

CONTENTS - *Continued*

PHYSICAL REVIEW A	THIRD SERIES, VOLUME 107, NUMBER 5	MAY 2023
Quantum synchronization effects induced by strong nonlinearities (<i>13 pages</i>)		053713
Yuan Shen, Wai-Keong Mok, Changsuk Noh, Ai Qun Liu, Leong-Chuan Kwek, Weijun Fan, and Andy Chia		
Near-perfect discrimination of chiral molecules based on steady states of a cavity mode (<i>7 pages</i>)		053714
Yi-Hao Kang, Zhe-Ping Lin, Jian-Qun Yang, Jie Song, and Yan Xia		
Frequency-domain Hong-Ou-Mandel interference in cold atoms with induced atomic coherence (<i>8 pages</i>)		053715
Yuri Malakyan		
Multichannel nonreciprocal amplifications using cesium vapor (<i>13 pages</i>)		053716
Yao-Dong Hu and Guo-Qiang Zhang		

ERRATA

Erratum: Phase transitions of the anisotropic Dicke model [Phys. Rev. A 107 , 043706 (2023)] (<i>1 page</i>)	059901(E)
Pragna Das, Devendra Singh Bhakuni, and Auditya Sharma	
Erratum: Single-particle momentum distributions of Efimov states in mixed-species systems [Phys. Rev. A 87 , 062702 (2013)] (<i>1 page</i>)	059902(E)
M. T. Yamashita, F. F. Bellotti, T. Frederico, D. V. Fedorov, A. S. Jensen, and N. T. Zinner	

CONTENTS - *Continued*

PHYSICAL REVIEW A

THIRD SERIES, VOLUME 107, NUMBER 5

MAY 2023

Spin of random stationary light (7 pages)	053518
José J. Gil, Andreas Norrman, Ari T. Friberg, and Tero Setälä	
Chaotic Bloch oscillations in dissipative optical systems driven by a periodic train of coherent pulses (12 pages)	053519
A. Verbitskiy, A. Yulin, and A. G. Balanov	
Loxodromes in open multisection lasers (12 pages)	053520
Christopher P. J. O'Connor, Sebastian Wieczorek, and Andreas Amann	
Theory of phase-adaptive parametric cooling (10 pages)	053521
Alekhya Ghosh, Pardeep Kumar, Christian Sommer, Fidel G. Jimenez, Vivishek Sudhir, and Claudiu Genes	
Quantum optics	
Simulating the extended Su-Schrieffer-Heeger model and transferring an entangled state based on a hybrid cavity-magnon array (9 pages)	053701
Da-Wei Wang, Chengsong Zhao, Junya Yang, Ye-Ting Yan, and Ling Zhou	
Optimized laser models with Heisenberg-limited coherence and sub-Poissonian beam photon statistics (22 pages)	053702
L. A. Ostrowski, T. J. Baker, S. N. Saadatmand, and H. M. Wiseman	
Quantum Langevin theory for two coupled phase-conjugated electromagnetic waves (21 pages)	053703
Yue Jiang, Yefeng Mei, and Shengwang Du	
Flux-based three-dimensional electrodynamic modeling approach to superconducting circuits and materials (20 pages)	053704
Dung N. Pham, Wentao Fan, Michael G. Scheer, and Hakan E. Türeci	
Multiple single-photon generations in three-level atoms coupled to a cavity with non-Markovian effects (18 pages)	053705
H. Z. Shen, Y. Chen, T. Z. Luan, and X. X. Yi	
Filter functions for the Glauber-Sudarshan P -function regularization (9 pages)	053706
Mani Zartab, Ezad Shojaei, and Saleh Rahimi-Keshari	
Second quantization of open quantum systems in Liouville space (13 pages)	053707
Vladislav Sukharnikov, Stasis Chuchurka, Andrei Benediktovitch, and Nina Rohringer	
Generation of magnonic frequency combs via a two-tone microwave drive (7 pages)	053708
Zeng-Xing Liu, Jiao Peng, and Hao Xiong	
Polariton-assisted resonance energy transfer beyond resonant dipole-dipole interaction: A transition-current-density approach (13 pages)	053709
Ming-Wei Lee and Liang-Yan Hsu	
Nonreciprocal cavity dark-state polariton and quantum statistics (11 pages)	053710
Yu You, Zhengmao Jia, Bing Chen, Da Chen, and Yandong Peng	
Simulating many-body physics with quantum nonlinear optics (10 pages)	053711
Zhe Chen, Xiao-Ye Xu, Qin-Qin Wang, Yong-Jian Han, Chuan-Feng Li, and Guang-Can Guo	
Coherent transfer of optical vortices via backward four-wave mixing in a double- Λ atomic system (11 pages)	053712
Chun Meng, Tao Shui, and Wen-Xing Yang	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW A

