PHYSICAL REVIEW A **THIRD SERIES, VOLUME 98, NUMBER 4** **OCTOBER 2018**

Maxwell-consistent, symmetry- and energy-preserving solutions for ultrashort-laser-pulse propagation beyond the paraxial approximation *(17 pages)* 043849
P. González de Alaiza Martínez, G. Duchateau, B. Chimier, R. Nuter, I. Thiele, S. Skupin, and V. T. Tikhonchuk

Non-Markovianity of photon dynamics in a birefringent crystal *(10 pages)* 043850
Kai-Hung Wang, Shih-Hsuan Chen, Yu-Cheng Lin, and Che-Ming Li

Application of harmonic and anharmonic frequency crystals for manipulation with quantum states *(14 pages)* 043851
R. N. Shakhmuratov

Tunable single-photon diode by chiral quantum physics *(10 pages)* 043852
Wei-Bin Yan, Wei-Yuan Ni, Jing Zhang, Feng-Yang Zhang, and Heng Fan

Comparison of coherence-area measurement techniques for bright entangled twin beams *(5 pages)* 043853
Ashok Kumar, Hayden Nunley, and Alberto M. Marino

Beam dynamics in quadratically nonlinear waveguides with gain and losses *(7 pages)* 043854
E. N. Tsoy, F. Kh. Abdullaev, and V. E. Eshniyazov

Controlling optical memory effects in disordered media with coated metamaterials *(10 pages)* 043855
Tiago J. Arruda, Alexandre S. Martinez, and Felipe A. Pinheiro

Phase sensitivity of a Mach-Zehnder interferometer with single-intensity and difference-intensity detection *(10 pages)* 043856
Stefan Ataman, Anca Preda, and Radu Ionicioiu

Coherent propagation of laser beams in a small-sized system of weakly coupled optical light guides *(11 pages)* 043857
A. A. Balakin, S. A. Skobelev, E. A. Anashkina, A. V. Andrianov, and A. G. Litvak

Two-photon blockade in a cascaded cavity-quantum-electrodynamics system *(9 pages)* 043858
Qian Bin, Xin-You Lü, Shang-Wu Bin, and Ying Wu

Quantum soliton evaporation *(8 pages)* 043859
Leone Di Mauro Villari, Daniele Faccio, Fabio Biancalana, and Claudio Conti

Ultimate capabilities for compression of the waveform of a recoilless γ-ray photon into a pulse sequence in an optically deep vibrating resonant absorber *(15 pages)* 043860
I. R. Khairulin, V. A. Antonov, Y. V. Radeonychev, and Olga Kocharovskaya

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).

PHYSICAL REVIEW A **THIRD SERIES, VOLUME 98, NUMBER 4** **OCTOBER 2018**

Clauser-Horne-Shimony-Holt Bell inequality test in an optomechanical device *(11 pages)* 043831
Juuso Manninen, Muhammad Asjad, Risto Ojajärvi, Petri Kuusela, and Francesco Massel

$\mathcal{PT}$-symmetric Talbot effect in a temporal mesh lattice *(8 pages)* 043832
Shulin Wang, Bing Wang, and Peixiang Lu

Optical shock wave and photon-number conservation *(9 pages)* 043833
A. M. Zheltikov

Atomic-frequency-comb quantum memory via piecewise adiabatic passage *(11 pages)* 043834
J. L. Rubio, D. Viscor, J. Mompart, and V. Ahufinger

Inhibited spontaneous emission using gaplike resonance in disordered photonic structures *(10 pages)* 043835
Priya, Oliver Schöps, Ulrike Woggon, and Rajesh V. Nair

Progress towards macroscopic spin and mechanical superposition via Rydberg interaction *(8 pages)* 043836
Mohammadsadegh Khazali

Topology and the optical Dirac equation *(13 pages)* 043837
S. A. R. Horsley

Topological multiband photonic superlattices *(6 pages)* 043838
Bikashkali Midya and Liang Feng

Discriminating distinguishability *(16 pages)* 043839
Stasja Stanisic and Peter S. Turner

Parity-time symmetry along with nonlocal optical solitons and their active controls in a Rydberg atomic gas *(12 pages)* 043840
Chao Hang and Guoxiang Huang

Combining spatiotemporal and particle-number degrees of freedom *(13 pages)* 043841
Filippus S. Roux

Theory of cavity-enhanced nondestructive detection of photonic qubits in a solid-state atomic ensemble *(12 pages)* 043842
Sumit Goswami, Khabat Heshami, and Christoph Simon

Imaging along conformal curves *(4 pages)* 043843
Huanyang Chen

Mode coupling in $\mathcal{PT}$-symmetric photonic crystals with a flat band *(6 pages)* 043844
Zhenzhen Liu, Qiang Zhang, Feifei Qin, Yuntian Chen, and Jun Jun Xiao

Orbital angular momentum induced by nonabsorbing optical elements through space-variant polarization-state manipulations *(11 pages)* 043845
Dengke Zhang, Xue Feng, and Yidong Huang

Evolution of orbital angular momentum in three-dimensional structured light *(14 pages)* 043846
Ahmed H. Dorrah, Carmelo Rosales-Guzmán, Andrew Forbes, and Mo Mojahedi

Analysis of recent interpretations of the Abraham-Minkowski problem *(5 pages)* 043847
Iver Brevik

Improvement of the memory quality of optical pulse pairs in atomic systems via four-wave mixing *(8 pages)* 043848
Datang Xu, 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).

