PHYSICAL REVIEW A **THIRD SERIES, VOLUME 91, NUMBER 5** **MAY 2015**

Publisher's Note: Unconventional collective normal-mode coupling in quantum-dot-based bimodal microlasers [Phys. Rev. A **91**, 043840 (2015)] *(1 page)* . . . . . 059904(E)
M. Khanbekyan, H. A. M. Leymann, C. Hopfmann, A. Foerster, C. Schneider, S. Höfling, M. Kamp, J. Wiersig, and S. Reitzenstein

Erratum: Impact of dispersion and non-Kerr nonlinearity on the modulational instability of the higher-order nonlinear Schrödinger equation [Phys. Rev. A **85**, 033820 (2012)] *(1 page)* . . . . . 059905(E)
Amitava Choudhuri and K. Porsezian

PHYSICAL REVIEW A **THIRD SERIES, VOLUME 91, NUMBER 5** **MAY 2015**

Precisely resolving two-photon energy-time entanglement by dual-channel Fabry-Pérot interferometry *(9 pages)* 053851
Yuan Sun

Resolution of hyperfine transitions in metastable ^{83}Kr using electromagnetically induced transparency *(7 pages)* 053852
Y. B. Kale, S. R. Mishra, V. B. Tiwari, S. Singh, and H. S. Rawat

Super-resolving interference without intensity-correlation measurement *(6 pages)* 053853
De-Zhong Cao, Bao-Long Xu, Su-Heng Zhang, and Kaige Wang

Optical nonreciprocity and optomechanical circulator in three-mode optomechanical systems *(8 pages)* 053854
Xun-Wei Xu and Yong Li

COMMENTS

Comment on "Hyperfine-induced modifications to the angular distribution of the $K\alpha_1$ x-ray emission" *(4 pages)* 056501
M. K. Inal and M. Benmouna

Reply to "Comment on 'Hyperfine-induced modifications to the angular distribution of the $K\alpha_1$ x-ray emission' " *(2 pages)* 056502
Z. W. Wu, A. Surzhykov, and S. Fritzsche

Comment on "Coherent interference in the resonant dissociative electron attachment to carbon monoxide" *(2 pages)* 056701
Pamir Nag and Dhananjay Nandi

Reply to "Comment on 'Coherent interference in the resonant dissociative electron attachment to carbon monoxide' " *(2 pages)* 056702
Shan Xi Tian and Yi Luo

Comment on "Optically pumped spin-exchange polarized-electron source" *(2 pages)* 056703
J. F. Williams, S. Samarin, and L. Pravica

Reply to "Comment on 'Optically pumped spin-exchange polarized-electron source' " *(1 page)* 056704
M. Pirbhai, J. Knepper, E. T. Litaker, D. Tupa, and T. J. Gay

ERRATA

Erratum: Fock parafermions and self-dual representations of the braid group [Phys. Rev. A **89**, 012328 (2014)] *(1 page)* . . . . . 059901(E)
Emilio Cobanera and Gerardo Ortiz

Erratum: Time-dependent polarization states of high-power, ultrashort laser pulses during atmospheric propagation [Phys. Rev. A **89**, 013804 (2014)] *(1 page)* . . . . . 059902(E)
J. P. Palastro

Publisher's Note: Scattering resonances and bound states for strongly interacting Rydberg polaritons [Phys. Rev. A **90**, 053804 (2014)] *(1 page)* . . . . . 059903(E)
P. Bienias, S. Choi, O. Firstenberg, M. F. Maghrebi, M. Gullans, M. D. Lukin, A. V. Gorshkov, and H. P. Büchler

(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 91, NUMBER 5** **MAY 2015**

Stochastic pumping of a polariton fluid *(5 pages)* 053835
M. Aßmann and M. Bayer

Fluorescence in nonlocal dissipative periodic structures *(13 pages)* 053836
Francesco Intravaia and Kurt Busch

Power- and polarization-dependent supercontinuum generation in α-BaB_2O_4 crystals by intense, near-infrared, femtosecond laser pulses *(6 pages)* 053837
Parinda Vasa, Krithika Dota, Mamraj Singh, Dushyant Kushavah, Bhanu P. Singh, and Deepak Mathur

Chiroptical signal enhancement in quasi-null-polarization-detection geometry: Intrinsic limitations *(10 pages)* . . . 053839
Hanju Rhee, Intae Eom, Sung-Hyun Ahn, Ki-Hee Song, and Minhaeng Cho

Shifted nondiffractive Bessel beams *(9 pages)* 053840
Alexey A. Kovalev, Victor V. Kotlyar, and Alexey A. Porfirev

Nonlinear scattering in photonic crystals having dislocations with fractional topological character and multiple dislocations *(9 pages)* 053841
Liran Naor, Shani Sharabi, Irit Juwiler, and Ady Arie

Autler-Townes splitting via frequency up-conversion at ultralow-power levels in cold ^{87}Rb atoms using an optical nanofiber *(5 pages)* 053842
Ravi Kumar, Vandna Gokhroo, Kieran Deasy, and Síle Nic Chormaic