THIRD SERIES, VOLUME 107, NUMBER 5

MAY 2023

All-dielectric apodized photonic crystals: A nondissipative pseudo-Hermitian system hosting multiple exceptional points (7 pages)	053502
Abhishek Mondal, Shailja Sharma, and Ritwick Das	
High-spectral-resolution absorption measurements with free-electron lasers using ghost spectroscopy (12 pages)	053503
Yishai Klein, Alok K. Tripathi, Edward Strizhevsky, Flavio Capotondi, Dario De Angelis, Luca Giannessi, Matteo Pancaldi, Emanuele Pedersoli, Kevin C. Prince, Or Sefi, Young Yong Kim, Ivan A. Vartanyants, and Sharon Shwartz	
Polar magneto-optic Kerr and Faraday effects in finite periodic $\mathcal{PT}$ -symmetric systems (13 pages)	053504
Antonio Perez-Garrido, Peng Guo, Vladimir Gasparian, and Esther Jódar	
Dissipative phase transitions in optomechanical systems (8 pages)	053505
Fatemeh Bibak, Uroš DeliĆ, Markus Aspelmeyer, and Borivoje Dakić	
Dark and bright autoionizing states in resonant high-order harmonic generation: Simulation via a one-dimensional helium model (10 pages)	053506
V. V. Strelkov	
Higher-order rogue-wave fission in the presence of self-steepening and Raman self-frequency shift (10 pages) . . .	053507
Amdad Chowdury, Wonkeun Chang, and Marco Battiato	
Floquet engineering of the non-Hermitian skin effect in photonic waveguide arrays (9 pages)	053508
Shaolin Ke, Wanting Wen, Dong Zhao, and Yang Wang	
Path-length distributions, scattering, and absorption in refractive spheres and slabs (7 pages)	053509
Matt Majic, Walter R. C. Somerville, and Eric C. Le Ru	
Modulational instability in $\mathcal{PT}$ -symmetric Bragg grating structures with saturable nonlinearity (16 pages)	053510
K. Tamilselvan, A. Govindarajan, I. Inbavalli, T. Alagesan, and M. Lakshmanan	
Corner states in photonic higher-order Dirac semimetals (10 pages)	053511
José A. Medina-Vázquez, Evelyn Y. González-Ramírez, and José G. Murillo-Ramírez	
Intermediate state between a solitary singlet and a molecule in lasers (8 pages)	053512
Yueqing Du, Zhiwen He, Qun Gao, Chao Zeng, Dong Mao, and Jianlin Zhao	
Quantum decay of an optical soliton (10 pages)	053513
Stuart Ward, Rouzbeh Allahverdi, and Arash Mafi	
Optically detected magnetic resonance to characterize atomlike microwave-optical transducers (10 pages)	053514
Li Ma, Luke S. Trainor, Gavin G. G. King, Harald G. L. Schwefel, and Jevon J. Longdell	
Stable directional amplification in one-dimensional non-Hermitian single-band systems (15 pages)	053515
P. Liu, X. Y. Zhang, X. Z. Hao, Y. H. Zhou, S. C. Hou, and X. X. Yi	
Universal embedding of a non-Hermitian reciprocal scattering optical system into a Hermitian time-reversal-invariant system (7 pages)	053516
Momchil Minkov, Heming Wang, and Shanhui Fan	
Nonradiating orbital motions (6 pages)	053517
Ray Abney and Greg Gbur	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW A

