

CONTENTS - *Continued*

PHYSICAL REVIEW A

THIRD SERIES, VOLUME 83, NUMBER 4

APRIL 2011

Tunable band gap near the Dirac point in nonlinear negative-zero-positive index metamaterial waveguide (<i>4 pages</i>)	045804
Ming Shen, Linxu Ruan, Xinglin Wang, Jielong Shi, and Qi Wang	

REPLY

Comment on “Semiquantum-key distribution using less than four quantum states” (<i>2 pages</i>)	046301
Michel Boyer and Tal Mor	
Reply to “Comment on ‘Semiquantum-key distribution using less than four quantum states’ ” (<i>2 pages</i>)	046302
Xiangfu Zou and Daowen Qiu	

COMMENTS

Comment on “Secret-key-assisted private classical communication capacity over quantum channels” (<i>3 pages</i>)	046303
Mark M. Wilde	
Comment on “Modifying the variational principle in the action-integral-functional derivation of time-dependent density-functional theory” (<i>1 page</i>)	046501
Giovanni Vignale	

ERRATA

Publisher’s Note: BEC-BCS crossover and universal relations in unitary Fermi gases [Phys. Rev. A 83 , 041601(R) (2011)] (<i>1 page</i>)	049901(E)
S. Gandolfi, K. E. Schmidt, and J. Carlson	
Publisher’s Note: Negative and positive hysteresis in double-cavity optical bistability in a three-level atom [Phys. Rev. A 83 , 033818 (2011)] (<i>1 page</i>)	049902(E)
H. Aswath Babu and Harshwardhan Wanare	
Publisher’s Note: First and second derivative of the wave function of the $^1\Sigma^+$ states of the KH molecule [Phys. Rev. A 83 , 042502 (2011)] (<i>1 page</i>)	049903(E)
Neji Khelifi	
Publisher’s Note: Quantum interference in timed Dicke basis and its effect on bipartite entanglement [Phys. Rev. A 83 , 042301 (2011)] (<i>1 page</i>)	049904(E)
Eyob A. Sete and Sumanta Das	
Publisher’s Note: Fake violations of the quantum Bell-parameter bound [Phys. Rev. A 83 , 032119 (2011)] (<i>1 page</i>)	049905(E)
A. A. Semenov and W. Vogel	
Publisher’s Note: Resonant structure of low-energy H_3^+ dissociative recombination [Phys. Rev. A 83 , 032711 (2011)] (<i>1 page</i>)	049906(E)
Annemieke Petrignani, Simon Altevogt, Max H. Berg, Dennis Bing, Manfred Grieser, Jens Hoffmann, Brandon Jordon-Thaden, Claude Krantz, Mario B. Mendes, Oldřich Novotný, Steffen Novotny, Dmitry A. Orlov, Roland Repnow, Tobias Sorg, Julia Stützel, Andreas Wolf, Henrik Buhr, Holger Kreckel, Viatcheslav Kokoouline, and Chris H. Greene	

BRIEF REPORTS**Fundamental concepts**

- Extraction of information from a single quantum (*4 pages*) 044101
 G. S. Paraoanu
- Ultrasensitive phase estimation with white light (*4 pages*) 044102
 Chuan-Feng Li, Xiao-Ye Xu, Jian-Shun Tang, Jin-Shi Xu, and Guang-Can Guo

Atomic and molecular structure and dynamics

- Variational calculations of the HT^+ rovibrational energies (*3 pages*) 044501
 A. K. Bekbaev, V. I. Korobov, and M. Dineykhani
- Hookean atom with four electrons: On the formation of a tetrahedral Wigner molecule in the weak trapping limit (*4 pages*) 044502
 C. Amovilli and N. H. March
- Lower bound on the coefficient of an exchangelike energy for a single bound electron in a screened Coulomb potential (*3 pages*) 044503
 I. Nagy

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

- Efficient photoassociation with a train of asymmetric laser pulses (*4 pages*) 045401
 Wei Zhang, Gao-Ren Wang, and Shu-Lin Cong
- Electrodynamic trap for neutral polar particles (*3 pages*) 045402
 R. Blümel

Matter waves and collective properties of cold atoms and molecules

- Slowing down of vortex rings in Bose-Einstein condensates (*4 pages*) 045601
 John L. Helm, Carlo F. Barenghi, and Anthony J. Youd
- Ultracold fermions in real or fictitious magnetic fields: BCS-BEC evolution and type-I–type-II transition (*4 pages*) 045602
 M. Iskin and C. A. R. Sá de Melo

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

- Optical spectral singularities as threshold resonances (*4 pages*) 045801
 Ali Mostafazadeh
- Quasi-phase-matching and second-harmonic generation enhancement in a semiconductor microresonator array using slow-light effects (*4 pages*) 045802
 Yannick Dumeige
- Wave-particle duality and polarization properties of light in single-photon interference experiments (*3 pages*) 045803
 Mayukh Lahiri