Noise and dynamics of stimulated-Brillouin-scattering microresonator lasers *(17 pages)* 053843
William Loh, Scott B. Papp, and Scott A. Diddams

Nonlinear fluctuations and dissipation in matter revealed by quantum light *(5 pages)* 053844
Shaul Mukamel and Konstantin E. Dorfman

Waveguide QED: Power spectra and correlations of two photons scattered off multiple distant qubits and a mirror *(21 pages)* 053845
Yao-Lung L. Fang (方耀龍) and Harold U. Baranger

Redistribution of light frequency by multiple scattering in a resonant atomic vapor *(8 pages)* 053846
João Carlos de A. Carvalho, Marcos Oriá, Martine Chevrollier, Hugo L. D. de Souza Cavalcante, and T. Passerat de Silans

Electromagnetically induced transparency for guided light in an atomic array outside an optical nanofiber *(21 pages)* 053847
Fam Le Kien and A. Rauschenbeutel

Experimental characterization of the Gaussian state of squeezed light obtained via single passage through an atomic vapor *(7 pages)* 053848
P. Valente, A. Auyuanet, S. Barreiro, H. Failache, and A. Lezama

Enhanced optomechanical levitation of minimally supported dielectrics *(10 pages)* 053849
Tina Müller, Christoph Reinhardt, and Jack C. Sankey

Self-consistent projection operator theory in nonlinear quantum optical systems: A case study on degenerate optical parametric oscillators *(13 pages)* 053850
Peter Degenfeld-Schonburg, Carlos Navarrete–Benlloch, and Michael J. Hartmann

(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 91, NUMBER 5** **MAY 2015**

Weak-disorder-induced reduction of the lasing threshold in periodic systems *(6 pages)* 053818
K. Shadak Alee, Randhir Kumar, and Sushil Mujumdar

Excitation-dependent diffuse super-reflection from a random laser *(6 pages)* 053819
Ravitej Uppu and Sushil Mujumdar

Generating nonclassical photon states via longitudinal couplings between superconducting qubits and microwave fields *(15 pages)* 053820
Yan-Jun Zhao, Yu-Long Liu, Yu-xi Liu, and Franco Nori

Discrete solitons in self-defocusing systems with $\mathcal{PT}$-symmetric defects *(9 pages)* 053821
Zhiqiang Chen, Jiasheng Huang, Jinglei Chai, Xiangyu Zhang, Yongyao Li, and Boris A. Malomed

Reflection of resonant light from a plane surface of an ensemble of motionless point scatters: Quantum microscopic approach *(6 pages)* 053822
A. S. Kuraptsev and I. M. Sokolov

Phase-sensitive Kerr nonlinearity for closed-loop quantum systems *(13 pages)* 053823
H. R. Hamedi and G. Juzeliūnas

Chiral discrimination in optical binding *(8 pages)* 053824
Kayn A. Forbes and David L. Andrews

Transverse periodic $\mathcal{PT}$ symmetry for modal demultiplexing in optical waveguides *(11 pages)* 053825
Henri Benisty, Anatole Lupu, and Aloyse Degiron

Twisting tensor and spin squeezing *(5 pages)* 053826
Tomáš Opatrný

Gap solitons in $\mathcal{PT}$-symmetric lattices with a lower refractive-index core *(7 pages)* 053827
Liangwei Dong, Linlin Gu, and Dengchu Guo

Intensity- and phase-noise correlations in a dual-frequency vertical-external-cavity surface-emitting laser operating at telecom wavelength *(10 pages)* 053828
Syamsundar De, Ghaya Baili, Sophie Bouchoule, Mehdi Alouini, and Fabien Bretenaker

Multistable particle-field dynamics in cavity-generated optical lattices *(9 pages)* 053829
Dominik J. Winterauer, Wolfgang Niedenzu, and Helmut Ritsch

Super-resolved optical lithography with phase controlled source *(7 pages)* 053830
Peilong Hong and Guoquan Zhang

Reconfigurable optical-force-drive chirp and delay line in micro- or nanofiber Bragg grating *(5 pages)* 053831
Wei Luo, Fei Xu, and Yan-qing Lu

Quantum noise effects with Kerr-nonlinearity enhancement in coupled gain-loss waveguides *(14 pages)* 053832
Bing He, Shu-Bin Yan, Jing Wang, and Min Xiao

Graphene-nonlinearity unleashing at lasing threshold in graphene-assisted cavities *(6 pages)* 053833
Alessandro Ciattoni and Carlo Rizza

Bloch-Siegert shift of the Rabi model *(10 pages)* 053834
Yiying Yan, Zhiguo Lü, and Hang Zheng

(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 91, NUMBER 5 MAY 2015

Matter-wave scattering from strongly interacting bosons in an optical lattice *(12 pages)* 053633
Klaus Mayer, Alberto Rodriguez, and Andreas Buchleitner