THIRD SERIES, VOLUME 107, NUMBER 5

MAY 2023

Anomalous loss behavior in a single-component Fermi gas close to a p -wave Feshbach resonance (8 pages)	053310
K. Welz, M. Gerken, B. Zhu, E. Lippi, M. Rautenberg, L. Chomaz, and M. Weidemüller	
Quench-induced nonequilibrium dynamics of spinor gases in a moving lattice (11 pages)	053311
Z. N. Hardesty-Shaw, Q. Guan, J. O. Austin, D. Blume, R. J. Lewis-Swan, and Y. Liu	
Correlation functions and polaron-molecule crossover in one-dimensional attractive Fermi gases (11 pages)	053312
Maolin Chang, Xiangguo Yin, Li Chen, and Yunbo Zhang	
Brueckner G -matrix approach to two-dimensional Fermi gases with finite-range attractive interactions (7 pages)	053313
Hikaru Sakakibara, Hiroyuki Tajima, and Haozhao Liang	
Distributed vorticity model for vortex molecule dynamics (11 pages)	053314
Sarthak Choudhury and Joachim Brand	
$O(1)$ benchmarking of precise rotation in a spin-squeezed Bose-Einstein condensate (7 pages)	053315
Peng Du, Hui Tang, Jun Zhang, and Wenxian Zhang	
Many topological regions on the Bloch sphere of the spin-1/2 double-kicked top (10 pages)	053316
J. Mumford	
Mass-driven vortex collisions in flat superfluids (10 pages)	053317
Andrea Richaud, Giacomo Lamporesi, Massimo Capone, and Alessio Recati	
Dipole-mode and scissors-mode oscillations of a dipolar supersolid (10 pages)	053318
Luis E. Young-S. and S. K. Adhikari	
 Multichannel hyperspherical model for Efimov physics with van der Waals interactions controlled by a Feshbach resonance (20 pages)	053319
Kajsa-My Tempest and Svante Jonsell	
Quench-induced chaotic dynamics of Anderson-localized interacting Bose-Einstein condensates in one dimension (17 pages)	053320
Swarup K. Sarkar, Tapan Mishra, Paulsamy Muruganandam, and Pankaj K. Mishra	
Controllable production of degenerate Fermi gases of ${}^6\text{Li}$ atoms in the crossover from two dimensions to three dimensions (7 pages)	053321
Hongwei Gong, Haotian Liu, Bolong Jiao, Haoyi Zhang, Hang Yu, Qinxuan Peng, Shuai Peng, Tangqian Shu, Yan Zhu, Jiaming Li, and Le Luo	
Long-lived fermionic Feshbach molecules with tunable p -wave interactions (8 pages)	053322
Marcel Duda, Xing-Yan Chen, Roman Bause, Andreas Schindewolf, Immanuel Bloch, and Xin-Yu Luo	
Topological two-body bands in a multiband Hubbard model (8 pages)	053323
M. Iskin	
Photonics, nonlinear optics, and optomechanics	
Multidimensional optical solitons and their manipulation in a cold atomic gas with a parity-time-symmetric optical Bessel potential (12 pages)	053501
Lujia Jin, Chao Hang, and Guoxiang Huang	

(Continued)

 This paper was highlighted in the APS publication *Physics* (physics.aps.org).

 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).

Demonstration of geometric diabatic control of quantum states (6 pages)	053113
Kento Sasaki, Yuki Nakamura, Tokuyuki Teraji, Takashi Oka, and Kensuke Kobayashi	
Adiabatic theory of generation and rescattering of vortex electrons in strong-field ionization by elliptically polarized pulses (17 pages)	053114
Kirill V. Bazarov and Oleg I. Tolstikhin	
Solving the time-dependent Klein-Gordon and square-root Klein-Gordon equations with Krylov-subspace methods (18 pages)	053115
Lei Geng, Hao Liang, Zi-Yang Lin, and Liang-You Peng	
Coupled-oscillator model to analyze the interaction between a quartz resonator and trapped ions (12 pages)	053116
E. Altozano, J. Berrocal, S. Lohse, F. Domínguez, M. Block, J. J. García-Ripoll, and D. Rodríguez	
Strong-field nonsequential double photoionization using virtual-detector theory with path summation (8 pages)	053117
Daniel Younis and Joseph H. Eberly	
Orientation-angle-resolved photoelectron angular distribution in dissociative ionization of methanol induced by an intense ultraviolet laser pulse (15 pages)	053118
Shinichi Fukahori, Tomohito Ootobe, Hiroshi Akagi, Kaoru Yamanouchi, and Ryuji Itakura	
Ultracold systems and matter waves	
Dimensional crossover on multileg attractive- U Hubbard ladders (7 pages)	053301
Anastasia Potapova, Ian Pilé, Tian-Cheng Yi, Rubem Mondaini, and Evgeni Burovski	
Metastable supersolid in spin-orbit-coupled Bose-Einstein condensates (6 pages)	053302
Wei-Lei Xia, Lei Chen, Tian-Tian Li, Yongping Zhang, and Qizhong Zhu	
Loosely bound few-body states in a spin-1 gas with near-degenerate continua (14 pages)	053303
Yaakov Yudkin, Paul S. Julienne, and Lev Khaykovich	
Half-quantum-vortex generation in a two-component Bose-Einstein condensate by an oscillatory magnetic obstacle (7 pages)	053304
Jong Heum Jung and Y. Shin	
Quantum Monte Carlo study of the role of p -wave interactions in ultracold repulsive Fermi gases (9 pages)	053305
Gianluca Bertaina, Marco G. Tarallo, and Sebastiano Pilati	
Scattering mechanism of work done on an ultracold Fermi gas by a time-dependent interaction (12 pages)	053306
Mojmír Poprocký and Pavel Lipavský	
Rydberg-dressed spin-1/2 Fermi gases in one dimension (9 pages)	053307
Junhyun Lee, Pavel A. Volkov, B. J. DeSalvo, and J. H. Pixley	
☞ Multistate interferometric measurement of the nonlinear ac Stark shift (9 pages)	053308
Junnosuke Takai, Kosuke Shibata, Naota Sekiguchi, and Takuya Hirano	
Dynamical mean-field-driven spinor-condensate physics beyond the single-mode approximation (9 pages)	053309
Jianwen Jie, Shan Zhong, Qimin Zhang, Isaiah Morgenstern, Hio Giap Ooi, Q. Guan, Anita Bhagat, Delaram Nematollahi, A. Schwettmann, and D. Blume	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW A