PHYSICAL REVIEW A **THIRD SERIES, VOLUME 98, NUMBER 4** **OCTOBER 2018**

Quantum-state reconstruction of a mechanical mirror in a hybrid system *(9 pages)* 043815
Saeed Asiri, Zeyang Liao, and M. Suhail Zubairy

Particle production in ultrastrong-coupling waveguide QED *(17 pages)* 043816
Nicolas Gheeraert, Xin H. H. Zhang, Théo Sépulcre, Soumya Bera, Nicolas Roch, Harold U. Baranger, and Serge Florens

Effects of a seed pulse on rogue-wave formation for midinfrared supercontinuum generation in chalcogenide photonic crystal fibers *(6 pages)* 043817
Saili Zhao, Hua Yang, and Yuzhe Xiao

Tunable slow- and fast-light devices based on molecular-aggregate nanofilms *(8 pages)* 043818
E. Díaz, A. Villas, E. Cabrera-Granado, and O. G. Calderón

Q-switched pulsing lasers subject to delayed feedback: A model comparison *(10 pages)* 043819
Soizic Terrien, Bernd Krauskopf, Neil G. R. Broderick, Lina Jaurigue, and Kathy Lüdge

Perturbative representation of ultrashort nonparaxial elegant Laguerre-Gaussian fields *(9 pages)* 043820
Andrew Vikartofsky, Anthony F. Starace, and Liang-Wen Pi

Dissipation-driven nonclassical-state generation in optomechanics with squeezed light *(5 pages)* 043821
Jae Hoon Lee, Junho Suh, and Hyojun Seok

All-optical grating in a $V + \Xi$ configuration using a Rydberg state *(7 pages)* 043822
Forough Bozorgzadeh and Mostafa Sahrai

Inverse energy flux of focused radially polarized optical beams *(7 pages)* 043823
S. N. Khonina, A. V. Ustinov, and S. A. Degtyarev

Quantized nonlinear Gaussian-beam dynamics: Tailoring multimode squeezed-light generation *(11 pages)* 043824
R. Nicholas Lanning, Zhihao Xiao, Mi Zhang, Irina Novikova, Eugeniy E. Mikhailov, and Jonathan P. Dowling

Free-space photonic quantum link and chiral quantum optics *(17 pages)* 043825
A. Grankin, P. O. Guimond, D. V. Vasilyev, B. Vermersch, and P. Zoller

Combined half-integer Bessel-like beams: A set of solutions of the wave equation *(11 pages)* 043826
Davud Hebri and Saifollah Rasouli

Cavity-free quantum optomechanical cooling by atom-modulated radiation *(12 pages)* 043827
Hoi-Kwan Lau, Alexander Eisfeld, and Jan-Michael Rost

Monitoring for time ordering and time asymmetry of spectral correlations in filtered resonance fluorescence generated from a Λ-type atomic system *(16 pages)* 043828
Ze-an Peng, Guo-qing Yang, Qing-lin Wu, and Gao-xiang Li

Quantum interference manipulation and enhancement with fluctuation-correlation-induced dephasing in an atomic system *(7 pages)* 043829
Jinze Wu, Jinhong Liu, Yanyan He, Yueying Zhang, Junxiang Zhang, and Shiyao Zhu

Superoscillatory $\mathcal{PT}$-symmetric potentials *(7 pages)* 043830
Yaniv Eliezer, Alon Bahabad, and Boris A. Malomed

(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).

PHYSICAL REVIEW A THIRD SERIES, VOLUME 98, NUMBER 4 OCTOBER 2018

Control of spin-exchange interaction between alkali-earth-metal atoms via confinement-induced resonances in a quasi-(1+0)-dimensional system *(12 pages)* 043627
Ren Zhang and Peng Zhang

Hybrid atom-molecule quantum walks in a one-dimensional optical lattice *(10 pages)* 043628
Ling Lin (林凌), Yongguan Ke (柯勇贯), Chunshan He (何春山), and Chaohong Lee (李朝红)

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

Ab initio nonrelativistic quantum electrodynamics: Bridging quantum chemistry and quantum optics from weak to strong coupling *(24 pages)* 043801
Christian Schäfer, Michael Ruggenthaler, and Angel Rubio

Optical bistability in a low-photon-density regime *(13 pages)* 043802
Tatsuhiko Shirai, Synge Todo, Hans de Raedt, and Seiji Miyashita

Probing higher-order transitions through scattering of microwave photons in the ultrastrong-coupling regime of circuit QED *(9 pages)* 043803
Guan-Ting Chen, Po-Chen Kuo, Huan-Yu Ku, Guang-Yin Chen, and Yueh-Nan Chen

Phonon quantum nondemolition measurements in nonlinearly coupled optomechanical cavities *(11 pages)* 043804
B. D. Hauer, A. Metelmann, and J. P. Davis

Critical phenomena in an extended Dicke model *(7 pages)* 043805
J. P. J. Rodriguez, S. A. Chilingaryan, and B. M. Rodríguez-Lara

Riesz-projection-based theory of light-matter interaction in dispersive nanoresonators *(5 pages)* 043806
Lin Zschiedrich, Felix Binkowski, Niko Nikolay, Oliver Benson, Günter Kewes, and Sven Burger

Localized optical micromotors based on twin laser cavity solitons *(6 pages)* 043807
M. Eslami, N. H. Khiavi, R. Kheradmand, and F. Prati

Photons in the presence of parabolic mirrors *(16 pages)* 043808
R. Gutiérrez-Jáuregui and R. Jáuregui

Shot-noise-limited interferometry for measuring a classical force *(6 pages)* 043809
Sankar Davuluri and Yong Li

Hidden polarization of unpolarized light *(6 pages)* 043810
G. G. Kozlov, I. I. Ryzhov, A. Tzimis, Z. Hatzopoulos, P. G. Savvidis, A. V. Kavokin, M. Bayer, and V. S. Zapasskii

Optomechanical quantum Cavendish experiment *(9 pages)* 043811
Abdulrahim Al Balushi, Wan Cong, and Robert B. Mann

Detection of emitter-resonator coupling strength in the quantum Rabi model via an auxiliary resonator *(5 pages)* 043812
Xinyun Cui, Zhihai Wang, and Yong Li

Gaussian functions are optimal for waveguided nonlinear-quantum-optical processes *(13 pages)* 043813
Nicolás Quesada and Agata M. Brańczyk

Multiphoton Raman transitions and Rabi oscillations in driven spin systems *(8 pages)* 043814
A. P. Saiko, S. A. Markevich, and R. Fedaruk

(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).