Quantum optics, physics of lasers, nonlinear optics, classical optics

Coherently stimulated parametric down-conversion, phase effects, and quantum-optical interferometry *(10 pages)* 053801
Richard Birrittella, Anna Gura, and Christopher C. Gerry

Spontaneous four-wave mixing in lossy microring resonators *(9 pages)* 053802
Z. Vernon and J. E. Sipe

Vacuum-excited surface plasmon polaritons *(10 pages)* 053804
Wade Naylor

Modulation of single-photon-level wave packets with two-component electromagnetically induced transparency *(5 pages)* 053805
Sheng-Jun Yang, Xiao-Hui Bao, and Jian-Wei Pan

Dynamics of semiconductor lasers with two-dimensional distributed feedback *(10 pages)* 053806
N. S. Ginzburg, V. R. Baryshev, A. S. Sergeev, and A. M. Malkin

Inverse Doppler shift and control field as coherence generators for the stability in superluminal light *(6 pages)* . . . 053807
Fazal Ghafoor, Bakht Amin Bacha, and Salman Khan

Integrability versus exact solvability in the quantum Rabi and Dicke models *(5 pages)* 053808
Murray T. Batchelor and Huan-Qiang Zhou

Optomechanical signature of a frictionless flow of superfluid light *(10 pages)* 053809
Pierre-Élie Larré and Iacopo Carusotto

Temporal dynamics of stimulated emission with applications in nuclear quantum optics *(14 pages)* 053810
Andreas Reichegger and Jörg Evers

Selection rules for harmonic generation in solids *(5 pages)* 053811
Nimrod Moiseyev

Observation and explanation of polarization-controlled focusing of terahertz surface plasmon polaritons *(5 pages)* 053812
Sen Wang, Xinke Wang, Feng Zhao, Shiliang Qu, and Yan Zhang

Coherent control of light transport in a dense and disordered atomic ensemble *(7 pages)* 053813
A. S. Sheremet, D. F. Kornovan, L. V. Gerasimov, B. Gouraud, J. Laurat, and D. V. Kupriyanov

Brillouin precursors in Debye media *(12 pages)* 053814
Bruno Macke and Bernard Ségard

Photon transport in a dissipative chain of nonlinear cavities *(12 pages)* 053815
Alberto Biella, Leonardo Mazza, Iacopo Carusotto, Davide Rossini, and Rosario Fazio

Complex spherical $2+4$ spin glass: A model for nonlinear optics in random media *(24 pages)* 053816
F. Antenucci, A. Crisanti, and L. Leuzzi

Theory of angular-dispersive, imaging hard-x-ray spectrographs *(14 pages)* 053817
Yuri Shvyd'ko

(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 91, NUMBER 5** **MAY 2015**

Contrast decay in a trapped-atom interferometer *(8 pages)* 053616
A. Hilico, C. Solaro, M.-K. Zhou, M. Lopez, and F. Pereira dos Santos

Topological bands with a Chern number $C = 2$ by dipolar exchange interactions *(7 pages)* 053617
David Peter, Norman Y. Yao, Nicolai Lang, Sebastian D. Huber, Mikhail D. Lukin, and Hans Peter Büchler

Energy, contact, and density profiles of one-dimensional fermions in a harmonic trap via nonuniform-lattice Monte Carlo calculations *(8 pages)* 053618
C. E. Berger, E. R. Anderson, and J. E. Drut

Dipolar Bose gas in a weak isotropic speckle disorder *(6 pages)* 053619
Abdelâali Boudjemâa

Bogoliubov-wave turbulence in Bose-Einstein condensates *(12 pages)* 053620
Kazuya Fujimoto and Makoto Tsubota

Topological Bogoliubov excitations in inversion-symmetric systems of interacting bosons *(9 pages)* 053621
G. Engelhardt and T. Brandes

Repulsive atomic Fermi gas with Rashba spin-orbit coupling: A quantum Monte Carlo study *(6 pages)* 053622
Alberto Ambrosetti, Pier Luigi Silvestrelli, Francesco Pederiva, Lubos Mitas, and Flavio Toigo

Symmetric microwave potentials for interferometry with thermal atoms on a chip *(8 pages)* 053623
M. Ammar, M. Dupont-Nivet, L. Huet, J.-P. Pocholle, P. Rosenbusch, I. Bouchoule, C. I. Westbrook, J. Estève, J. Reichel, C. Guerlin, and S. Schwartz

Symmetry-protected skyrmions in three-dimensional spin-orbit-coupled Bose gases *(7 pages)* 053624
Guanjun Chen, Tiantian Li, and Yunbo Zhang

Impurity coupled to an artificial magnetic field in a Fermi gas in a ring trap *(11 pages)* 053625
F. Nur Ünal, B. Hetényi, and M. Ö. Oktel

Analysis beyond the Thomas-Fermi approximation of the density profiles of a miscible two-component Bose-Einstein condensate *(9 pages)* 053626
J. Polo, V. Ahufinger, P. Mason, S. Sridhar, T. P. Billam, and S. A. Gardiner