THIRD SERIES, VOLUME 107, NUMBER 5

MAY 2023

Antihydrogen formation from laser-assisted antiproton-positronium collisions (<i>14 pages</i>)	052813
K. Lévêque-Simon and P.-A. Hervieux	
Electronic stopping power of protons in platinum: Direct valence and inner-shell-electron excitations from first-principles calculations (<i>7 pages</i>)	052814
Chang-Kai Li, Xun Guo, Jian-Ming Xue, and Feng-Shou Zhang	
Ionization in a laser-assisted ion-ion collision (<i>9 pages</i>)	052815
O. Novak, R. Kholodov, A. N. Artemyev, A. Surzhykov, and Th. Stöhlker	

PART B

Light-induced processes in atomic-scale systems

Role of dynamic Stark shifts in strong-field excitation and subsequent ionization (<i>12 pages</i>)	053101
Attila Tóth, Sándor Borbély, Yueming Zhou, and András Csehi	
Nondipole strong-field approximation for above-threshold ionization in a few-cycle pulse (<i>10 pages</i>)	053102
Danish Furekh Dar, Björn Minneker, and Stephan Fritzsche	
Sub-barrier recollisions and the three classes of tunneling time delays in strong-field ionization (<i>15 pages</i>)	053103
Michael Klaiber, Daniel Bakucz Canário, and Karen Z. Hatsagortsyan	
Laser-assisted photoionization beyond the dipole approximation (<i>11 pages</i>)	053104
R. Della Picca, J. M. Randazzo, S. D. López, M. F. Ciappina, and D. G. Arbó	
Faraday rotation and ellipticity spectroscopy between excited states of Rb vapor: Theory and experiment (<i>9 pages</i>)	053105
Chenxu Liu, Yalong Hai, and Anhong Dang	
Gauge-invariant absorption of light from a coherent superposition of states (<i>11 pages</i>)	053106
Axel Stenquist, Felipe Zapata, and Jan Marcus Dahlström	
High-order above-threshold ionization in elliptically polarized laser fields: Identifying the recollision time (<i>7 pages</i>)	053107
Zhangjin Chen, Qiongmin Ding, Qinghua Chen, Shuqi Li, Fang Liu, Huipeng Kang, Toru Morishita, and Jing Chen	
Eliminating molecular-alignment dephasing with a phase-modulated femtosecond laser pulse (<i>6 pages</i>)	053108
Yunxia Huang, Huajie Chen, Guizhen Liu, and Shuwu Xu	
Nonlinear spectral features of the relativistic interaction between electron and ultrashort laser pulse (<i>8 pages</i>)	053109
Ziqiang Shao, Quanli Dong, Hao Teng, Zhe Li, Dongning Yue, Qingcao Liu, Zhiyi Wei, and Jie Zhang	
Above-threshold detachment by strong ultrashort two-component laser pulses (<i>12 pages</i>)	053110
D. Habibović and D. B. Milošević	
Simultaneous magic trapping conditions for three additional clock transitions in Yb to search for variation of the fine-structure constant (<i>9 pages</i>)	053111
Zhi-Ming Tang, Yan-mei Yu, B. K. Sahoo, Chen-Zhong Dong, Yang Yang, and Yaming Zou	
Nondipole signatures in ionization and high-order harmonic generation (<i>19 pages</i>)	053112
M. C. Suster, J. Derlikiewicz, K. Krajewska, F. Cajiao Vélez, and J. Z. Kamiński	

(Continued)