PHYSICAL REVIEW A **THIRD SERIES, VOLUME 98, NUMBER 4** **OCTOBER 2018**

Quantum quench and thermalization of one-dimensional Fermi gas via phase-space hydrodynamics *(15 pages)* 043610
Manas Kulkarni, Gautam Mandal, and Takeshi Morita

Momentum-resolved detection for high-precision Bragg atom interferometry *(9 pages)* 043611
Yuan Cheng, Ke Zhang, Le-Le Chen, Tao Zhang, Wen-Jie Xu, Xiao-Chun Duan, Min-Kang Zhou, and Zhong-Kun Hu

Bound states of dark solitons and vortices in trapped multidimensional Bose-Einstein condensates *(9 pages)* 043612
I. Morera Navarro, M. Guilleumas, R. Mayol, and A. Muñoz Mateo

Magnetic order in a Fermi gas induced by cavity-field fluctuations *(9 pages)* 043613
Jingtao Fan, Xiaofan Zhou, Wei Zheng, Wei Yi, Gang Chen, and Suotang Jia

SU(3) topological insulators in the honeycomb lattice *(13 pages)* 043614
U. Bornheimer, C. Miniatura, and B. Grémaud

Reservoir engineering of bosonic lattices using chiral symmetry and localized dissipation *(9 pages)* 043615
Yariv Yanay and Aashish A. Clerk

Adiabatic entangling gate of Bose-Einstein condensates based on the minimum function *(12 pages)* 043616
Sergi Ortiz, Yilun Song, June Wu, Valentin Ivannikov, and Tim Byrnes

Topological bosonic states on ribbons of a honeycomb lattice *(6 pages)* 043617
Yiping Wang, Xingchuan Zhu, Kefei Zou, Shengyuan A. Yang, and Huaiming Guo

Diffraction of particles in free fall *(10 pages)* 043618
D. Condado, J. L. Díaz-Cruz, A. Rosado, and E. Sadurní

High-temperature thermodynamics of spin-polarized Fermi gases in two-dimensional harmonic traps *(8 pages)* 043619
Cai-Xia Zhang, Shi-Guo Peng, and Kaijun Jiang

p-wave superfluidity in mixtures of ultracold Fermi and spinor Bose gases *(6 pages)* 043620
O. I. Matsyshyn, A. I. Yakimenko, E. V. Gorbar, S. I. Vilchinskii, and V. V. Cheianov

Efficient two-port electron beam splitter via a quantum interaction-free measurement *(8 pages)* 043621
Yujia Yang, Chung-Soo Kim, Richard G. Hobbs, Pieter Kruit, and Karl K. Berggren

Interferometer with a driven trapped ion *(11 pages)* 043622
S. Martínez-Garaot, A. Rodriguez-Prieto, and J. G. Muga

Landauer-Büttiker equation for bosonic carriers *(8 pages)* 043623
Andrey R. Kolovsky, Zakari Denis, and Sandro Wimberger

Nonlinear mixing of Bogoliubov modes in a bosonic Josephson junction *(7 pages)* 043624
Sofía Martínez-Garaot, Giulio Pettini, and Michele Modugno

Diffraction of an atom laser in the Raman-Nath regime *(5 pages)* 043625
Sumit Sarkar, Jay Mangaonkar, Chetan Vishwakarma, and Umakant D. Rapol

All-optical production of ^{6}Li molecular Bose-Einstein condensates in excited hyperfine levels *(7 pages)* 043626
Yun Long, Feng Xiong, Vinod Gaire, Cameron Caligan, and Colin V. Parker

(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).

PHYSICAL REVIEW A **THIRD SERIES, VOLUME 98, NUMBER 4** **OCTOBER 2018**

Singularity-free quantum tracking control of molecular rotor orientation *(6 pages)* 043429
Alicia Magann, Tak-San Ho, and Herschel Rabitz

Plasmonic breathing modes in C_{60} molecules: A quantum hydrodynamic approach *(13 pages)* 043430
Fatema Tanjia, Jérôme Hurst, Paul-Antoine Hervieux, and Giovanni Manfredi

Heating and cooling of electrons in an ultracold neutral plasma using Rydberg atoms *(15 pages)* 043431
E. V. Crockett, R. C. Newell, F. Robicheaux, and D. A. Tate

Characteristics of unconventional Rb magneto-optical traps *(8 pages)* 043432
K. N. Jarvis, B. E. Sauer, and M. R. Tarbutt

Auger-induced charge migration *(8 pages)* 043433
A. Picón, C. Bostedt, C. Hernández-García, and L. Plaja

Angular momentum distribution in Rydberg states excited by a strong laser pulse *(8 pages)* 043434
J. Venzke, R. Reiff, Z. Xue, A. Jaroń-Becker, and A. Becker

Efficient calculation of Rayleigh and Raman scattering *(9 pages)* 043435
K. McNamara, D. V. Fursa, and I. Bray

Fast adiabatic evolution by oscillating initial Hamiltonians *(14 pages)* 043436
Francesco Petiziol, Benjamin Dive, Florian Mintert, and Sandro Wimberger

Matter waves and collective properties of cold atoms and molecules

Nonuniversal beyond-mean-field properties of quasi-two-dimensional dipolar Bose gases *(7 pages)* 043601
Krzysztof Jachymski and Rafał Ołdziejewski

Transport on flexible Rydberg aggregates using circular states *(9 pages)* 043602
M. M. Aliyu, A. Ulugöl, G. Abumwis, and S. Wüster

Influence of the interaction between quasiparticles on parametric resonance in Bose-Einstein quasicondensates *(11 pages)* 043603
Maciej Pylak and Paweł Zin

Monitoring squeezed collective modes of a one-dimensional Bose gas after an interaction quench using density-ripple analysis *(12 pages)* 043604
Max Schemmer, Aisling Johnson, and Isabelle Bouchoule

Collisionless dynamics in two-dimensional bosonic gases *(4 pages)* 043605
A. Cappellaro, F. Toigo, and L. Salasnich

Multiexcitons in flexible Rydberg aggregates *(6 pages)* 043606
G. Abumwis and S. Wüster

Scaling behavior of Tan's contact for trapped Lieb-Liniger bosons: From two to many *(7 pages)* 043607
Matteo Rizzi, Christian Miniatura, Anna Minguzzi, and Patrizia Vignolo

Quantum dynamics of Bose-Fermi mixtures via the stochastic-wave-function approach *(6 pages)* 043608
Paweł Zin

Effective spin-spin interactions in bilayers of Rydberg atoms and polar molecules *(23 pages)* 043609
Elena Kuznetsova, Seth T. Rittenhouse, I. I. Beterov, Marlan O. Scully, Susanne F. Yelin, and H. R. Sadeghpour

(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).