Polarization-induced phase separation and re-entrant transition of two-component fermions in a one-dimensional lattice *(6 pages)* 053627
Theja N. De Silva

Temporal decay of Néel order in the one-dimensional Fermi-Hubbard model *(9 pages)* 053628
A. Bauer, F. Dorfner, and F. Heidrich-Meisner

Interference effects in potential wells *(7 pages)* 053629
W. J. Mullin and F. Laloë

Quantum phases of Bose-Einstein condensates with synthetic spin–orbital-angular-momentum coupling *(8 pages)* 053630
Chunlei Qu, Kuei Sun, and Chuanwei Zhang

Wannier-Stark states in double-periodic lattices. I. One-dimensional lattices *(8 pages)* 053631
Dmitrii N. Maksimov, Evgeny N. Bulgakov, and Andrey R. Kolovsky

Wannier-Stark states in double-periodic lattices. II. Two-dimensional lattices *(9 pages)* 053632
Dmitrii N. Maksimov, Evgeny N. Bulgakov, and Andrey R. Kolovsky

(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 91, NUMBER 5 MAY 2015

PART B

Matter waves and collective properties of cold atoms and molecules

Sum rules for spin-1/2 quantum gases in states with well-defined spins: Spin-independent interactions and spin-dependent external fields *(12 pages)* 053601
Vladimir A. Yurovsky

Orbital-driven melting of a bosonic Mott insulator in a shaken optical lattice *(6 pages)* 053602
Christoph Sträter and André Eckardt

Nonlinear effects in time-dependent transonic flows: An analysis of analog black hole stability *(20 pages)* 053603
Florent Michel and Renaud Parentani

Magnetic levitation for effective loading of cold cesium atoms in a crossed dipole trap *(8 pages)* 053604
Yuqing Li, Guosheng Feng, Rundong Xu, Xiaofeng Wang, Jizhou Wu, Gang Chen, Xingcan Dai, Jie Ma, Liantuan Xiao, and Suotang Jia

Spontaneous spin textures in dipolar spinor condensates: A Dirac string gas approach *(7 pages)* 053605
Biao Lian

Attractive Hofstadter-Hubbard model with imbalanced chemical and vector potentials *(11 pages)* 053606
M. Iskin

Repulsive-to-attractive interaction quenches of a one-dimensional Bose gas in a harmonic trap *(9 pages)* 053607
Wladimir Tschischik and Masudul Haque

Metastability, excitations, fluctuations, and multiple-swallowtail structures of a superfluid in a Bose-Einstein condensate in the presence of a uniformly moving defect *(15 pages)* 053608
Masaya Kunimi and Yusuke Kato

Coarsening dynamics driven by vortex-antivortex annihilation in ferromagnetic Bose-Einstein condensates *(8 pages)* 053609
Kazue Kudo and Yuki Kawaguchi

Two atoms in a double well: Exact solution with a Bethe ansatz *(8 pages)* 053610
Yanxia Liu and Yunbo Zhang

Phase structure of mass- and spin-imbalanced unitary Fermi gases *(15 pages)* 053611
Dietrich Roscher, Jens Braun, and Joaquín E. Drut

Spin squeezing by tensor twisting and Lipkin-Meshkov-Glick dynamics in a toroidal Bose-Einstein condensate with spatially modulated nonlinearity *(8 pages)* 053612
Tomáš Opatrný, Michal Kolář, and Kunal K. Das

Scaling of fluctuations in a trapped binary condensate *(6 pages)* 053613
R. N. Bisset, R. M. Wilson, and C. Ticknor

Many-body processes in black and gray matter-wave solitons *(12 pages)* 053614
Sven Krönke and Peter Schmelcher

Critical velocity for vortex shedding in a Bose-Einstein condensate *(5 pages)* 053615
Woo Jin Kwon, Geol Moon, Sang Won Seo, and Y. Shin

(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 91, NUMBER 5** **MAY 2015**

Nonadiabatic laser-induced orientation and alignment of rotational-state-selected CH_3Br molecules *(6 pages)* 053408
Sizuo Luo, Ruihan Zhu, Lanhai He, Wenhui Hu, Xiaokai Li, Pan Ma, Chuncheng Wang, Fuchun Liu, Wim G. Roeterdink, Steven Stolte, and Dajun Ding

Bloch-Landau-Zener dynamics in single-particle Wannier-Zeeman systems *(12 pages)* 053409
Yongguan Ke (柯勇贯), Xizhou Qin (秦锡洲), Honghua Zhong (钟宏华), Jiahao Huang (黄嘉豪), Chunshan He (何春山), and Chaohong Lee (李朝红)

Dipole and nondipole photoionization of molecular hydrogen *(9 pages)* 053410
B. Zimmermann, V. McKoy, S. H. Southworth, E. P. Kanter, B. Krässig, and R. Wehlitz