Sub-Planck structures and sensitivity of the superposed photon-added or photon-subtracted squeezed-vacuum states (<i>18 pages</i>)	052614
Naeem Akhtar, Jizhou Wu, Jia-Xin Peng, Wu-Ming Liu, and Gao Xianlong	
Enhanced-sensitivity interferometry with phase-sensitive unbiased multiports (<i>7 pages</i>)	052615
Christopher R. Schwarze, David S. Simon, and Alexander V. Sergienko	
Classical verification of quantum measurement for the computational basis and the XY -plane basis (<i>12 pages</i>) . . .	052616
Qingshan Xu, Xiaoqing Tan, Daipengwei Bao, and Rui Huang	
Multipartite entanglement detection based on the generalized state-dependent entropic uncertainty relation for multiple measurements (<i>9 pages</i>)	052617
Li-Hang Ren, Yun-Hao Shi, Jin-Jun Chen, and Heng Fan	
Atomic and molecular structure and dynamics; high-precision experiments	
Interference between dielectronic and radiative recombination of Be-like highly charged ions (<i>5 pages</i>)	052801
Xiao-Min Tong, Xiang Gao, Daiji Kato, and Nobuyuki Nakamura	
Nuclear polarizability effects in $^3\text{He}^+$ hyperfine splitting (<i>5 pages</i>)	052802
Vojtěch Patkóš, Vladimir A. Yerokhin, and Krzysztof Pachucki	
Pre-Born-Oppenheimer Dirac-Coulomb-Breit computations for two-body systems (<i>7 pages</i>)	052803
Dávid Ferenc and Edit Mátyus	
Modifications in the angular photoemission time delay in $\text{Ar}@C_{60}^{q=-1}$: Coulomb confinement resonance as an amplifier of the spin-orbit-interaction-activated interchannel coupling effect (<i>10 pages</i>)	052804
Afsal Thuppilakkadan, Sourav Banerjee, and Hari R. Varma	
Radiation from a polarized vacuum in a laser-particle collision (<i>6 pages</i>)	052805
M. Jirka, P. Sasorov, and S. V. Bulanov	
Cross sections for single-electron capture from heliumlike targets by fast heavy nuclei (<i>17 pages</i>)	052806
Nenad Milojević, Ivan Mančev, Danilo Delibašić, and Dževad Belkić	
Relativistic coupled-cluster analysis of the second-order effects on the hyperfine structure in ^{133}Cs (<i>8 pages</i>)	052807
Fei-Chen Li and Yong-Bo Tang	
Autodetachment spectroscopy of metastable D_2^- and HD^- (<i>10 pages</i>)	052808
Raphaël Marion, Martin Čížek, and Xavier Urbain	
Systematic study of the stopping power of the lanthanides (<i>13 pages</i>)	052809
J. P. Peralta, A. M. P. Mendez, D. M. Mitnik, and C. C. Montanari	
Tailoring population transfer between two hyperfine ground states of ^{87}Rb (<i>8 pages</i>)	052810
Aleksandra Sierant, Marek Kopciuch, and Szymon Pustelny	
Three-body fragmentation dynamics of BrCN^{q+} ($q = 3-6$) induced by 1-keV electron impact (<i>14 pages</i>)	052811
Wenchao Zhao, Enliang Wang, Lei Chen, Xu Shan, and Xiangjun Chen	
Electric-dipole transition amplitudes for atoms and ions with one valence electron (<i>17 pages</i>)	052812
B. M. Roberts, C. J. Fairhall, and J. S. M. Ginges	

(Continued)

