincheng Cao, Hongwei Zang, Helong Li, Kaoru Yamanouchi, and Huailiang Xu

Forward and hybrid path-integral methods in photoelectron holography: Sub-barrier corrections, initial sampling, and momentum mapping *(23 pages)* 033114
L. Cruz Rodriguez, T. Rook, B. B. Augstein, A. S. Maxwell, and C. Figueira de Morisson Faria

Decoding the minimum-yield position of high-order harmonic generation from H_2^+ with a large internuclear distance *(7 pages)* 033115
Ting-Ting Fu, Yue Qiao, Jun Wang, Fu-Ming Guo, and Yujun Yang

Comparing real-time coupled-cluster methods through simulation of collective Rabi oscillations *(11 pages)* 033116
Andreas S. Skeidsvoll and Henrik Koch

Ultracold systems and matter waves

Dual-species Bose-Einstein condensates of ^{7}Li and ^{133}Cs *(8 pages)* 033301
Y.-D. Chen, W.-X. Li, Y.-T. Sun, Q.-C. Chen, P.-Y. Chang, and S. Tung

(Continued)

The editors and referees of PRA find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. A 88, 020001 (2013).

PHYSICAL REVIEW A **THIRD SERIES, VOLUME 108, NUMBER 3** **SEPTEMBER 2023**

Universal tetramer limit cycle at the unitarity limit *(6 pages)* 033302
Tobias Frederico and Mario Gattobigio

Striped dilute liquid of dipolar bosons in two dimensions *(10 pages)* 033303
Clemens Staudinger, Diana Hufnagl, Ferran Mazzanti, and Robert E. Zillich

Density shift of optical lattice clocks via the multiband sampling exact diagonalization method *(13 pages)* 033304
Yan-Hua Zhou, Xue-Feng Zhang, and Tao Wang

Reentrant localization and mobility edges in a spinful Aubry-André-Harper model with a non-Abelian potential *(8 pages)* 033305
Enguo Guan, Gang Wang, Xi-Wen Guan, and Xiaoming Cai

Three-body scattering hypervolume of identical fermions in one dimension *(16 pages)* 033306
Zipeng Wang and Shina Tan

Single-particle momentum distribution of Efimov states in noninteger dimensions *(12 pages)* 033307
D. S. Rosa, T. Frederico, G. Krein, and M. T. Yamashita

Abelian and non-Abelian quantum spin liquids in a three-component Bose gas on optical kagome lattices *(10 pages)* 033308
Kaiye Shi, Wei Zhang, and Zheng-Xin Liu

Dynamic structure factor of two-dimensional Fermi superfluid with Rashba spin-orbit coupling *(10 pages)* 033309
Huaisong Zhao, Xu Yan, Shi-Guo Peng, and Peng Zou

Time bound of atomic adiabatic evolution in an accelerated optical lattice *(7 pages)* 033310
Guoling Yin, Lingchii Kong, Zhongcheng Yu, Jinyuan Tian, Xuzong Chen, and Xiaoji Zhou

Creating atomic Stokes vortices with spin-1 atomic wave functions *(9 pages)* 033311
Maitreyi Jayaseelan, Joseph D. Murphree, Justin T. Schultz, and Nicholas P. Bigelow

Ground-state properties and Bogoliubov modes of a harmonically trapped one-dimensional quantum droplet *(10 pages)* 033312
Xucong Du, Yifan Fei, Xiao-Long Chen, and Yunbo Zhang

Controlling entanglement in a triple-well system of dipolar atoms *(11 pages)* 033313
K. Wittmann W., L. H. Ymai, B. H. C. Barros, J. Links, and A. Foerster

Quantum phases of multiorbital bosonic gases in a hexagonal lattice *(9 pages)* 033314
Pengfei Zhang, Hui Tan, Jianmin Yuan, and Yongqiang Li

Vortex lattices in strongly confined quantum droplets *(10 pages)* 033315
T. A. Yoğurt, U. Tanyeri, A. Keleş, and M. Ö. Oktel

Supersolid formation in a dipolar condensate by roton instability *(7 pages)* 033316
Aitor Alaña, Iñigo L. Egusquiza, and Michele Modugno

Dispersion engineering in spin-orbit-coupled spinor $F = 1$ condensates driven by negative masses *(10 pages)* . . . 033317
K. Rajaswathi, S. Bhuvaneswari, R. Radha, and P. Muruganandam

Photonics, nonlinear optics, and optomechanics

Moving along an exceptional surface towards a higher-order exceptional point *(10 pages)* 033501
Jan Wiersig

(Continued)

The editors and referees of PRA find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. A 88, 020001 (2013).