Fast expansions and compressions of trapped-ion chains *(7 pages)* 053411
M. Palmero, S. Martínez-Garaot, J. Alonso, J. P. Home, and J. G. Muga

Green-function approach to the theory of tunneling ionization *(8 pages)* 053412
I. I. Fabrikant and L. B. Zhao

Linear and circular dichroism in photoelectron angular distributions caused by electron correlation *(7 pages)* 053413
Yoshi-Ichi Suzuki and Toshinori Suzuki

In-trap fluorescence detection of atoms in a microscopic dipole trap *(12 pages)* 053414
A. J. Hilliard, Y. H. Fung, P. Sompet, A. V. Carpentier, and M. F. Andersen

Attosecond time delay in the photoionization of Mn in the region of the $3p \rightarrow 3d$ giant resonance *(7 pages)* 053415
V. K. Dolmatov, A. S. Kheifets, P. C. Deshmukh, and S. T. Manson

Low-energy photoelectron dynamics in Kr $3d_{5/2}$ photoionization followed by Auger decay *(6 pages)* 053416
Qianxia Wang and S. D. Loch

Generalized eikonal approximation for strong-field ionization *(18 pages)* 053417
F. Cajiao Vélez, K. Krajewska, and J. Z. Kamiński

Alignment-to-orientation conversion in a magnetic field at nonlinear excitation of the D_2 line of rubidium: Experiment and theory *(10 pages)* 053418
M. Auzinsh, A. Berzins, R. Ferber, F. Gahbauer, L. Kalvans, A. Mozers, and A. Spiss

Amplitude-modulated indirect pumping of spin orientation in low-density cesium vapor *(8 pages)* 053419
R. Gartman and W. Chalupczak

Microwave-stimulated Raman adiabatic passage in a Bose-Einstein condensate on an atom chip *(8 pages)* 053420
M. Dupont-Nivet, M. Casiulis, T. Laudat, C. I. Westbrook, and S. Schwartz

Rabi oscillations of Morris-Shore–transformed N-state systems by elliptically polarized ultrafast laser pulses *(6 pages)* 053421
Hyosub Kim, Yungheung Song, Han-gyeol Lee, and Jaewook Ahn

Photoabsorption studies of some closed-shell ions in the La isonuclear sequence *(8 pages)* 053422
Sindhu Kalyadan, Hari R. Varma, P. C. Deshmukh, J. T. Costello, P. Hayden, and S. T. Manson

Model-free measurement of the excited-state fraction in a ^{85}Rb magneto-optical trap *(5 pages)* 053423
G. Veshapidze, J.-Y. Bang, C. W. Fehrenbach, H. Nguyen, and B. D. DePaola

Coulomb-explosion imaging using a pixel-imaging mass-spectrometry camera *(14 pages)* 053424
Craig S. Slater, Sophie Blake, Mark Brouard, Alexandra Lauer, Claire Vallance, C. Sean Bohun, Lauge Christensen, Jens H. Nielsen, Mikael P. Johansson, and Henrik Stapelfeldt

(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 91, NUMBER 5** **MAY 2015**

Dissociation dynamics in the dissociative electron attachment to carbon dioxide *(7 pages)* 052705
Pamir Nag and Dhananjay Nandi

Coherent chemistry with THz pulses: Ultrafast field-driven isomerization of LiNC *(9 pages)* 052706
L. A. Pellouchoud and E. J. Reed

Modified and controllable dispersion interaction in a one-dimensional waveguide geometry *(8 pages)* 052707
Harald R. Haakh and Stefan Scheel

Influence of a surface in the nonretarded interaction between two atoms *(9 pages)* 052708
Reinaldo de Melo e Souza, W. J. M. Kort-Kamp, F. S. S. Rosa, and C. Farina

Semiclassical analysis of angular differential cross sections for single-electron capture in 250-eV $H^+ + H$ collisions *(5 pages)* 052709
F. Frémont

Kinetic theory of positron-impact ionization in gases *(13 pages)* 052710
G. J. Boyle, W. J. Tattersall, D. G. Cocks, S. Dujko, and R. D. White

Pathways for nonsequential and sequential fragmentation of CO_2^{3+} investigated by electron collision *(5 pages)* 052711
Enliang Wang, Xu Shan, Zhenjie Shen, Maomao Gong, Yaguo Tang, Yi Pan, Kai-Chung Lau, and Xiangjun Chen

Multiple ionization of neon atoms in collisions with bare and dressed ions: A mean-field description considering target response *(11 pages)* 052712
Gerald Schenk and Tom Kirchner

Atomic and molecular processes in external fields, including interactions with strong fields and short pulses

Ionization modulation of H by two time-delayed strong IR pulses *(6 pages)* 053401
Shu-Na Song, Ji-Wei Geng, Li-Zhong Li, Hong-Bing Jiang, and Liang-You Peng

Dynamics of a two-state system through a real level crossing *(6 pages)* 053402
Benedetto D. Militello and Nikolay V. Vitanov