Equivalence between simulability of high-dimensional measurements and high-dimensional steering (<i>10 pages</i>)	052425
Benjamin D. M. Jones, Roope Uola, Thomas Cope, Marie Ioannou, Sébastien Designolle, Pavel Sekatski, and Nicolas Brunner	
Quantum technologies	
Broadband nonreciprocity using tunable phase shifters (<i>10 pages</i>)	052601
Chih-Peng Chu, Kanglin Xiong, Jiagui Feng, and Hui Yang	
Integrated photon-pair source with monolithic piezoelectric frequency tunability (<i>10 pages</i>)	052602
T. Brydges, A. S. Raja, A. Gelmini, G. Lihachev, A. Petitjean, A. Siddharth, H. Tian, R. N. Wang, S. A. Bhawe, H. Zbinden, T. J. Kippenberg, and R. Thew	
Transmission-based noise spectroscopy for quadratic qubit-resonator interactions (<i>8 pages</i>)	052603
Philipp M. Mutter and Guido Burkard	
Hybrid approximation approach to the generation of atomic squeezing with quantum nondemolition measurements (<i>18 pages</i>)	052604
Ebubechukwu O. Ilo-Okeke, Manikandan Kondappan, Ping Chen, Yuping Mao, Valentin Ivannikov, and Tim Byrnes	
Very-high- and ultrahigh-frequency electric-field detection using high angular momentum Rydberg states (<i>8 pages</i>)	052605
Roger C. Brown, Baran Kayim, Michael A. Viray, Abigail R. Perry, Brian C. Sawyer, and Robert Wyllie	
Optimal STIRAP shortcuts using the spin-to-spring mapping (<i>16 pages</i>)	052606
Vasileios Evangelakos, Emmanuel Paspalakis, and Dionisis Stefanatos	
Photonic interface between subcarrier wave and dual-rail encodings (<i>8 pages</i>)	052607
K. S. Melnik and E. S. Moiseev	
Initial-state-dependent quantum speed limit for dissipative state preparation: Framework and optimization (<i>9 pages</i>)	052608
Junjie Liu and Hanlin Nie	
Optimized emulation of quantum magnetometry via superconducting qubits (<i>14 pages</i>)	052609
N. N. Gusev, M. R. Perelshtein, P. J. Hakonen, and G. S. Paraoanu	
Learning noise via dynamical decoupling of entangled qubits (<i>5 pages</i>)	052610
Trevor McCourt, Charles Neill, Kenny Lee, Chris Quintana, Yu Chen, Julian Kelly, Jeffrey Marshall, V. N. Smelyanskiy, M. I. Dykman, Alexander Korotkov, Isaac L. Chuang, and A. G. Petukhov	
Proposal for a long-distance nonlocality test with entanglement swapping and displacement-based measurements (<i>13 pages</i>)	052611
Anders J. E. Bjerrem, Jonatan B. Brask, Jonas S. Neergaard-Nielsen, and Ulrik L. Andersen	
Realizing quantum gates with optically addressable $^{171}\text{Yb}^+$ ion qubits (<i>10 pages</i>)	052612
M. A. Aksenov, I. V. Zalivako, I. A. Semerikov, A. S. Borisenko, N. V. Semenin, P. L. Sidorov, A. K. Fedorov, K. Yu. Khabarova, and N. N. Kolachevsky	
Cyclic nonlinear interferometry with entangled non-Gaussian spin states (<i>9 pages</i>)	052613
Qi Liu, Tian-Wei Mao, Ming Xue, Ling-Na Wu, and Li You	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW A

THIRD SERIES, VOLUME 107, NUMBER 5

MAY 2023

Suppressing amplitude damping in trapped ions: Discrete weak measurements for a nonunitary probabilistic noise filter (<i>16 pages</i>)	052409
Andrea Rodriguez-Blanco, K. Birgitta Whaley, and Alejandro Bermudez	
Bipartite quantum state discrimination and decomposable entanglement witness (<i>10 pages</i>)	052410
Donghoon Ha and Jeong San Kim	
Comparing metrics for mixed quantum states: Sjöqvist and Bures (<i>13 pages</i>)	052411
Paul M. Alsing, Carlo Cafaro, Orlando Luongo, Cosmo Lupo, Stefano Mancini, and Hernando Quevedo	
Conditional global entanglement in a Kosterlitz-Thouless quantum phase transition (<i>8 pages</i>)	052412
Elahe Samimi, Mohammad Hossein Zarei, and Afshin Montakhab	
Distributing quantum states with finite lifetime (<i>16 pages</i>)	052413
Stefano Marano and Moe Z. Win	
High-threshold fault-tolerant quantum computation with the Gottesman-Kitaev-Preskill qubit under noise in an optical setup (<i>11 pages</i>)	052414
Kosuke Fukui	
Device-independent randomness based on a tight upper bound of the maximal quantum value of chained inequality (<i>7 pages</i>)	052415
Youwang Xiao, XinHui Li, Jing Wang, Ming Li, and Shao-Ming Fei	
Certifying genuine multipartite nonlocality without inequality in quantum networks (<i>10 pages</i>)	052416
Qing Zhou, Xin-Yu Xu, Shu-Ming Hu, Shuai Zhao, Si-Xia Yu, Li Li, Nai-Le Liu, and Kai Chen	
Improving trapped-ion-qubit memories via code-mediated error-channel balancing (<i>15 pages</i>)	052417
Yannick Seis, Benjamin J. Brown, Anders S. Sørensen, and Joseph F. Goodwin	
Hierarchical activation of quantum nonlocality: Stronger than local indistinguishability (<i>6 pages</i>)	052418
Tathagata Gupta, Subhendu B. Ghosh, Ardra A V, Anandamay Das Bhowmik, Sutapa Saha, Tamal Guha, Ramij Rahaman, and Amit Mukherjee	
Speed limits on correlations in bipartite quantum systems (<i>17 pages</i>)	052419
Vivek Pandey, Divyansh Shrimali, Brij Mohan, Siddhartha Das, and Arun Kumar Pati	
Detecting quantum critical points at finite temperature via quantum teleportation (<i>10 pages</i>)	052420
G. A. P. Ribeiro and Gustavo Rigolin	
Rate reduction of blind quantum data compression with local approximations based on the unstable structure of quantum states (<i>18 pages</i>)	052421
Kohdai Kuroiwa and Debbie Leung	
Depth analysis of variational quantum algorithms for the heat equation (<i>14 pages</i>)	052422
N. M. Guseynov, A. A. Zhukov, W. V. Pogosov, and A. V. Lebedev	
Concurrent quantum eigensolver for multiple low-energy eigenstates (<i>8 pages</i>)	052423
G. Xu, Y. B. Guo, X. Li, K. Wang, Z. Fan, Z. S. Zhou, H. J. Liao, and T. Xiang	
Coherence filtration under strictly incoherent operations (<i>6 pages</i>)	052424
C. L. Liu and C. P. Sun	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW A