PHYSICAL REVIEW A **THIRD SERIES, VOLUME 108, NUMBER 3** **SEPTEMBER 2023**

Single-photon vortex beam detection with near-field diffraction *(5 pages)* 033502
Sarayut Deachapunya, Sorakrai Srisuphaphon, Sitti Buathong, and Pissunee Deechuen

Determining the internal temperature of an optically levitated nanoparticle in vacuum by doped-Er^{3+}-ion luminescence *(9 pages)* 033503
Baobao Zhang, Xiaojun Guo, Xudong Yu, Yanzhen Xiao, Zhengkun Fu, Zhenglong Zhang, and Hairong Zheng

Time-localized dark modes generated by zero-wave-number-gain modulational instability *(8 pages)* 033504
Lei Liu, Wen-Rong Sun, Boris A. Malomed, and P. G. Kevrekidis

Dark solitons in Fabry-Pérot resonators with Kerr media and normal dispersion *(10 pages)* 033505
Graeme N. Campbell, Lewis Hill, Pascal Del'Haye, and Gian-Luca Oppo

Theory of nonlinear whispering-gallery-mode dynamics in surface nanoscale axial photonics microresonators *(8 pages)* 033506
Alena Yu. Kolesnikova and Ilya D. Vatnik

Experimental tweaking of symmetry breaking in recurrent nonlinear modulational instability *(10 pages)* 033507
Guillaume Vanderhaegen, Pascal Szriftgiser, Alexandre Kudlinski, Andrea Armaroli, Matteo Conforti, Arnaud Mussot, and Stefano Trillo

Resonance nesting and mode degeneracy of bilayer spherical dielectric cavities within zero-index materials *(14 pages)* 033508
Nuo Wang, Yun Ma, Qi Liu, Yu Tian, Yuye Wang, Qihuang Gong, and Ying Gu

Quantum electrodynamical metamaterials *(8 pages)* 033509
Josephine J. Yu, Jamison Sloan, Nicholas Rivera, and Marin Soljačić

Symmetry-conserving treatment of the random-phase problem in nonlinear coherent optics modeling in solids *(9 pages)* 033510
Maria K. Hagen, Jörg Hader, and Jerome V. Moloney

Space-time reflection symmetry in the Jones formalism in optics *(11 pages)* 033511
Jean-François Bisson

Unavoidability of nonclassicality loss in $\mathcal{PT}$-symmetric systems *(12 pages)* 033512
Jan Peřina Jr., Adam Miranowicz, Joanna K. Kalaga, and Wiesław Leoński

Standoff detection of an electric field by bidirectional nitrogen lasing *(6 pages)* 033513
Xiang Zhang, Qi Lu, Haicheng Mei, Siyu Qin, Yuan Gao, Aurelien Houard, Vladimir Tikhonchuk, Andre Mysyrowicz, Liang Xu, and Yi Liu

Strong and nearly 100% spin-polarized second-harmonic generation from ferrimagnet Mn_2RuGa *(9 pages)* 033514
Y. Q. Liu, M. S. Si, and G. P. Zhang

Nonreciprocal mechanical squeezing in a spinning cavity optomechanical system via pump modulation *(9 pages)* 033515
Qi Guo, Ke-Xin Zhou, Cheng-Hua Bai, Yuchi Zhang, Gang Li, and Tiancai Zhang

Analytic spectrum of multifrequency Raman generation with chirped pulses *(9 pages)* 033516
Joscelyn van der Veen

Gain-assisted controllable fast-light generation in cavity magnomechanics *(9 pages)* 033517
Sanket Das, Subhadeep Chakraborty, and Tarak N. Dey

(Continued)

The editors and referees of PRA find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. A 88, 020001 (2013).