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW A

THIRD SERIES, VOLUME 83, NUMBER 4

APRIL 2011

Nondegenerate phase-conjugate wave via stored atomic coherence based on electromagnetically induced transparency in solids (6 pages)	043825
Zhaohui Zhai, Yiling Dou, Jingjun Xu, and Guoquan Zhang	
Electromagnetically induced transparency with quantized fields in optocavity mechanics (5 pages)	043826
Sumei Huang and G. S. Agarwal	
Quantum fluctuations and saturable absorption in mesoscale lasers (9 pages)	043827
Kaushik Roy-Choudhury and A. F. J. Levi	
Few-cycle self-induced-transparency solitons (4 pages)	043828
YuanYao Lin, I-Hong Chen, and Ray-Kuang Lee	
Potential of electric quadrupole transitions in radium isotopes for single-ion optical frequency standards (8 pages)	043829
O. O. Versolato, L. W. Wansbeek, K. Jungmann, R. G. E. Timmermans, L. Willmann, and H. W. Wilschut	
Dynamics of Jacobi's elliptic spatial waves in a nonlinear optical grating (9 pages)	043830
Husin Alatas	
Spectral sidebands and multipulse formation in passively mode-locked lasers (6 pages)	043831
Rafi Weill, Alexander Bekker, Vladimir Smulakovsky, Baruch Fischer, and Omri Gat	
Tailoring quantum superpositions with linearly polarized amplitude-modulated light (10 pages)	043832
S. Pustelny, M. Koczwara, Ł. Cincio, and W. Gawlik	
Self-trapping of scalar and vector dipole solitary waves in Kerr media (7 pages)	043833
Wei-Ping Zhong, Milivoj R. Belić, Gaetano Assanto, Boris A. Malomed, and Tingwen Huang	
Propagation dynamics and X-pulse formation in phase-mismatched second-harmonic generation (14 pages)	043834
G. Valiulis, V. Jukna, O. Jedrkiewicz, M. Clerici, E. Rubino, and P. DiTrapani	
Optical realization of two-boson tunneling dynamics (5 pages)	043835
Stefano Longhi	
Generation and dynamics of quadratic birefringent spatial gap solitons (9 pages)	043836
P. Anghel-Vasilescu, J. Dorignac, F. Geniet, J. Leon, and A. Taki	
Vortex solitons of the discrete Ginzburg-Landau equation (6 pages)	043837
C. Mejía-Cortés, J. M. Soto-Crespo, Rodrigo A. Vicencio, and Mario I. Molina	
Conversion of heat to light using Townes' maser-laser engine: Quantum optics and thermodynamic analysis (8 pages)	043838
C. H. Raymond Ooi	
Theory of plasmon-enhanced high-order harmonic generation in the vicinity of metal nanostructures in noble gases (5 pages)	043839
A. Husakou, S.-J. Im, and J. Herrmann	
Self-induced ac Stark shift in lasers (12 pages)	043840
L. Gil and G. L. Lippi	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW A	THIRD SERIES, VOLUME 83, NUMBER 4	APRIL 2011
Changing the scattering of sheltered targets (7 pages)		043809
Yang Luo, Lian-xing He, Yu Wang, Helen L.W. Chan, and Shou-zheng Zhu		
Dynamics of morphology-dependent resonances by openness in dielectric disks for TE polarization (6 pages)		043810
Jinhang Cho, Sunghwan Rim, and Chil-Min Kim		
Linear and nonlinear Zeno effects in an optical coupler (5 pages)		043811
F. Kh. Abdullaev, V. V. Konotop, and V. S. Shchesnovich		
Squeezing properties of a two-transverse-mode degenerate optical parametric oscillator with an injected signal (10 pages)		043812
Carlos Navarrete-Benlloch, Eugenio Roldán, and Germán J. de Valcárcel		
All-optical active plasmonic devices with memory and power-switching functionalities based on ϵ -near-zero nonlinear metamaterials (8 pages)		043813
Alessandro Ciattoni, Carlo Rizza, and Elia Palange		
Experimental generation of single photons via active multiplexing (8 pages)		043814
Xiao-song Ma, Stefan Zotter, Johannes Kofler, Thomas Jennewein, and Anton Zeilinger		
Quantum interference of stored dual-channel spin-wave excitations in a single tripod system (6 pages)		043815
Hai Wang, Shujing Li, Zhongxiao Xu, Xingbo Zhao, Lijun Zhang, Jiahua Li, Yuelong Wu, Changde Xie, Kunchi Peng, and Min Xiao		
Resonant self-pulsations in coupled nonlinear microcavities (5 pages)		043816
Victor Grigoriev and Fabio Biancalana		
Observation of precursorlike behavior of femtosecond pulses in a dye with a strong absorption band (6 pages) . . .		043817
Matthew M. Springer, Wenlong Yang, Alexandre A. Kolomenski, Hans A. Schuessler, James Strohaber, George W. Kattawar, and Alexei V. Sokolov		
Balancing efficiencies by squeezing in realistic eight-port homodyne detection (7 pages)		043818
Juha-Pekka Pellonpää, Jussi Schultz, and Matteo G. A. Paris		
Angle-resolved photon-coincidence measurements in a multiple-scattering medium (6 pages)		043819
Stephan Smolka, Otto L. Muskens, Ad Lagendijk, and Peter Lodahl		
Local-field correction in the strong-coupling regime (11 pages)		043820
Tran Minh Hien, Ho Trung Dung, and Dirk-Gunnar Welsch		
Motional broadening in ensembles with heavy-tail frequency distribution (5 pages)		043821
Yoav Sagi, Rami Pugatch, Ido Almog, Nir Davidson, and Michael Aizenman		
Energy localization and transport in binary waveguide arrays (6 pages)		043822
Matteo Conforti, Costantino De Angelis, and T. R. Akylas		
Correlated few-photon transport in one-dimensional waveguides: Linear and nonlinear dispersions (6 pages)		043823
Dibyendu Roy		
Systematic study of spontaneous emission in a two-dimensional arbitrary inhomogeneous environment (7 pages)		043824
Peng-fei Qiao, Wei E. I. Sha, Wallace C. H. Choy, and Weng Cho Chew		