THIRD SERIES, VOLUME 107, NUMBER 5

MAY 2023

Wigner dynamics for quantum gases under inhomogeneous gain and loss processes with dephasing (<i>12 pages</i>) . . .	052213
Michele Coppola, Gabriel T. Landi, and Dragi Karevski	
Isolating noise and amplifying the signal using weak quantum measurement and postselection (<i>9 pages</i>)	052214
Ahana Ghoshal, Soham Sau, Debmalya Das, and Ujjwal Sen	
Mixed discrete-variable Gaussian states (<i>12 pages</i>)	052215
Nicolae Cotfas	
Multipartite nonlocality and symmetry breaking in one-dimensional quantum chains (<i>13 pages</i>)	052216
Zhao-Yu Sun, Liang-Fu Liu, Hui-Xin Wen, Shu Qu, Fan-Qin Xu, and Bin Guo	
Work flux and efficiency at maximum power of a triply squeezed engine (<i>10 pages</i>)	052217
Manash Jyoti Sarmah and Himangshu Prabal Goswami	
Nonadiabatic dynamical characterization in arbitrary quenching processes of two-dimensional Chern insulators and three-dimensional chiral topological insulators (<i>12 pages</i>)	052218
Panpan Fang, Xinwei Shi, Yi-Xiang Wang, and Fuxiang Li	
Majorana's stellar representation of single-particle reduced density matrix for completely symmetric states (<i>13 pages</i>)	052219
Li-Yao Zhan, Xi Lu, Jie Chen, Wei-Yao Li, Xiao-Xing Jing, Wei Guo, Hao-Di Liu, Li-Bin Fu, and Xiao-Guang Wang	
Non-Hermiticity of tunneling time in a spacetime-symmetric extension of nonrelativistic quantum mechanics (<i>12 pages</i>)	052220
Arlans J. S. de Lara and Marcus W. Beims	
Quantum information science	
Nonstoquastic catalyst for bifurcation-based quantum annealing of the ferromagnetic p -spin model (<i>11 pages</i>) . . .	052401
Yuki Susa, Takashi Imoto, and Yuichiro Matsuzaki	
Numerical framework for semi-device-independent quantum random-number generators (<i>9 pages</i>)	052402
Hongyi Zhou	
Complementary relations of entanglement, coherence, steering, and Bell nonlocality inequality violation in three-qubit states (<i>10 pages</i>)	052403
Dong-Dong Dong, Xue-Ke Song, Xiao-Gang Fan, Liu Ye, and Dong Wang	
Monogamy of entanglement for tripartite systems (<i>5 pages</i>)	052404
Xue-Na Zhu, Gui Bao, Zhi-Xiang Jin, and Shao-Ming Fei	
General framework for genuine multipartite entanglement detection (<i>15 pages</i>)	052405
Xin-Yu Xu, Qing Zhou, Shuai Zhao, Shu-Ming Hu, Li Li, Nai-Le Liu, and Kai Chen	
Quantum coherence enhancement by the chirality-induced spin selectivity effect in the radical-pair mechanism (<i>9 pages</i>)	052406
Yash Tiwari and Vishvendra Singh Poonia	
Thermal entanglement and quantum coherence of a single electron in a double quantum dot with Rashba interaction (<i>9 pages</i>)	052408
Merynilda Ferreira, Onofre Rojas, and Moises Rojas	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW A

THIRD SERIES, VOLUME 107, NUMBER 5

MAY 2023

Quantum optics

- Dynamic population of multiexcitation subradiant states in incoherently excited atomic arrays (*6 pages*) L051701
 Oriol Rubies-Bigorda, Stefan Ostermann, and Susanne F. Yelin
- Detecting the relative phase between different frequency components of a photon using a three-level Λ atom coupled to a waveguide (*7 pages*) L051702
 Janet Zhong, Rituraj, Fatih Dinc, and Shanhui Fan