PHYSICAL REVIEW A **THIRD SERIES, VOLUME 98, NUMBER 4** **OCTOBER 2018**

Control of molecular dissociation by spatially inhomogeneous near fields *(6 pages)* 043413
I. Yavuz, J. Schötz, M. F. Ciappina, P. Rosenberger, Z. Altun, M. Lewenstein, and M. F. Kling

Generation of high-fidelity quantum control methods for multilevel systems *(9 pages)* 043414
J. Randall, A. M. Lawrence, S. C. Webster, S. Weidt, N. V. Vitanov, and W. K. Hensinger

Torsional cooling of a nanodiamond via the interaction with the electron spin of the embedded nitrogen-vacancy center *(6 pages)* 043415
Li Ge and Nan Zhao

Preparation of circular Rydberg states in helium with $n \geqslant 70$ using a modified version of the crossed-fields method *(12 pages)* 043416
A. A. Morgan, V. Zhelyazkova, and S. D. Hogan

Theoretical investigation of resonant multiple Auger decay of the core-excited $2p_{3/2}{}^{-1}\,4s$ state in argon *(10 pages)* 043417
Yulong Ma, Zhenqi Liu, Fuyang Zhou, and Yizhi Qu

Strong-field polarizability-enhanced dissociative ionization *(6 pages)* 043418
Lun Yue, Philipp Wustelt, A. Max Sayler, Florian Oppermann, Manfred Lein, Gerhard G. Paulus, and Stefanie Gräfe

Cooper minimum in singly ionized and neutral argon *(9 pages)* 043419
O. Hassouneh, N. B. Tyndall, J. Wragg, H. W. van der Hart, and A. C. Brown

Thermal-average effects on photoassociation with a slowly-turned-on and rapidly-turned-off laser pulse *(10 pages)* 043420
Yong-Chang Han, Jin-Wei Hu, and Bin-Bin Wang

Time-optimal selective pulses of two uncoupled spin-1/2 particles *(12 pages)* 043421
L. Van Damme, Q. Ansel, S. J. Glaser, and D. Sugny

Separating intracycle interferences in photoelectron momentum distributions by a polarization-gated pulse *(7 pages)* 043422
YanLan Wang, ShaoGang Yu, XuanYang Lai, HuiPeng Kang, SongPo Xu, RenPing Sun, Wei Quan, and XiaoJun Liu

Continuous production of rovibronic-ground-state RbCs molecules via short-range photoassociation to the $b\,^3\Pi_1$–$c\,^3\Sigma_1^+$–$B\,^1\Pi_1$ states *(9 pages)* 043423
Toshihiko Shimasaki, Jin-Tae Kim, Yuqi Zhu, and David DeMille

Enhanced pair creation by an oscillating potential with multiple well-barrier structures in space *(6 pages)* 043424
C. Gong, Z. L. Li, and Y. J. Li

Angle dependence of strong-field single and double ionization of carbonyl sulfide *(12 pages)* 043425
Péter Sándor, Adonay Sissay, François Mauger, Paul M. Abanador, Timothy T. Gorman, Timothy D. Scarborough, Mette B. Gaarde, Kenneth Lopata, Kenneth J. Schafer, and Robert R. Jones

Nuclear-spin-polarization dynamics of H_2, D_2, and HD molecules in magnetic fields *(7 pages)* 043426
C. S. Kannis, G. E. Katsoprinakis, D. Sofikitis, and T. P. Rakitzis

Photoionization of Xe and Xe@C_{60} from the $4d$ shell in RABBITT fields *(6 pages)* 043427
Alexander W. Bray, Faiza Naseem, and Anatoli S. Kheifets

Counterion-controlled spectral tuning of the protonated Schiff-base retinal *(6 pages)* 043428
Yoni Toker, Jeppe Langeland, Elisabeth Gruber, Christina Kjær, Steen Brøndsted Nielsen, Lars H. Andersen, Veniamin A. Borin, and Igor Schapiro

(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).

PHYSICAL REVIEW A THIRD SERIES, VOLUME 98, NUMBER 4 OCTOBER 2018

Broad Feshbach resonances in ultracold alkali-metal systems *(11 pages)* 042708
Yue Cui, Min Deng, Li You, Bo Gao, and Meng Khoon Tey

Scattering of an alkali-metal atomic beam on anti-spin-relaxation coatings *(8 pages)* 042709
Naota Sekiguchi, Atsushi Hatakeyama, Kazane Okuma, and Hiroaki Usui

Multicenter three-distorted-wave approach to three-dimensional images for electron-impact-ionization dynamics of molecules: Overall agreement with experiment *(9 pages)* 042710
Maomao Gong, Xingyu Li, Song Bin Zhang, Shanshan Niu, Xueguang Ren, Enliang Wang, Alexander Dorn, and Xiangjun Chen

PART B

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

Electronic spin polarization with an optical centrifuge *(14 pages)* 043401
Johannes Floß, Christian Boulet, Jean-Michel Hartmann, Alexander A. Milner, and Valery Milner