Real-time tracking of two-electron dynamics in the ionization continuum of Xe *(9 pages)* 053403
M. Baggash and H. Rottke

Pulse-shape effects in ionization of atomic hydrogen by short-pulse XUV intense laser radiation: A sensitivity study *(8 pages)* 053404
Klaus Bartschat, Joel Venzke, and Alexei N. Grum-Grzhimailo

Core-shell magneto-optical trap for alkaline-earth-metal-like atoms *(5 pages)* 053405
Jeongwon Lee, Jae Hoon Lee, Jiho Noh, and Jongchul Mun

Shortcut to adiabatic passage in a waveguide coupler with a complex-hyperbolic-secant scheme *(5 pages)* 053406
Koushik Paul and Amarendra K. Sarma

Attosecond structures from the molecular cavity in fullerene photoemission time delay *(5 pages)* 053407
Maia Magrakvelidze, Dylan M. Anstine, Gopal Dixit, Mohamed El-Amine Madjet, and Himadri S. Chakraborty

(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 91, NUMBER 5** **MAY 2015**

Optimal Trotterization in universal quantum simulators under faulty control *(11 pages)* 052327
George C. Knee and William J. Munro

Quantum computation with noisy operations *(7 pages)* 052328
Ying Li

Scalable quantum computation architecture using always-on Ising interactions via quantum feedforward *(6 pages)* 052329
Takahiko Satoh, Yuichiro Matsuzaki, Kosuke Kakuyanagi, William J. Munro, Koichi Semba, Hiroshi Yamaguchi, and Shiro Saito

Relation between random walks and quantum walks *(8 pages)* 052330
Stefan Boettcher, Stefan Falkner, and Renato Portugal

Atomic and molecular structure and dynamics

Evaluation of optical probe signals from nonequilibrium systems *(13 pages)* 052501
Bijay Kumar Agarwalla, Konstantin E. Dorfman, and Shaul Mukamel

Casimir-Polder force for a polarizable molecule near a dielectric substrate out of thermal equilibrium *(6 pages)* 052502
Wenting Zhou and Hongwei Yu

Strategies for reducing the light shift in atomic clocks *(5 pages)* 052503
Hidetoshi Katori, V. D. Ovsiannikov, S. I. Marmo, and V. G. Palchikov

Triple excitations in perturbed relativistic coupled-cluster theory and electric dipole polarizability of group-IIB elements *(14 pages)* 052504
S. Chattopadhyay, B. K. Mani, and D. Angom

Strong competition between velocity-changing and phase- or state-changing collisions in H_2 spectra perturbed by Ar *(6 pages)* 052505
P. Wcisło, F. Thibault, H. Cybulski, and R. Ciuryło

Casimir-Polder effect with thermally excited surfaces *(8 pages)* 052506
A. Laliotis and M. Ducloy

Dirac-Fock calculations of K-, L-, and M-shell fluorescence and Coster-Kronig yields for Ne, Ar, Kr, Xe, Rn, and Uuo *(7 pages)* 052507
J. M. Sampaio, T. I. Madeira, M. Guerra, F. Parente, J. P. Santos, P. Indelicato, and J. P. Marques

Atomic and molecular collisions and interactions

Electron-impact-induced dissociation of small argon clusters *(6 pages)* 052701
Thomas Pflüger, Xueguang Ren, and Alexander Dorn

Charge transfer and association of Li^+ colliding with Na from very low to intermediate energies *(11 pages)* 052702
T. C. Li, Y. Z. Qu, Y. Wu, L. Liu, J. G. Wang, H.-P. Liebermann, and R. J. Buenker

Electron-impact excitation of silver *(7 pages)* 052703
S. D. Tošić, V. Pejčev, D. Šević, R. P. McEachran, A. D. Stauffer, and B. P. Marinković

Coherent and stochastic contributions of compound resonances in atomic processes: Electron recombination, photoionization, and scattering *(10 pages)* 052704
V. V. Flambaum, M. G. Kozlov, and G. F. Gribakin

(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 91, NUMBER 5** **MAY 2015**

Quantum code for quantum error characterization *(10 pages)* 052309
S. Omkar, R. Srikanth, and Subhashish Banerjee

Optimized probing states for qubit phase estimation with general quantum noise *(13 pages)* 052310
François Chapeau-Blondeau

Evolution equation for geometric quantum correlation measures *(7 pages)* 052311
Ming-Liang Hu and Heng Fan

Superoscillations underlying remote state preparation for relativistic fields *(8 pages)* 052312
Ran Ber, Oded Kenneth, and Benni Reznik

Multiplexing scheme for simplified entanglement-based large-alphabet quantum key distribution *(7 pages)* 052313
Adetunmise C. Dada

Local discrimination of four or more maximally entangled states *(5 pages)* 052314
Guojing Tian, Sixia Yu, Fei Gao, Qiaoyan Wen, and C. H. Oh