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW A

THIRD SERIES, VOLUME 83, NUMBER 4

APRIL 2011

Efficiency for preforming molecules from mixtures of light Fermi and heavy Bose atoms in optical lattices: The strong-coupling-expansion method (<i>13 pages</i>)	043617
Anzi Hu, J. K. Freericks, M. M. Maška, and C. J. Williams	
Effect of three-body loss on itinerant ferromagnetism in an atomic Fermi gas (<i>8 pages</i>)	043618
G. J. Conduit and E. Altman	
Comparison between microscopic methods for finite-temperature Bose gases (<i>29 pages</i>)	043619
S. P. Cockburn, A. Negretti, N. P. Proukakis, and C. Henkel	
Dynamics of two-component Bose-Einstein condensates coupled with the environment (<i>7 pages</i>)	043620
Yajiang Hao and Qiang Gu	
Testing spontaneous localization theories with matter-wave interferometry (<i>4 pages</i>)	043621
Stefan Nimmrichter, Klaus Hornberger, Philipp Haslinger, and Markus Arndt	
Quantum fluctuations of the vortex-lattice state in an ultrafast rotating Bose gas (<i>10 pages</i>)	043622
Qiong Li, Bo Feng, and Dingping Li	
Interface dynamics of a two-component Bose-Einstein condensate driven by an external force (<i>13 pages</i>)	043623
D. Kobaykov, V. Bychkov, E. Lundh, A. Bezett, V. Akkerman, and M. Marklund	
Self-guiding of matter waves in optical lattices (<i>7 pages</i>)	043624
Tristram J. Alexander	
Dynamics and kinetics of quasiparticle decay in a nearly-one-dimensional degenerate Bose gas (<i>9 pages</i>)	043625
I. E. Mazets	
Quantum phase transition of Bose-Einstein condensates on a nonlinear ring lattice (<i>8 pages</i>)	043626
Zheng-Wei Zhou, Shao-Liang Zhang, Xiang-Fa Zhou, Guang-Can Guo, Xingxiang Zhou, and Han Pu	
Quantum optics, physics of lasers, nonlinear optics, classical optics	
Triggered generation of single guided photons from a single atom in a nanofiber cavity (<i>11 pages</i>)	043801
Fam Le Kien and K. Hakuta	
Resonant atom-field interaction in large-size coupled-cavity arrays (<i>12 pages</i>)	043802
Francesco Ciccarello	
Filamentary pulse self-compression: The impact of the cell windows (<i>7 pages</i>)	043803
Carsten Brée, Ayhan Demircan, Jens Bethge, Erik T. J. Nibbering, Stefan Skupin, Luc Bergé, and Günter Steinmeyer	
Fast ground-state cooling of mechanical resonators with time-dependent optical cavities (<i>5 pages</i>)	043804
Yong Li, Lian-Ao Wu, and Z. D. Wang	
Phase control of probe response in a Doppler-broadened N -type four-level system (<i>10 pages</i>)	043805
Xijun Fan, Zhongbo Liu, Ying Liang, Kening Jia, and Dianmin Tong	
Three-photon states in nonlinear crystal superlattices (<i>13 pages</i>)	043807
D. A. Antonosyan, T. V. Gevorgyan, and G. Yu. Kryuchkan	
Quantitative x-ray differential-interference-contrast microscopy with independently adjustable bias and shear (<i>5 pages</i>)	043808
Takashi Nakamura and Chang Chang	

(Continued)

Matter waves and collective properties of cold atoms and molecules

Spinor atom-molecule conversion via laser-induced three-body recombination (<i>7 pages</i>)	043601
H. Jing, Y. Deng, and P. Meystre	
Bilayer superfluidity of fermionic polar molecules: Many-body effects (<i>21 pages</i>)	043602
M. A. Baranov, A. Micheli, S. Ronen, and P. Zoller	
Modulated solutions and superfluid fraction for the Gross-Pitaevskii equation with a nonlocal potential at $T \neq 0$ (<i>6 pages</i>)	043603
Néstor Sepúlveda	
Accurate multi-boson long-time dynamics in triple-well periodic traps (<i>16 pages</i>)	043604
Alexej I. Streltsov, Kaspar Sakmann, Ofir E. Alon, and Lorenz S. Cederbaum	
Formation of a heteronuclear tetramer A_3B via Efimov-resonance-assisted stimulated Raman adiabatic passage (<i>5 pages</i>)	043605
Guan-Qiang Li and Ping Peng	
Dynamics of a degenerate Fermi gas in a one-dimensional optical lattice coupled to a cavity (<i>6 pages</i>)	043606
Qing Sun, Xing-Hua Hu, An-Chun Ji, and W. M. Liu	
Quantum dynamics of a four-well Bose-Hubbard model with two different tunneling rates (<i>9 pages</i>)	043607
C. V. Chianca and M. K. Olsen	
Explanation and observability of diffraction in time (<i>4 pages</i>)	043608
E. Torrontegui, J. Muñoz, Yue Ban, and J. G. Muga	
Density-wave patterns for fermionic dipolar molecules on a square optical lattice: Mean-field-theory analysis (<i>7 pages</i>)	043609
K. Mikelsons and J. K. Freericks	
Gap solitons and Bloch waves of interacting bosons in one-dimensional optical lattices: From the weak- to the strong-interaction limits (<i>7 pages</i>)	043610
T. F. Xu, X. M. Guo, X. L. Jing, W. C. Wu, and C. S. Liu	
Wave chaos in the nonequilibrium dynamics of the Gross-Pitaevskii equation (<i>12 pages</i>)	043611
Iva Březinová, Lee A. Collins, Katharina Ludwig, Barry I. Schneider, and Joachim Burgdörfer	
Macroscopic superposition of ultracold atoms with orbital degrees of freedom (<i>17 pages</i>)	043612
M. A. García-March, D. R. Dounas-Frazer, and L. D. Carr	
Quantum criticality in disordered bosonic optical lattices (<i>5 pages</i>)	043613
Xiaoming Cai, Shu Chen, and Yupeng Wang	
Atomic matter-wave revivals with definite atom number in an optical lattice (<i>7 pages</i>)	043614
J. Schachenmayer, A. J. Daley, and P. Zoller	
Inelastic scattering of atoms in a double well (<i>8 pages</i>)	043615
E. S. Annibale, O. Fialko, and K. Ziegler	
Bose-Einstein condensation in the presence of artificial spin-orbit interaction (<i>5 pages</i>)	043616
S.-K. Yip	