Channel-resolved multiorbital double ionization of molecular Cl_2 in an intense femtosecond laser field *(6 pages)* 043402
Jian Zhang, Yan Yang, Zhipeng Li, Haitao Sun, Shian Zhang, and Zhenrong Sun

Quantum dynamics of Rb atoms desorbing off the surface of He nanodroplets *(9 pages)* 043403
N. V. Dozmorov, A. V. Baklanov, J. von Vangerow, F. Stienkemeier, J. A. M. Fordyce, and M. Mudrich

Experimental and theoretical investigation of the crossover from the ultracold to the quasiclassical regime of photodissociation *(11 pages)* 043404
I. Majewska, S. S. Kondov, C.-H. Lee, M. McDonald, B. H. McGuyer, R. Moszynski, and T. Zelevinsky

Multiphoton double ionization of helium at 394 nm: A fully differential experiment *(10 pages)* 043405
K. Henrichs, S. Eckart, A. Hartung, D. Trabert, K. Fehre, J. Rist, H. Sann, M. Pitzer, M. Richter, H. Kang, M. S. Schöffler, M. Kunitski, T. Jahnke, and R. Dörner

Selectivity of the Br $3d^{-1}$ Auger decays in HBr *(15 pages)* 043406
J. Palaudoux, T. Kaneyasu, L. Andric, S. Carniato, G. Gamblin, F. Penent, Y. Hikosaka, E. Shigemasa, K. Ito, S. Fritzsche, E. Kukk, S. Sheinerman, R. F. Fink, P. Lablanquie, and R. Püttner

Field ionization in short and extremely intense laser pulses *(12 pages)* 043407
I. Yu. Kostyukov and A. A. Golovanov

Shielding of an external oscillating electric field inside atoms *(4 pages)* 043408
V. V. Flambaum

Limitations of the single-active-electron approximation in quantum simulations of solid high-order harmonic generation *(9 pages)* 043409
Jinbin Li, Silin Fu, Huiqiao Wang, Xiao Zhang, Baowei Ding, Bitao Hu, and Hongchuan Du

Generation of ultrafast magnetic fields from molecular coherent electron currents *(7 pages)* 043410
Kai-Jun Yuan, Jing Guo, and André D. Bandrauk

Screening of an oscillating external electric field in atoms *(5 pages)* 043411
V. A. Dzuba, J. C. Berengut, J. S. M. Ginges, and V. V. Flambaum

Light-induced atomic desorption of lithium *(6 pages)* 043412
D. S. Barker, E. B. Norrgard, J. Scherschligt, J. A. Fedchak, and S. Eckel

(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).

PHYSICAL REVIEW A **THIRD SERIES, VOLUME 98, NUMBER 4** **OCTOBER 2018**

Spectroscopy of ^{87}Sr triplet Rydberg states *(12 pages)* 042505
R. Ding, J. D. Whalen, S. K. Kanungo, T. C. Killian, F. B. Dunning, S. Yoshida, and J. Burgdörfer

Time-dependent resonance interaction energy between two entangled atoms under nonequilibrium conditions *(10 pages)* 042506
Giuseppe Fiscelli, Roberta Palacino, Roberto Passante, Lucia Rizzuto, Salvatore Spagnolo, and Wenting Zhou

Second-order Stark effect and polarizability of a relativistic two-dimensional hydrogenlike atom in the ground state *(8 pages)* 042507
Radosław Szmytkowski

Saturated-configuration-interaction calculations for five-valent Ta and Db *(8 pages)* 042508
A. J. Geddes, D. A. Czapski, E. V. Kahl, and J. C. Berengut

Optical oscillator strengths of the vibronic excitations of molecular deuterium determined by the dipole (γ, γ) method *(6 pages)* 042509
Tao Xiong, Ya-Wei Liu, Ke Yang, Xin-Chao Huang, Shu-Xing Wang, Shuai Yan, Kuan-Li Yu, Nozomu Hiraoka, Ku-Ding Tsuei, and Lin-Fan Zhu

Mesoscopic physics in vapor-phase atomic systems: Collision-shift gradients and the 0-0 hyperfine transition *(14 pages)* 042510
Andrew Hudson and James Camparo

Enhancement factors of parity- and time-reversal-violating effects for monofluorides *(6 pages)* 042511
A. Sunaga, V. S. Prasannaa, M. Abe, M. Hada, and B. P. Das

Atomic structure calculations of superheavy noble element oganesson (Z=118) *(5 pages)* 042512
B. G. C. Lackenby, V. A. Dzuba, and V. V. Flambaum

Atomic and molecular collisions and interactions

Elastic scattering of twisted electrons by diatomic molecules *(8 pages)* 042701
A. V. Maiorova, S. Fritzsche, R. A. Müller, and A. Surzhykov

Atom-molecule collisions, spin relaxation, and sympathetic cooling in an ultracold spin-polarized Rb(^2S)-SrF($^2\Sigma^+$) mixture *(13 pages)* 042702
Masato Morita, Maciej B. Kosicki, Piotr S. Żuchowski, and Timur V. Tscherbul

Positronium collisions with rare-gas atoms: Free-electron gas plus orthogonalizing pseudopotential model *(12 pages)* 042703
R. S. Wilde and I. I. Fabrikant

Fast three-qubit Toffoli quantum gate based on three-body Förster resonances in Rydberg atoms *(7 pages)* 042704
I. I. Beterov, I. N. Ashkarin, E. A. Yakshina, D. B. Tretyakov, V. M. Entin, I. I. Ryabtsev, P. Cheinet, P. Pillet, and M. Saffman

High-resolution electron-momentum spectroscopy of the valence orbitals of the benzene molecule *(6 pages)* 042705
Yanru Huang, Guojun Cai, and Jing Yu

Formation of long-range Rydberg molecules in two-component ultracold gases *(12 pages)* 042706
Matthew T. Eiles

Impact of conformation on electron-scattering cross sections for formaldehyde dimers *(7 pages)* 042707
V. A. S. da Mata, R. A. Mendes, and G. L. C. de Souza

(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).