Optimal control of fast and high-fidelity quantum gates with electron and nuclear spins of a nitrogen-vacancy center in diamond *(11 pages)* 052315
Yi Chou, Shang-Yu Huang, and Hsi-Sheng Goan

Measurement-assisted Landau-Zener transitions *(15 pages)* 052316
Alexander Pechen and Anton Trushechkin

Efficient synthesis of probabilistic quantum circuits with fallback *(15 pages)* 052317
Alex Bocharov, Martin Roetteler, and Krysta M. Svore

Quantum state transfer along a ring with time-reversal asymmetry *(7 pages)* 052318
Yang Liu and D. L. Zhou

One-dimensional coinless quantum walks *(10 pages)* 052319
Renato Portugal, Stefan Boettcher, and Stefan Falkner

Atom-mirror entanglement via cavity dissipation *(9 pages)* 052320
Lingchao Li, Xiangming Hu, Shi Rao, and Jun Xu

Entanglement control in quantum networks by quantum-coherent time-delayed feedback *(6 pages)* 052321
Sven M. Hein, Franz Schulze, Alexander Carmele, and Andreas Knorr

Quantum search algorithm tailored to clause-satisfaction problems *(3 pages)* 052322
Avatar Tulsi

℘ Perfect wave-packet splitting and reconstruction in a one-dimensional lattice *(8 pages)* 052323
Leonardo Banchi, Enrico Compagno, and Sougato Bose

Geometry, robustness, and emerging unitarity in dissipation-projected dynamics *(8 pages)* 052324
Paolo Zanardi and Lorenzo Campos Venuti

℘ Entanglement over global distances via quantum repeaters with satellite links *(5 pages)* 052325
K. Boone, J.-P. Bourgoin, E. Meyer-Scott, K. Heshami, T. Jennewein, and C. Simon

Solution to the mean king's problem using quantum error-correcting codes *(6 pages)* 052326
Masakazu Yoshida, Gen Kimura, Takayuki Miyadera, Hideki Imai, and Jun Cheng

(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 91, NUMBER 5** **MAY 2015**

Maximally coherent mixed states: Complementarity between maximal coherence and mixedness *(8 pages)* 052115
Uttam Singh, Manabendra Nath Bera, Himadri Shekhar Dhar, and Arun Kumar Pati

Locality of the Aharonov-Bohm-Casher effect *(6 pages)* 052116
Kicheon Kang

Geometric phase for a driven quantum field subject to decoherence *(5 pages)* 052117
Shi-Biao Zheng

Demonstrating genuine multipartite entanglement and nonseparability without shared reference frames *(6 pages)* 052118
Celal Furkan Senel, Thomas Lawson, Marc Kaplan, Damian Markham, and Eleni Diamanti

Equivalent emergence of time dependence in classical and quantum mechanics *(13 pages)* 052119
John S. Briggs

Conditions for coherence transformations under incoherent operations *(5 pages)* 052120
Shuanping Du, Zhaofang Bai, and Yu Guo

Identification of open quantum systems from observable time traces *(12 pages)* 052121
Jun Zhang and Mohan Sarovar

Floquet control of quantum dissipation in spin chains *(8 pages)* 052122
Chong Chen, Jun-Hong An, Hong-Gang Luo, C. P. Sun, and C. H. Oh

Pair creation induced by transitions between electronic and positronic bound states *(13 pages)* 052123
Y. Liu, Q. Z. Lv, Y. T. Li, R. Grobe, and Q. Su

Quantum information

Information and entanglement measures applied to the analysis of complexity in doubly excited states of helium *(15 pages)* 052301
J. P. Restrepo Cuartas and J. L. Sanz-Vicario

Analysis of the trade-off between spatial and temporal resources for measurement-based quantum computation *(18 pages)* 052302
Jisho Miyazaki, Michal Hajdušek, and Mio Murao

Symmetrically private information retrieval based on blind quantum computing *(4 pages)* 052303
Zhiwei Sun, Jianping Yu, Ping Wang, and Lingling Xu

Generalized quantum state discrimination problems *(13 pages)* 052304
Kenji Nakahira, Kentaro Kato, and Tsuyoshi Sasaki Usuda

Practical attacks on decoy-state quantum-key-distribution systems with detector efficiency mismatch *(7 pages)* . . . 052305
Yangyang Fei, Ming Gao, Weilong Wang, Chaobo Li, and Zhi Ma

Robust and efficient *in situ* quantum control *(8 pages)* 052306
Christopher Ferrie and Osama Moussa

Faster quantum searching with almost any diffusion operator *(5 pages)* 052307
Avatar Tulsi

Randomness expansion with a one-sided trusted device *(5 pages)* 052308
Hong Wang, Kai Chen, Ming Gao, Zhi Ma, Weilong Wang, Chaobo Li, and Chuangui Ma

(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 91, NUMBER 5** **MAY 2015**

Excess optical quantum noise in atomic sensors *(4 pages)* . . . . . 051804(R)
Irina Novikova, Eugeniy E. Mikhailov, and Yanhong Xiao