PHYSICAL REVIEW A **THIRD SERIES, VOLUME 108, NUMBER 3** **SEPTEMBER 2023**

Nonlinear self-sustaining dynamics in cavity magnomechanics *(11 pages)* 033518
Wenlin Li, Jiong Cheng, Wei-jiang Gong, and Jie Li

Surface plasmon-polariton resonances and optical rectification in finite gratings *(9 pages)* 033519
P. Moroshkin, J. Plumitallo, T. Ochiai, R. Osgood, III, and Jimmy Xu

Multimode perturbation modeling for cavity polygon and star modes *(9 pages)* 033520
Saeed Farajollahi, Zhiwei Fang, Jintian Lin, Shahin Honari, Ya Cheng, and Tao Lu

Strong-coupling dynamics of frequency conversion in an optical microresonator *(8 pages)* 033521
Zhi-Yan Wang, Xiao Xiong, Jin-Yu Liu, Qihuang Gong, Yun-Feng Xiao, and Qi-Tao Cao

Deflection of electromagnetic waves by pseudogravity in distorted photonic crystals *(7 pages)* 033522
Kanji Nanjyo, Yuki Kawamoto, Hitoshi Kitagawa, Daniel Headland, Masayuki Fujita, and Kyoko Kitamura

Control of wave scattering for robust coherent transmission in a disordered medium *(10 pages)* 033523
Zhun-Yong Ong

Quantum optics

Chiral cavity-magnonic system for the unidirectional emission of a tunable squeezed microwave field *(8 pages)* 033701
Ji-kun Xie, Sheng-li Ma, Ya-long Ren, Shao-yan Gao, and Fu-li Li

Quantum interference enhancement and fluorescence spectral linewidth narrowing of a four-level system via dielectric Mie resonances *(16 pages)* 033702
Qi Liu, Lingxiao Shan, Yali Jia, Yun Ma, Qihuang Gong, and Ying Gu

Characterizing polariton states in the nondispersive regime of circuit quantum electrodynamics *(12 pages)* 033703
Arvind Mamgain, Samarth Hawaldar, Athreya Shankar, and Baladitya Suri

Switchable superradiant phase transition with Kerr magnons *(7 pages)* 033704
Gang Liu, Wei Xiong, and Zu-Jian Ying

Two-photon pulse-scattering spectroscopy for arrays of two-level atoms coupled to a waveguide *(9 pages)* 033705
Ekaterina Vlasiuk, Alexander V. Poshakinskiy, and Alexander N. Poddubny

Tricritical Dicke model with and without dissipation *(14 pages)* 033706
Diego Fallas Padilla and Han Pu

Long persistent anticorrelations in few-qubit arrays *(9 pages)* 033707
Danil Kornovan, Alexander Poddubny, and Alexander Poshakinskiy

Einstein-Laub and Lorentz optical force densities with a planar interface *(17 pages)* 033708
Adam W. Behnke, Thomas J. Pollei, and Kevin J. Webb

Quantum tunneling and level crossings in the squeeze-driven Kerr oscillator *(12 pages)* 033709
Miguel A. Prado Reynoso, D. J. Nader, Jorge Chávez-Carlos, B. E. Ordaz-Mendoza, Rodrigo G. Cortiñas, Victor S. Batista, S. Lerma-Hernández, Francisco Pérez-Bernal, and Lea F. Santos

Excited-state quantum phase transition in light-matter systems with discrete and continuous symmetries *(13 pages)* 033710
Gaoke Hu, Wen-Long You, Maoxin Liu, and Haiqing Lin

(Continued)

The editors and referees of PRA find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. A 88, 020001 (2013).