ARTICLES

Fundamental concepts

- Particle motion associated with wave-function density gradients (*6 pages*) 052201
 Jan Klaers, Violetta Sharoglazova, and Chris Toebes
- Quantum irreversibility of quasistatic protocols for finite-size quantized systems (*14 pages*) 052202
 Yehoshua Winsten and Doron Cohen
- Random-time quantum measurements (*10 pages*) 052203
 Markus Sifft and Daniel Hägele
- Sunlight-pumped two-dimensional thermalized photon gas (*6 pages*) 052204
 Erik Busley, Leon Espert Miranda, Christian Kurtscheid, Frederik Wolf, Frank Vewinger, Julian Schmitt, and Martin Weitz
- Quantum circuit for measuring an operator's generalized expectation values and its applications to non-Hermitian winding numbers (*8 pages*) 052205
 Ze-Hao Huang (黄泽豪), Peng He (何鹏), Li-Jun Lang (郎利君), and Shi-Liang Zhu (朱诗亮)
- First-detection-time statistics in many-body quantum transport (*12 pages*) 052206
 Christoph Dittel, Niklas Neubrand, Felix Thiel, and Andreas Buchleitner
- Zeeman-Stark problem in a two-dimensional disk (*6 pages*) 052207
 Thomas Garm Pedersen
- Spontaneous symmetry breaking in nonsteady modes of open quantum many-body systems (*10 pages*) 052208
 Taiki Haga
- Dynamical characterization of topological phases beyond the minimal models (*14 pages*) 052209
 Xi Wu, Panpan Fang, and Fuxiang Li
- Electron-positron-pair creation in the superposition of two oscillating electric-field pulses with largely different frequency, duration, and relative positioning (*10 pages*) 052210
 N. Folkerts, J. Putzer, S. Villalba-Chávez, and C. Müller
- Fluctuation theorems for genuine quantum mechanical regimes (*11 pages*) 052211
 T. A. B. Pinto Silva and R. M. Angelo
- Superluminal tunneling times without superluminal signaling: Fading of the MacColl-Hartman effect at early times (*9 pages*) 052212
 Randall S. Dumont and Tom Rivlin

(Continued)

The Table of Contents is a total listing of Parts A and B.
Part A consists of pages L050401–052815, and Part B pages 053101–059902(E).

PART A

LETTERS

Quantum information science

Reflected entropy: Not a correlation measure (*4 pages*) L050401
Patrick Hayden, Marius Lemm, and Jonathan Sorce

Distribution of genuine high-dimensional entanglement over 10.2 km of noisy metropolitan atmosphere (*5 pages*) L050402
Lukas Bulla, Kristian Hjorth, Oskar Kohout, Jan Lang, Sebastian Ecker, Sebastian P. Neumann,
Julius Bittermann, Robert Kindler, Marcus Huber, Martin Bohmann, Rupert Ursin, and Matej Pivoluska

Quantum technologies

 High-fidelity transport of trapped-ion qubits in a multilayer array (*6 pages*) L050601
Deviprasath Palani, Florian Hasse, Philip Kiefer, Frederick Boeckling, Jan-Philipp Schroeder,
Ulrich Warring, and Tobias Schaetz

Light-induced processes in atomic-scale systems

Measurements of velocity-selective resonances from adiabatic rapid passage (*4 pages*) L051101
Yifan Fang, Edoardo Buonocore, Michael Wahl, and Harold Metcalf

Optical telecommunications-band clock based on neutral titanium atoms (*6 pages*) L051102
Scott Eustice, Dmytro Filin, Jackson Schrott, Sergey Porsev, Charles Cheung, Diego Novoa,
Dan M. Stamper-Kurn, and Marianna S. Safronova

Ultracold systems and matter waves

Dissipative dynamics of a fermionic superfluid with two-body losses (*6 pages*) L051301
Giacomo Mazza and Marco Schirò

Tailoring dynamical fermionization: Delta-kick cooling of a Tonks-Girardeau gas (*6 pages*) L051302
Léonce Dupays, Jing Yang, and Adolfo del Campo

Atomtronic multiterminal Aharonov-Bohm interferometer (*7 pages*) L051303
Jonathan Wei Zhong Lau, Koon Siang Gan, Rainer Dumke, Luigi Amico,
Leong-Chuan Kwek, and Tobias Haug



(Continued)



2469-9926(202305)107:5:B;1-T