PHYSICAL REVIEW A THIRD SERIES, VOLUME 98, NUMBER 4 OCTOBER 2018

Quantum annealing of the p-spin model under inhomogeneous transverse field driving *(13 pages)* 042326
Yuki Susa, Yu Yamashiro, Masayuki Yamamoto, Itay Hen, Daniel A. Lidar, and Hidetoshi Nishimori

Entanglement of two noninteracting qubits via a mesoscopic system *(8 pages)* 042327
Maryam Sadat Mirkamali, David G. Cory, and Joseph Emerson

Tuning the coupling between superconducting resonators with collective qubits *(8 pages)* 042328
Qi-Ming Chen, Yu-xi Liu, Luyan Sun, and Re-Bing Wu

Nonstandard protocols for joint remote preparation of a general quantum state and hybrid entanglement of any dimension *(8 pages)* 042329
Nguyen Ba An, Le Thanh Dat, and Jaewan Kim

Cooling of many-body systems via selective interactions *(6 pages)* 042330
R. Grimaudo, L. Lamata, E. Solano, and A. Messina

Generalized coupling system between a superconducting qubit and two nanomechanical resonators *(6 pages)* 042331
Feng-Yang Zhang, Wei-Bin Yan, and Chui-Ping Yang

Simple security analysis of phase-matching measurement-device-independent quantum key distribution *(15 pages)* 042332
Jie Lin and Norbert Lütkenhaus

Locally indistinguishable generalized Bell states with one-way local operations and classical communication *(5 pages)* 042333
Ying-Hui Yang, Jiang-Tao Yuan, Cai-Hong Wang, Shi-Jiao Geng, and Hui-Juan Zuo

Quantum homomorphic encryption from quantum codes *(7 pages)* 042334
Yingkai Ouyang, Si-Hui Tan, and Joseph F. Fitzsimons

Fast creation of a three-atom singlet state with a dissipative mechanism and Rydberg blockade *(7 pages)* 042335
Xiang Chen, Gong-Wei Lin, Hong Xie, Xiao Shang, Ming-Yong Ye, and Xiu-Min Lin

Self-testing of Pauli observables for device-independent entanglement certification *(24 pages)* 042336
Joseph Bowles, Ivan Šupić, Daniel Cavalcanti, and Antonio Acín

Amplitude tuning of steady-state entanglement in strongly driven coupled qubits *(9 pages)* 042337
Ana Laura Gramajo, Daniel Domínguez, and María José Sánchez

Entanglement cost and quantum channel simulation *(24 pages)* 042338
Mark M. Wilde

Atomic and molecular structure and dynamics; high-precision measurements

Hyperfine structure of S states in muonic ions of lithium, beryllium, and boron *(14 pages)* 042501
A. E. Dorokhov, A. A. Krutov, A. P. Martynenko, F. A. Martynenko, and O. S. Sukhorukova

Evaluation of CP violation in HfF^+ *(5 pages)* 042502
A. N. Petrov, L. V. Skripnikov, A. V. Titov, and V. V. Flambaum

Exotic molecules consisting of an antiproton and a hydrogen atom *(14 pages)* 042503
Kazuhiro Sakimoto

Laser spectroscopy of the 1001-nm ground-state transition in dysprosium *(5 pages)* 042504
D. Studer, L. Maske, P. Windpassinger, and K. Wendt

(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).

PHYSICAL REVIEW A **THIRD SERIES, VOLUME 98, NUMBER 4** **OCTOBER 2018**

Efficient entanglement purification protocols for d-level systems *(17 pages)* 042309
J. Miguel-Ramiro and W. Dür

Engineering steady entanglement for trapped ions at finite temperature by dissipation *(8 pages)* 042310
Xiao-Qiang Shao

Sharing of nonlocal advantage of quantum coherence by sequential observers *(7 pages)* 042311
Shounak Datta and A. S. Majumdar

Digital quantum computation of fermion-boson interacting systems *(19 pages)* 042312
Alexandru Macridin, Panagiotis Spentzouris, James Amundson, and Roni Harnik

Quantumness of quantum channels *(7 pages)* 042313
Fereshte Shahbeigi and Seyed Javad Akhtarshenas

Non-Gaussianity and entropy-bounded uncertainty relations: Application to detection of non-Gaussian entangled states *(7 pages)* 042314
Kyunghyun Baek and Hyunchul Nha

Measurement-based adaptation protocol with quantum reinforcement learning *(7 pages)* 042315
F. Albarrán-Arriagada, J. C. Retamal, E. Solano, and L. Lamata

Uhlmann fidelities from tensor networks *(11 pages)* 042316
Markus Hauru and Guifre Vidal

Nonlocality of all quantum networks *(19 pages)* 042317
Ming-Xing Luo

Joint quantum-state and measurement tomography with incomplete measurements *(12 pages)* 042318
Adam C. Keith, Charles H. Baldwin, Scott Glancy, and E. Knill

Secret key rate of a continuous-variable quantum-key-distribution scheme when the detection process is inaccessible to eavesdroppers *(9 pages)* 042319
Ryo Namiki, Akira Kitagawa, and Takuya Hirano

Deconstruction and conditional erasure of quantum correlations *(18 pages)* 042320
Mario Berta, Fernando G. S. L. Brandão, Christian Majenz, and Mark M. Wilde

Randomness quantification of coherent detection *(7 pages)* 042321
Hongyi Zhou, Pei Zeng, Mohsen Razavi, and Xiongfeng Ma

Preservation of quantum nonbilocal correlations in noisy entanglement-swapping experiments using weak measurements *(12 pages)* 042322
Shashank Gupta, Shounak Datta, and A. S. Majumdar

Ancilla-assisted linear optical Bell measurements and their optimality *(10 pages)* 042323
Andrea Olivo and Frédéric Grosshans

Secure quantum communication in the presence of phase- and polarization-dependent loss *(9 pages)* 042324
Chenyang Li, Marcos Curty, Feihu Xu, Olinka Bedroya, and Hoi-Kwong Lo

Dissipative quantum entanglement dynamics of two and three qubits due to the dynamical Lamb effect *(16 pages)* 042325
Mirko Amico, Oleg L. Berman, and Roman Ya. Kezerashvili

(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).