CONTENTS - *Continued*

PHYSICAL REVIEW A

THIRD SERIES, VOLUME 83, NUMBER 4

APRIL 2011

Symmetry and symmetry breaking in Rydberg-atom intrashell dynamics (7 pages)	043405
I. Pilskog, D. Fregenal, Ø. Frette, M. Førre, E. Horsdal, and A. Waheed	
Hexapole-compensated magneto-optical trap on a mesoscopic atom chip (7 pages)	043406
S. Jöllennebeck, J. Mahnke, R. Randoll, W. Ertmer, J. Arlt, and C. Klempt	
Spin dynamics in nonsequential two-photon double ionization of helium in an intense laser field (11 pages)	043407
S. Bhattacharyya, Mina Mazumder, J. Chakrabarti, and F. H. M. Faisal	
Time-averaged adiabatic ring potential for ultracold atoms (5 pages)	043408
B. E. Sherlock, M. Gildemeister, E. Owen, E. Nugent, and C. J. Foot	
High-order harmonic generation with Rydberg atoms by using an intense few-cycle pulse (5 pages)	043409
Zhen Zhai, Qiren Zhu, Jing Chen, Zong-Chao Yan, Panming Fu, and Bingbing Wang	
Controlling field-free molecular orientation with combined single- and dual-color laser pulses (5 pages)	043410
Shian Zhang, Chenhui Lu, Tianqing Jia, Zugeng Wang, and Zhenrong Sun	
Photoionization measurements for the iron isonuclear sequence Fe^{3+} , Fe^{5+} , and Fe^{7+} (9 pages)	043412
M. F. Gharaibeh, A. Aguilar, A. M. Covington, E. D. Emmons, S. W. J. Scully, R. A. Phaneuf, A. Müller, J. D. Bozek, A. L. D. Kilcoyne, A. S. Schlachter, I. Álvarez, C. Cisneros, and G. Hinojosa	
Optimal control of the electronic current density: Application to one- and two-dimensional one-electron systems (6 pages)	043413
David Kammerlander, Alberto Castro, and Miguel A. L. Marques	
High-order-harmonic generation in homonuclear and heteronuclear diatomic molecules: Exploration of multiple orbital contributions (7 pages)	043414
John Heslar, Dmitry Telnov, and Shih-I Chu	
Supersymmetric factorization yields exact solutions to the molecular Stark-effect problem for stretched states (4 pages)	043415
Mikhail Lemeshko, Mustafa Mustafa, Sabre Kais, and Bretislav Friedrich	
Analytic confirmation that the factorized formula for harmonic generation involves the exact photorecombination cross section (11 pages)	043416
M. V. Frolov, N. L. Manakov, T. S. Sarantseva, and Anthony F. Starace	
Velocity map imaging as a tool for gaining mechanistic insight from closed-loop control studies of molecular fragmentation (9 pages)	043417
Bethany Jochim, R. Averin, Neal Gregerson, J. McKenna, S. De, D. Ray, M. Zohrabi, B. Bergues, K. D. Carnes, M. F. Kling, I. Ben-Itzhak, and E. Wells	
Linear- and circular-polarization photoionization angular distributions in H_2 and H_2^+ by attosecond xuv laser pulses (16 pages)	043418
Kai-Jun Yuan, HuiZhong Lu, and André D Bandrauk	
Extending electron orbital precession to the molecular case: Use of orbital alignment for observation of wavepacket dynamics (9 pages)	043419
Hugo E. L. Martay, Duncan G. England, David J. McCabe, and Ian A. Walmsley	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW A	THIRD SERIES, VOLUME 83, NUMBER 4	APRIL 2011
--------------------------	--	-------------------

Quantum dynamics of $H^+ + CO$ collisions (<i>9 pages</i>)	042709
F. George D. Xavier and Sanjay Kumar	
Ultracold three-body collisions near narrow Feshbach resonances (<i>10 pages</i>)	042710
Yujun Wang, J. P. D’Incao, and B. D. Esry	
Collisional loss of cesium Rydberg atoms in a magneto-optical trap (<i>5 pages</i>)	042711
Zhigang Feng, Hao Zhang, Junling Che, Linjie Zhang, Changyong Li, Jianming Zhao, and Suotang Jia	
Near-threshold electron-impact doubly differential cross sections for the ionization of argon and krypton (<i>11 pages</i>)	042712
Brent R. Yates and Murtadha A. Khakoo	
Hydrogen recombination due to collisions with He and Ar (<i>7 pages</i>)	042713
Stephen Paolini, Luke Ohlinger, and Robert C. Forrey	
Excitation of the $a^3\Pi$ state of CO by electron impact (<i>5 pages</i>)	042714
M. M. Ristić, G. B. Poparić, and D. S. Belić	

Clusters (including fullerenes)