Attonewton force detection using microspheres in a dual-beam optical trap in high vacuum *(5 pages)* . . . . . 051805(R)
Gambhir Ranjit, David P. Atherton, Jordan H. Stutz, Mark Cunningham, and Andrew A. Geraci

ARTICLES

Fundamental concepts

Transport of quantum excitations via local and nonlocal fluctuations *(5 pages)* 052101
M. Zhang, Tony E. Lee, and H. R. Sadeghpour

Enhancement of coherence in qubits due to interaction with the environment *(9 pages)* 052102
V. V. Ignatyuk and V. G. Morozov

Dissipative Landau-Zener quantum dynamics with transversal and longitudinal noise *(7 pages)* 052103
S. Javanbakht, P. Nalbach, and M. Thorwart

Interference effects in tunneling of Schrödinger cat wave-packet states *(5 pages)* 052104
D. Sokolovski

Classical-driving-enhanced parameter-estimation precision of a non-Markovian dissipative two-state system *(7 pages)* 052105
Yan-Ling Li, Xing Xiao, and Yao Yao

Statistical properties of states in QED with unstable vacuum *(13 pages)* 052106
S. P. Gavrilov, D. M. Gitman, and A. A. Shishmarev

Geometry of local quantum dissipation and fundamental limits to local cooling *(7 pages)* 052107
Marko Žnidarič

Pseudomodes and the corresponding transformation of the temperature-dependent bath correlation function *(10 pages)* 052108
David W. Schönleber, Alexander Croy, and Alexander Eisfeld

Direct measurement of general quantum states using strong measurement *(5 pages)* 052109
Ping Zou, Zhi-Ming Zhang, and Wei Song

Bell inequalities from group actions: Three parties and non-Abelian groups *(9 pages)* 052110
V. Uğur Güney and Mark Hillery

Sum-of-squares decompositions for a family of Clauser-Horne-Shimony-Holt-like inequalities and their application to self-testing *(13 pages)* 052111
Cédric Bamps and Stefano Pironio

Reversal of relaxation due to a dephasing environment *(5 pages)* 052112
Marcin Mierzejewski, Janez Bonča, and Jerzy Dajka

$\mathcal{PT}$-symmetric Hamiltonians and their application in quantum information *(12 pages)* 052113
Sarah Croke

Proposal for a motional-state Bell inequality test with ultracold atoms *(10 pages)* 052114
R. J. Lewis-Swan and K. V. Kheruntsyan

(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™

For editorial and subscription correspondence,
please see inside front cover
(ISSN: 1050-2947)

PERIODICALS
Postmaster send address changes to:

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

THIRD SERIES, VOLUME 91, NUMBER 5 *CONTENTS* **MAY 2015**
PARTS A AND B

The Table of Contents is a total listing of Parts A and B.
Part A consists of pages 050301(R)–053424, and Part B pages 053601–059905(E).

PART A

RAPID COMMUNICATIONS

Quantum information

Quantum nature of Gaussian discord: Experimental evidence and role of system-environment correlations *(6 pages)* . . . . . 050301(R)
Vanessa Chille, Niall Quinn, Christian Peuntinger, Callum Croal, Ladislav Mišta, Jr., Christoph Marquardt, Gerd Leuchs, and Natalia Korolkova

Atomic and molecular processes in external fields, including interactions with strong fields and short pulses

Control of charge migration in molecules by ultrashort laser pulses *(5 pages)* . . . . . 051401(R)
Nikolay V. Golubev and Alexander I. Kuleff

Matter waves and collective properties of cold atoms and molecules

Limit-cycle phase in driven-dissipative spin systems *(5 pages)* . . . . . 051601(R)
Ching-Kit Chan, Tony E. Lee, and Sarang Gopalakrishnan

Generalized Gibbs ensembles for quantum field theories *(6 pages)* . . . . . 051602(R)
F. H. L. Essler, G. Mussardo, and M. Panfil

Quantum sound-cone fluctuations in cold Fermi gases: Phonon propagation *(4 pages)* . . . . . 051603(R)
Jen-Tsung Hsiang, Da-Shin Lee, Chi-Yong Lin, and Ray J. Rivers

Quantum optics, physics of lasers, nonlinear optics, classical optics

Attosecond pulses generated by the lighthouse effect in Ar gas *(5 pages)* . . . . . 051801(R)
Valer Tosa, Ji Su Lee, Hyung Taek Kim, and Chang Hee Nam

Image beam from a wire laser *(5 pages)* . . . . . 051802(R)
E. E. Orlova, J. N. Hovenier, P. J. de Visser, and J. R. Gao

Entanglement dynamics and Mollow nonuplets between two coupled quantum dots in a nanowire photonic-crystal system *(5 pages)* . . . . . 051803(R)
Gerasimos Angelatos and Stephen Hughes

Copyright 2015 by American Physical Society

(Continued)

1050-2947(201505)91:5:A;1-B

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).