PHYSICAL REVIEW A **THIRD SERIES, VOLUME 108, NUMBER 3** **SEPTEMBER 2023**

Fisher information analysis for quantum-enhanced parameter estimation in an electromagnetically-induced-transparency spectrum with single photons *(15 pages)* 033711
Pin-Ju Tsai, Lun-Ping Yuan, and Ying-Cheng Chen

Electromagnetically-induced-transparency spectra of Rydberg atoms dressed with dual-tone radio-frequency fields *(12 pages)* 033712
Maitreyi Jayaseelan, Andrew P. Rotunno, Nikunjkumar Prajapati, Samuel Berweger, Alexandra B. Artusio-Glimpse, Matthew T. Simons, and Christopher L. Holloway

Quantum superresolution for imaging two pointlike entangled photon sources *(8 pages)* 033713
Huan Zhang, Wei Ye, Zeyang Liao, and Xue-hua Wang

Quantum theory of light interaction with a Lorenz-Mie particle: Optical detection and three-dimensional ground-state cooling *(26 pages)* 033714
Patrick Maurer, Carlos Gonzalez-Ballestero, and Oriol Romero-Isart

Fano-Lorentz shape controlled by the collective effect of the nuclear ensemble *(9 pages)* 033715
Tian-Jun Li, Xin-Chao Huang, Zi-Ru Ma, Bo Li, Xi-Yuan Wang, and Lin-Fan Zhu

Single-lossy-nanoparticle sensor with a dissipatively coupled photonic molecule *(6 pages)* 033716
Zhao-Hui Peng, Chun-Xia Jia, Yu-Qing Zhang, Ying Yang, and Le-Man Kuang

Enhancing strength and range of atom-atom interaction in a coupled-cavity array via parametric drives *(7 pages)* 033717
Ya-long Ren, Sheng-li Ma, Stefano Zippilli, David Vitali, and Fu-li Li

Numerical simulations of atmospheric quantum channels *(19 pages)* 033718
M. Klen and A. A. Semenov

Probing dressed states and quantum nonlinearities in a strongly coupled three-qubit waveguide system under optical pumping *(12 pages)* 033719
Sofia Arranz Regidor and Stephen Hughes

Temporal factorization of a nonstationary electromagnetic cavity field *(9 pages)* 033720
I. Ramos-Prieto, R. Román-Ancheyta, F. Soto-Eguibar, J. Récamier, and H. M. Moya-Cessa

Fock-state-lattice approach to quantum optics *(14 pages)* 033721
Pil Saugmann and Jonas Larson

Efficient numerical approach for the simulations of high-power dispersive readout with time-dependent unitary transformation *(10 pages)* 033722
Shimpei Goto and Kazuki Koshino

Quantum and classical field scattered on a single two-level system *(10 pages)* 033723
S. A. Gunin, A. Yu. Dmitriev, A. V. Vasenin, K. S. Tikhonov, G. P. Fedorov, and O. V. Astafiev

Weak-value-amplification enhancement of the magneto-optical Kerr effect in nanoscale layered structures *(17 pages)* 033724
Jing-Hui Huang (黄鲸珲), Jeff S. Lundeen, Kyle M. Jordan, Adetunmise C. Dada, Guang-Jun Wang (王广君), and Xiang-Yun Hu (胡祥云)

(Continued)

The editors and referees of PRA find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. A 88, 020001 (2013).

PHYSICAL REVIEW A **THIRD SERIES, VOLUME 108, NUMBER 3** **SEPTEMBER 2023**

COMMENTS

Comment on "Subluminality of relativistic quantum tunneling" *(3 pages)* 036201
Randall S. Dumont and Eli Pollak

Reply to "Comment on 'Subluminality of relativistic quantum tunneling' " *(3 pages)* 036202
L. Gavassino and M. M. Disconzi

ERRATA

Erratum: Isotope-selective laser ablation ion-trap loading of $^{137}Ba^{+}$ using a $BaCl_2$ target
[Phys. Rev. A **105**, 033102 (2022)] *(1 page)* . . . . . 039901(E)
Brendan M. White, Pei Jiang Low, Yvette de Sereville, Matthew L. Day, Noah Greenberg, Richard Rademacher, and Crystal Senko