Observation of shells in Coulomb explosions of rare-gas clusters (<i>5 pages</i>)	043201
B. Erk, K. Hoffmann, N. Kandadai, A. Helal, J. Keto, and T. Ditmire	
Aneutronic $H + {}^{11}B$ nuclear fusion driven by Coulomb explosion of hydrogen nanodroplets (<i>9 pages</i>)	043202
Isidore Last, Shlomo Ron, and Joshua Jortner	
Rare-gas-cluster explosions under irradiation by intense short XUV pulses (<i>9 pages</i>)	043203
K. Hoffmann, B. Murphy, N. Kandadai, B. Erk, A. Helal, J. Keto, and T. Ditmire	

PART B

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

Vibrational Feshbach resonances in near-threshold $HOCO^-$ photodetachment: A theoretical study (<i>7 pages</i>)	043401
S. Miyabe, D. J. Haxton, K. V. Lawler, A. E. Orel, C. W. McCurdy, and T. N. Rescigno	
Extra sub-Doppler lines in the vicinity of the third-resonance $6S-8P$ transition of atomic Cs attributed to optically induced Cs dimers (<i>6 pages</i>)	043402
Thierry Passerat de Silans, Isabelle Maurin, Athanasios Laliotis, Pedro Chaves de Souza Segundo, and Daniel Bloch	
Breakup of the aligned H_2 molecule by xuv laser pulses: A time-dependent treatment in prolate spheroidal coordinates (<i>16 pages</i>)	043403
Xiaoxu Guan, Klaus Bartschat, and Barry I. Schneider	
Probing dissociative molecular dications by mapping vibrational wave functions (<i>7 pages</i>)	043404
R. Püttner, T. Arion, M. Förstel, T. Lischke, M. Mucke, V. Sekushin, G. Kaendl, A. M. Bradshaw, and U. Hergenhahn	

(Continued)

CONTENTS - Continued

PHYSICAL REVIEW A

THIRD SERIES, VOLUME 83, NUMBER 4

APRIL 2011

High-resolution KMM radiative Auger x-ray emission spectra of calcium induced by synchrotron radiation (9 pages)	042513
W. Cao, M. Kavčič, J.-Cl. Dousse, M. Berset, K. Bučar, M. Budnar, K. Fennane, J. Hoszowska, Y.-P. Maillard, J. Szlachetko, M. Szlachetko, and M. Žitnik	
Calculation of parity nonconservation in neutral ytterbium (6 pages)	042514
V. A. Dzuba and V. V. Flambaum	
Combining Monte Carlo simulation and density-functional theory to describe the spectral changes of Na_2 in liquid helium (6 pages)	042515
Lucas Modesto-Costa, Kaline Coutinho, Prasanta K. Mukherjee, and Sylvio Canuto	
Casimir microsphere diclusters and three-body effects in fluids (10 pages)	042516
Jaime Varela, Alejandro W. Rodriguez, Alexander P. McCauley, and Steven G. Johnson	
Faddeev random-phase approximation for molecules (9 pages)	042517
Matthias Degroote, Dimitri Van Neck, and Carlo Barbieri	
Quantal density-functional theory in the presence of a magnetic field (18 pages)	042518
Tao Yang, Xiao-Yin Pan, and Virajt Sahni	
Momentum vector correlations in three-particle fragmentation of triatomic hydrogen (8 pages)	042519
H. Höffler, P. C. Fechner, M. Gisi, F. Baumgartner, U. Galster, and H. Helm	
Complete pure vibrational spectrum of HD calculated without the Born-Oppenheimer approximation and including relativistic corrections (5 pages)	042520
Sergiy Bubín, Monika Stanke, and Ludwik Adamowicz	
Atomic and molecular collisions and interactions	
Analysis of photon emission from 50–350-keV proton impact on H_2O (7 pages)	042701
Benjamin D. Goldman, Stephanie A. Timpone, Michael N. Monce, Laurel Mitchell, and Brian Griffin	
Electron-collision cross sections for iodine (8 pages)	042702
O. Zatsarinny, K. Bartschat, G. Garcia, F. Blanco, L. R. Hargreaves, D. B. Jones, R. Murrie, J. R. Brunton, M. J. Brunger, M. Hoshino, and S. J. Buckman	
Feshbach spectroscopy and analysis of the interaction potentials of ultracold sodium (10 pages)	042704
S. Knoop, T. Schuster, R. Scelle, A. Trautmann, J. Appmeier, M. K. Oberthaler, E. Tiesinga, and E. Tiemann	
Dielectronic recombination in C^{3+} above and below the ionization threshold (5 pages)	042705
M. S. Pindzola, S. D. Loch, and F. Robicheaux	
Predicting and verifying transition strengths from weakly bound molecules (7 pages)	042706
K. Aikawa, D. Akamatsu, M. Hayashi, J. Kobayashi, M. Ueda, and S. Inouye	
Photoassociation of a cold-atom-molecule pair. II. Second-order perturbation approach (10 pages)	042707
M. Lepers, R. Vexiau, N. Bouloufa, O. Dulieu, and V. Kokoouline	
Calculation of electron-impact rotationally elastic total cross sections for NH_3 , H_2S , and PH_3 over the energy range from 0.01 eV to 2 keV (9 pages)	042708
Chetan Limbachiya, Minaxi Vinodkumar, and Nigel Mason	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW A	THIRD SERIES, VOLUME 83, NUMBER 4	APRIL 2011
Resilience of orbital-angular-momentum photonic qubits and effects on hybrid entanglement (<i>6 pages</i>)		042338
Daniele Giovannini, Eleonora Nagali, Lorenzo Marrucci, and Fabio Sciarrino		
Quantum measurements of atoms using cavity QED (<i>10 pages</i>)		042339
Adetunmise C. Dada, Erika Andersson, Martin L. Jones, Vivien M. Kendon, and Mark S. Everitt		
Semioptimal practicable algorithmic cooling (<i>10 pages</i>)		042340
Yuval Elias, Tal Mor, and Yossi Weinstein		
Atomic and molecular structure and dynamics		
Charge transfer in time-dependent density-functional theory via spin-symmetry breaking (<i>5 pages</i>)		042501
Johanna I. Fuks, Angel Rubio, and Neepta T. Maitra		
First and second derivative of the wave function of the $^1\Sigma^+$ states of the KH molecule (<i>9 pages</i>)		042502
Neji Khelifi		
Spin-forbidden radiative decay rates from the $3^3P_{1,2}$ and 3^1P_1 states of helium (<i>3 pages</i>)		042503
Donald C. Morton and G. W. F. Drake		
Lifshitz theory of van der Waals pressure in dissipative media (<i>6 pages</i>)		042504
Yi Zheng and Arvind Narayanaswamy		
Hydrogen-deuterium isotope shift: From the $1S$ - $2S$ -transition frequency to the proton-deuteron charge-radius difference (<i>9 pages</i>)		042505
U. D. Jentschura, A. Matveev, C. G. Parthey, J. Alnis, R. Pohl, Th. Udem, N. Kolachevsky, and T. W. Hänsch		
Doubly excited 1^3P^e resonance states of helium and the hydrogen negative ion interacting with Coulomb and screened Coulomb potentials (<i>8 pages</i>)		042506
Sabyasachi Kar and Y. K. Ho		
Atomic electric dipole moment induced by the nuclear electric dipole moment: The magnetic moment effect (<i>7 pages</i>)		042507
S. G. Porsev, J. S. M. Ginges, and V. V. Flambaum		
Blackbody-radiation correction to the polarizability of helium (<i>7 pages</i>)		042508
M. Puchalski, U. D. Jentschura, and P. J. Mohr		
Proton-structure corrections to hyperfine splitting in muonic hydrogen (<i>6 pages</i>)		042509
Carl E. Carlson, Vahagn Nazaryan, and Keith Griffioen		
Gerade-ungerade mixing in the hydrogen molecule (<i>7 pages</i>)		042510
Krzysztof Pachucki and Jacek Komasa		
Experimental and theoretical study of the $6d_{3/2}$ polarizability of cesium (<i>9 pages</i>)		042511
A. Kortyna, C. Tinsman, J. Grab, M. S. Safronova, and U. I. Safronova		
Mixing rules and the Casimir force between composite systems (<i>6 pages</i>)		042512
R. Esquivel-Sirvent and George C. Schatz		