PHYSICAL REVIEW A **THIRD SERIES, VOLUME 98, NUMBER 4** **OCTOBER 2018**

Driving a dissipative quantum oscillator *(12 pages)* 042128
P. C. López Vázquez

Impenetrable SU(N) fermions in one-dimensional lattices *(12 pages)* 042129
Yicheng Zhang, Lev Vidmar, and Marcos Rigol

Quantifying the randomness of copies of noisy Popescu-Rohrlich correlations *(12 pages)* 042130
Boris Bourdoncle, Stefano Pironio, and Antonio Acín

Kolmogorov complexity of sequences of random numbers generated in Bell's experiments *(6 pages)* 042131
Marcelo G. Kovalsky, Alejandro A. Hnilo, and Mónica B. Agüero

Quantum speed limit for a mixed initial state *(6 pages)* 042132
Shao-xiong Wu and Chang-shui Yu

Friction as a consistent quantum-mechanical concept *(7 pages)* 042133
Dmitry V. Zhdanov, Denys I. Bondar, and Tamar Seideman

Violation of a Bell inequality in two-dimensional state spaces for radial quantum number *(6 pages)* 042134
Dongkai Zhang, Xiaodong Qiu, Wuhong Zhang, and Lixiang Chen

Violation of the Lüders bound of macrorealist and noncontextual inequalities *(8 pages)* 042135
Asmita Kumari, Md. Qutubuddin, and A. K. Pan

Quantum information

Entanglement protection via periodic environment resetting in continuous-time quantum-dynamical processes *(10 pages)* 042301
Thomas Bullock, Francesco Cosco, Marwan Haddara, Sina Hamedani Raja, Oskari Kerppo, Leevi Leppäjärvi, Olli Siltanen, N. Walter Talarico, Antonella De Pasquale, Vittorio Giovannetti, and Sabrina Maniscalco

Pulse sequences for controlled two- and three-qubit gates in a hybrid quantum register *(9 pages)* 042302
Jingfu Zhang, Swathi S. Hegde, and Dieter Suter

Long-distance continuous-variable quantum key distribution using separable Gaussian states *(7 pages)* 042303
Jian Zhou, Duan Huang, and Ying Guo

Correcting finite squeezing errors in continuous-variable cluster states *(19 pages)* 042304
Daiqin Su, Christian Weedbrook, and Kamil Brádler

Improved quantum entropic uncertainty relations *(13 pages)* 042305
Zhihua Chen, Zhihao Ma, Yunlong Xiao, and Shao-Ming Fei

Revealing the quantitative relation between simultaneous correlations in complementary bases and quantum steering for two-qubit Bell diagonal states *(5 pages)* 042306
C. Jebarathinam, Aiman Khan, Som Kanjilal, and Dipankar Home

Hybrid two-qubit gate using a circuit QED system with a triple-leg stripline resonator *(7 pages)* 042307
Dongmin Kim and Kyungsun Moon

Quantum Hopfield neural network *(11 pages)* 042308
Patrick Rebentrost, Thomas R. Bromley, Christian Weedbrook, and Seth Lloyd

(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).

PHYSICAL REVIEW A **THIRD SERIES, VOLUME 98, NUMBER 4** **OCTOBER 2018**

Stochastic unravelings of non-Markovian completely positive and trace-preserving maps *(11 pages)* 042111
G. Gasbarri and L. Ferialdi

Determination of weak values of quantum operators using only strong measurements *(8 pages)* 042112
Eliahu Cohen and Eli Pollak

Dissipation-driven quantum phase transitions and symmetry breaking *(11 pages)* 042113
Julia Hannukainen and Jonas Larson

Exceptional links and twisted Fermi ribbons in non-Hermitian systems *(5 pages)* 042114
Johan Carlström and Emil J. Bergholtz

Controlling stationary one-way steering via thermal effects in optomechanics *(8 pages)* 042115
Jamal El Qars, Mohammed Daoud, and Rachid Ahl Laamara

Restoring the Heisenberg limit via collective non-Markovian dephasing *(7 pages)* 042116
D. Mogilevtsev, E. Garusov, M. V. Korolkov, V. N. Shatokhin, and S. B. Cavalcanti

Exceptional points and dynamics of an asymmetric non-Hermitian two-level system *(6 pages)* 042117
Sharad Joshi and Ian Galbraith

Spectral theory of Liouvillians for dissipative phase transitions *(13 pages)* 042118
Fabrizio Minganti, Alberto Biella, Nicola Bartolo, and Cristiano Ciuti

Non-Markovianity of the post-Markovian master equation *(7 pages)* 042119
Chris Sutherland, Todd A. Brun, and Daniel A. Lidar

Dynamical topological invariant for the non-Hermitian Rice-Mele model *(9 pages)* 042120
R. Wang, X. Z. Zhang, and Z. Song

State-independent uncertainty relations *(8 pages)* 042121
Hubert de Guise, Lorenzo Maccone, Barry C. Sanders, and Namrata Shukla

Quasistates and quasiprobabilities *(13 pages)* 042122
J. Sperling and I. A. Walmsley

Optical simulation of adaptive nonlocality distillation *(8 pages)* 042123
Wen-Jing Chu, Ming Yang, Guo-Zhu Pan, and Zhuo-Liang Cao

Dynamical approach to ancilla-assisted quantum thermometry *(8 pages)* 042124
Alexander Holm Kiilerich, Antonella De Pasquale, and Vittorio Giovannetti

Noise-induced non-Markovianity *(9 pages)* 042125
Arzu Kurt and Resul Eryigit

Certification of high-dimensional entanglement and Einstein-Podolsky-Rosen steering with cold atomic quantum memory *(8 pages)* 042126
Michał Dąbrowski, Matuesz Mazelanik, Michał Parniak, Adam Leszczyński, Michał Lipka, and Wojciech Wasilewski

Exploring the framework of assemblage moment matrices and its applications in device-independent characterizations *(15 pages)* 042127
Shin-Liang Chen, Costantino Budroni, Yeong-Cherng Liang, and Yueh-Nan Chen

(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).