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW A	THIRD SERIES, VOLUME 83, NUMBER 4	APRIL 2011
Visibility bound caused by a distinguishable noise particle (<i>4 pages</i>)		042320
Miroslav Gavenda, Lucie Čelechovská, Jan Soubusta, Miloslav Dušek, and Radim Filip		
Continuous-variable quantum key distribution in non-Markovian channels (<i>6 pages</i>)		042321
Ruggero Vasilè, Stefano Olivares, Matteo G. A. Paris, and Sabrina Maniscalco		
Influence of external fields and environment on the dynamics of a phase-qubit–resonator system (<i>6 pages</i>)		042322
G. P. Berman and A. A. Chumak		
Simple proof of the quantum benchmark fidelity for continuous-variable quantum devices (<i>4 pages</i>)		042323
Ryo Namiki		
Bounds on the information rate of quantum-secret-sharing schemes (<i>5 pages</i>)		042324
Pradeep Sarvepalli		
Measurement-induced disturbances and nonclassical correlations of Gaussian states (<i>15 pages</i>)		042325
Ladislav Mišta Jr., Richard Tatham, Davide Girolami, Natalia Korolkova, and Gerardo Adesso		
Proof-of-principle experiment of a modified photon-number-splitting attack against quantum key distribution (<i>5 pages</i>)		042326
Wei-Tao Liu, Shi-Hai Sun, Lin-Mei Liang, and Jian-Min Yuan		
Reduce, reuse, recycle for robust cluster-state generation (<i>5 pages</i>)		042327
Clare Horsman, Katherine L. Brown, William J. Munro, and Vivien M. Kendon		
Even-odd entanglement in boson and spin systems (<i>8 pages</i>)		042328
R. Rossignoli, N. Canosa, and J. M. Matera		
Stationary entanglement achievable by environment-induced chain links (<i>5 pages</i>)		042329
Laleh Memarzadeh and Stefano Mancini		
Local stabilizer codes in three dimensions without string logical operators (<i>16 pages</i>)		042330
Jeongwan Haah		
Suppression of decoherence and disentanglement by the exchange interaction (<i>10 pages</i>)		042331
Amrit De, Alex Lang, Dong Zhou, and Robert Joynt		
Entanglement and symmetry in permutation-symmetric states (<i>6 pages</i>)		042332
Damian J. H. Markham		
Comparative model study of two-photon deterministic passive quantum logical gates (<i>8 pages</i>)		042333
Julio Gea-Banacloche and Leno M. Pedrotti		
Entanglement dynamics via geometric phases in quantum spin chains (<i>8 pages</i>)		042334
C. S. Castro and M. S. Sarandy		
Graphical calculus for Gaussian pure states (<i>23 pages</i>)		042335
Nicolas C. Menicucci, Steven T. Flammia, and Peter van Loock		
Superactivation, unlockability, and secrecy distribution of bound information (<i>7 pages</i>)		042336
Giuseppe Pretico and Joonwoo Bae		
How to upload a physical quantum state into correlation space (<i>7 pages</i>)		042337
Tomoyuki Morimae		

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW A

THIRD SERIES, VOLUME 83, NUMBER 4

APRIL 2011

Voltage-controlled entanglement and quantum-information transfer between spatially separated quantum-dot molecules (<i>8 pages</i>)	042302
Xin-You Lü, Jing Wu, Li-Li Zheng, and Zhi-Ming Zhan	
Entropic inequalities for a class of quantum secret-sharing states (<i>5 pages</i>)	042303
Pradeep Sarvepalli	
Subadditivity of the minimum output entropy and superactivation of the classical capacity of quantum multiple access channels (<i>5 pages</i>)	042304
Ł. Czekaj	
Genuine tripartite entanglement in a spin-star network at thermal equilibrium (<i>7 pages</i>)	042305
B. Militello and A. Messina	
Concurrence of superpositions of many states (<i>7 pages</i>)	042306
Seyed Javad Akhtarshenas	
Programmable entanglement oscillations in a non-Markovian channel (<i>5 pages</i>)	042308
Simone Cialdi, Davide Brivio, Enrico Tesio, and Matteo G. A. Paris	
Realization of a universal and phase-covariant quantum cloning machine in separate cavities (<i>6 pages</i>)	042309
Bao-Long Fang, Qing-Ming Song, and Liu Ye	
Two-dimensional color-code quantum computation (<i>8 pages</i>)	042310
Austin G. Fowler	
Entanglement from density measurements: Analytical density functional for the entanglement of strongly correlated fermions (<i>6 pages</i>)	042311
Vivian V. França and Irene D'Amico	
Continuous-variable quantum-key-distribution protocols with a non-Gaussian modulation (<i>15 pages</i>)	042312
Anthony Leverrier and Philippe Grangier	
Generating and stabilizing the Greenberger-Horne-Zeilinger state in circuit QED: Joint measurement, Zeno effect, and feedback (<i>6 pages</i>)	042313
Wei Feng, Peiyue Wang, Xinmei Ding, Luting Xu, and Xin-Qi Li	
Optimal preparation of graph states (<i>7 pages</i>)	042314
Adán Cabello, Lars Eirik Danielsen, Antonio J. López-Tarrida, and José R. Portillo	
Determination of the Schmidt number (<i>10 pages</i>)	042315
J. Sperling and W. Vogel	
Quantum Kolmogorov complexity and bounded quantum memory (<i>6 pages</i>)	042316
Takayuki Miyadera	
Two-particle quantum walks: Entanglement and graph isomorphism testing (<i>12 pages</i>)	042317
Scott D. Berry and Jingbo B. Wang	
Verifying entanglement in the Hong-Ou-Mandel dip (<i>5 pages</i>)	042318
Megan R. Ray and S. J. van Enk	
Fast and robust quantum computation with ionic Wigner crystals (<i>13 pages</i>)	042319
J. D. Baltrusch, A. Negretti, J. M. Taylor, and T. Calarco	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW A

THIRD SERIES, VOLUME 83, NUMBER 4

APRIL 2011

Symmetry breaking and multi peaked solitons in inhomogeneous gain landscapes (<i>4 pages</i>)	041806(R)
Yaroslav V. Kartashov, Vladimir V. Konotop, and Victor A. Vysloukh	

ARTICLES

Fundamental concepts

Quantum mechanics of hyperbolic orbits in the Kepler problem (<i>16 pages</i>)	042101
Alexander Rauh and Jürgen Parisi	
Phase-space spinor amplitudes for spin-1/2 systems (<i>8 pages</i>)	042102
P. Watson and A. J. Bracken	
Characterization of decoherence from an environmental perspective (<i>7 pages</i>)	042103
Julius Helm, Walter T. Strunz, Stephan Rietzler, and Lars Erik Würflinger	
Strong correspondence principle for joint measurement of conjugate observables (<i>5 pages</i>)	042104
A. Di Lorenzo	
Testing Hardy's nonlocality proof with genuine energy-time entanglement (<i>5 pages</i>)	042105
Giuseppe Vallone, Ilaria Gianani, Enrique B. Inostroza, Carlos Saavedra, Gustavo Lima, Adán Cabello, and Paolo Mataloni	
Effectively classically correlated state of a measured system and a bosonic measurement apparatus (<i>7 pages</i>)	042106
S. Camalet	
Berry phase and Hannay angle of an interacting boson system (<i>7 pages</i>)	042107
S. C. Li, J. Liu, and L. B. Fu	
Classification of matrix-product ground states corresponding to one-dimensional chains of two-state sites of nearest neighbor interactions (<i>8 pages</i>)	042108
Amir H. Fatollahi, Mohammad Khorrami, Ahmad Shariati, and Amir Aghamohammadi	
Making precise predictions of the Casimir force between metallic plates via a weighted Kramers-Kronig transform (<i>17 pages</i>)	042109
Giuseppe Bimonte	
Measurement contextuality is implied by macroscopic realism (<i>6 pages</i>)	042110
Zeqian Chen and A. Montina	
Coupled-cluster method: A lattice-path-based subsystem approximation scheme for quantum lattice models (<i>12 pages</i>)	042111
R. F. Bishop and P. H. Y. Li	
Quantum coherence and entanglement induced by the continuum between distant localized states (<i>8 pages</i>)	042112
Jing Ping, Xin-Qi Li, and Shmuel Gurvitz	