PHYSICAL REVIEW A THIRD SERIES, VOLUME 98, NUMBER 4 OCTOBER 2018

Matter waves and collective properties of cold atoms and molecules

Controlled transport between Fermi superfluids through a quantum point contact *(5 pages)* . . . . . 041601(R)
Juan Yao, Boyang Liu, Mingyuan Sun, and Hui Zhai

Trapping collapse: Infinite number of repulsive bosons trapped by a generic short-range potential *(5 pages)* . . . . . 041602(R)
Kun Chen, Nikolay V. Prokof'ev, and Boris V. Svistunov

Geometric effects in the effective-mass theory and topological optical superlattices *(6 pages)* . . . . . 041603(R)
Chao-Kai Li, Qian Niu, and Ji Feng

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

Mixing of coherent waves in a single three-level artificial atom *(5 pages)* . . . . . 041801(R)
T. Hönigl-Decrinis, I. V. Antonov, R. Shaikhaidarov, V. N. Antonov, A. Yu. Dmitriev, and O. V. Astafiev

Observing broken inversion symmetry in solids using two-color high-order harmonic spectroscopy *(5 pages)* . . . . 041802(R)
Tran Trung Luu and Hans Jakob Wörner

ARTICLES

Fundamental concepts

Three types of discrete energy eigenvalues in complex PT-symmetric scattering potentials *(10 pages)* 042101
Zafar Ahmed, Sachin Kumar, and Dona Ghosh

Quantum correlations and thermodynamic performances of two-qubit engines with local and common baths *(11 pages)* 042102
Adam Hewgill, Alessandro Ferraro, and Gabriele De Chiara

Strategies for optimal single-shot discrimination of quantum measurements *(11 pages)* 042103
Zbigniew Puchała, Łukasz Pawela, Aleksandra Krawiec, and Ryszard Kukulski

Spontaneously broken particle-hole symmetry in photonic graphene with gain and loss *(5 pages)* 042104
Z. Oztas and C. Yuce

Survey on the Bell nonlocality of a pair of entangled qudits *(8 pages)* 042105
Alejandro Fonseca, Anna de Rosier, Tamás Vértesi, Wiesław Laskowski, and Fernando Parisio

Mass-energy and anomalous friction in quantum optics *(12 pages)* 042106
Matthias Sonnleitner and Stephen M. Barnett

Electrodynamics with a preferred frame *(6 pages)* 042107
Jakub Rembieliński and Jacek Ciborowski

Two-photon annihilation of twisted positrons *(14 pages)* 042108
Joseph A. Sherwin

Unitary unraveling for the dissipative continuous spontaneous localization model: Application to optomechanical experiments *(10 pages)* 042109
J. Nobakht, M. Carlesso, S. Donadi, M. Paternostro, and A. Bassi

Exceptional points in the Riesz-Feller Hamiltonian with an impenetrable rectangular potential *(11 pages)* 042110
Michael Berman and Nimrod Moiseyev

(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).

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 98, NUMBER 4
PARTS A AND B

CONTENTS

OCTOBER 2018

The Table of Contents is a total listing of Parts A and B.
Part A consists of pages 040301(R)–042710, and Part B pages 043401–043860.

PART A

RAPID COMMUNICATIONS

Quantum information

Experimentally detecting a quantum change point via the Bayesian inference *(6 pages)* . . . . . 040301(R)
Shang Yu, Chang-Jiang Huang, Jian-Shun Tang, Zhih-Ahn Jia, Yi-Tao Wang, Zhi-Jin Ke, Wei Liu, Xiao Liu, Zong-Quan Zhou, Ze-Di Cheng, Jin-Shi Xu, Yu-Chun Wu, Yuan-Yuan Zhao, Guo-Yong Xiang, Chuan-Feng Li, Guang-Can Guo, Gael Sentís, and Ramon Muñoz-Tapia

Dipolar quantum logic for freely rotating trapped molecular ions *(5 pages)* . . . . . 040302(R)
Eric R. Hudson and Wesley C. Campbell

Analog quantum simulation of extremely sub-Ohmic spin-boson models *(5 pages)* . . . . . 040303(R)
Mehdi Abdi and Martin B. Plenio

Certifying quantum randomness by probability estimation *(6 pages)* . . . . . 040304(R)
Yanbao Zhang, Emanuel Knill, and Peter Bierhorst

Atomic and molecular structure and dynamics; high-precision measurements

Relativistic full-configuration-interaction calculations of magic wavelengths for the $2\,^3S_1 \rightarrow 2\,^1S_0$ transition of helium isotopes *(7 pages)* . . . . . 040501(R)
Fang-Fei Wu, San-Jiang Yang, Yong-Hui Zhang, Jun-Yi Zhang, Hao-Xue Qiao, Ting-Yun Shi, and Li-Yan Tang

Anisotropic light shift and magic polarization of the intercombination line of dysprosium atoms in a far-detuned dipole trap *(6 pages)* . . . . . 040502(R)
Thomas Chalopin, Vasiliy Makhalov, Chayma Bouazza, Alexandre Evrard, Adam Barker, Maxence Lepers, Jean-François Wyart, Olivier Dulieu, Jean Dalibard, Raphael Lopes, and Sylvain Nascimbene

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

Multiple-orbital effects in laser-induced electron diffraction of aligned molecules *(5 pages)* . . . . . 041401(R)
Faruk Krečinić, Philipp Wopperer, Biagio Frusteri, Felix Braußе, Jean-Gabriel Brisset, Umberto De Giovannini, Angel Rubio, Arnaud Rouzée, and Marc J. J. Vrakking

Copyright 2018 by American Physical Society

(Continued)

2469-9926(201810)98:4:A;1-T

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).