Quantum information

Quantum interference in timed Dicke basis and its effect on bipartite entanglement (<i>8 pages</i>)	042301
Eyob A. Sete and Sumanta Das	

(Continued)

Atomic and molecular collisions and interactions

- Unexpected effects in spin-polarized electron-impact excitation of the $(3d^{10}4s5s)^3S_1$ state in zinc (*4 pages*) 040701(R)
 L. Pravica, J. F. Williams, D. Cvejanović, S. Samarin, K. Bartschat, O. Zatsarinny,
 A. D. Stauffer, and R. Srivastava
- Spatial separation in a thermal mixture of ultracold ^{174}Yb and ^{87}Rb atoms (*4 pages*) 040702(R)
 F. Baumer, F. Münchow, A. Görlitz, S. E. Maxwell, P. S. Julienne, and E. Tiesinga

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

- Attosecond timing the ultrafast charge-transfer process in atomic collisions (*4 pages*) 041401(R)
 S. X. Hu (胡素兴)
- Improving Ramsey spectroscopy in the extreme-ultraviolet region with a random-sampling approach (*4 pages*) . . . 041402(R)
 R. Eramo, M. Bellini, C. Corsi, I. Lontos, and S. Cavalieri
- Nonadiabatic molecular high-order harmonic generation from polar molecules: Spectral redshift (*4 pages*) 041403(R)
 Xue-Bin Bian and André D. Bandrauk

Matter waves and collective properties of cold atoms and molecules

- BEC-BCS crossover and universal relations in unitary Fermi gases (*4 pages*) 041601(R)
 S. Gandolfi, K. E. Schmidt, and J. Carlson
- Realizing bright-matter-wave-soliton collisions with controlled relative phase (*4 pages*) 041602(R)
 T. P. Billam, S. L. Cornish, and S. A. Gardiner
- Stability condition of a strongly interacting boson-fermion mixture across an interspecies
 Feshbach resonance (*4 pages*) 041603(R)
 Zeng-Qiang Yu, Shizhong Zhang, and Hui Zhai
- Traveling dark solitons in superfluid Fermi gases (*4 pages*) 041604(R)
 Renyuan Liao and Joachim Brand

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

- Real-time feedback control of a mesoscopic superposition (*4 pages*) 041801(R)
 Kurt Jacobs, Justin Finn, and Sai Vinjanampathy
- Electromagnetically induced transparency in strongly interacting Rydberg gases (*4 pages*) 041802(R)
 C. Ates, S. Sevincli, and T. Pohl
- Observation of atomic localization using electromagnetically induced transparency (*4 pages*) 041803(R)
 N. A. Proite, Z. J. Simmons, and D. D. Yavuz
- Electromagnetically-induced-transparency-based cross-phase-modulation at attojoule levels (*4 pages*) 041804(R)
 Hsiang-Yu Lo, Yen-Chun Chen, Po-Ching Su, Hao-Chung Chen, Jun-Xian Chen, Ying-Cheng Chen,
 Ite A. Yu, and Yong-Fan Chen
- Solitons in $\mathcal{PT}$ -symmetric nonlinear lattices (*4 pages*) 041805(R)
 Fatkhulla Kh. Abdullaev, Yaroslav V. Kartashov, Vladimir V. Konotop, and Dmitry A. Zezyulin

PHYSICAL REVIEW ATM

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

PERIODICALS

Postmaster send address changes to:
APS Subscription Services
Suite 1N01
2 Huntington Quadrangle
Melville, NY 11747-4502

THIRD SERIES, VOLUME 83, NUMBER 4
PARTS A AND B

CONTENTS

APRIL 2011

*The Table of Contents is a total listing of Parts A and B.
Part A consists of pages 040001(R)-043203, and Part B pages 043401-049906(E).*

EDITORIALS AND ANNOUNCEMENTS

Editorial: Uncertainty Estimates (*1 page*) 040001

RAPID COMMUNICATIONS

Fundamental concepts

Fock-state view of weak-value measurements and implementation with photons and atomic ensembles
(*4 pages*) 040101(R)
Christoph Simon and Eugene S. Polzik

Quantum information

Experimentally feasible set of criteria detecting genuine multipartite entanglement in n -qubit Dicke states and in
higher-dimensional systems (*4 pages*) 040301(R)
Marcus Huber, Paul Erker, Hans Schimpf, Andreas Gabriel, and Beatrix Hiesmayr

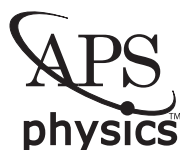
Fundamental quantum limits on phase-insensitive linear amplification and phase conjugation in a
practical framework (*4 pages*) 040302(R)
Ryo Namiki

Atomic and molecular structure and dynamics

Precision spectroscopy of the $^{207}\text{Pb}^{19}\text{F}$ molecule: Implications for measurement of P -odd and T -odd
effects (*4 pages*) 040501(R)
Lukas D. Alpehi, Jens-Uwe Grabow, A. N. Petrov, Richard Mawhorter, Benjamin Murphy,
Alexander Baum, Trevor J. Sears, T. Zh. Yang, P. M. Rupasinghe, C. P. McRaven, and N. E. Shafer-Ray

Progress at the interface of wave-function and density-functional theories (*4 pages*) 040502(R)
Nikitas I. Gidopoulos

Calculation of nonzero-temperature Casimir forces in the time domain (*4 pages*) 040503(R)
Kai Pan, Alexander P. McCauley, Alejandro W. Rodriguez, M. T. Homer Reid,
Jacob K. White, and Steven G. Johnson



Copyright 2011 by American Physical Society

(Continued)



1050-2947(201104)83:4:B;1-R