

CONTENTS - *Continued*

PHYSICAL REVIEW A

THIRD SERIES, VOLUME 88, NUMBER 4

OCTOBER 2013

Comment on “Control of the Goos-Hänchen shift using a duplicated two-level atomic medium” (<i>1 page</i>)	047801
F. A. Hashmi and M. A. Bouchene	
Reply to “Comment on ‘Control of the Goos-Hänchen shift using a duplicated two-level atomic medium’ ” (<i>2 pages</i>)	047802
Ziauddin and Sajid Qamar	

ERRATA

Erratum: Accurate simulations of planar topological codes cannot use cyclic boundaries [Phys. Rev. A 87 , 062320 (2013)] (<i>1 page</i>)	049901(E)
Austin G. Fowler	
Erratum: Geometric phases for nondegenerate and degenerate mixed states [Phys. Rev. A 67 , 032106 (2003)] (<i>1 page</i>)	049902(E)
K. Singh, D. M. Tong, K. Basu, J. L. Chen, and J. F. Du	
Erratum: Analyzing effects of strong electron correlation within Kohn-Sham density-functional theory [Phys. Rev. A 88 , 032510 (2013)] (<i>1 page</i>)	049903(E)
Emil Proynov, Fenglai Liu, and Jing Kong	
Erratum: Cross-talk dynamics of optical solitons in multichannel waveguide systems with a Ginzburg-Landau gain-loss profile [Phys. Rev. A 85 , 063828 (2012)] (<i>1 page</i>)	049904(E)
Avner Peleg and Yeojin Chung	
Erratum: Roton confinement in trapped dipolar Bose-Einstein condensates [Phys. Rev. A 88 , 013619 (2013)] (<i>1 page</i>)	049905(E)
M. Jona-Lasinio, K. Łakomy, and L. Santos	
Erratum: Infinitesimal-propagation equation for decoherence of an orbital-angular-momentum-entangled biphoton state in atmospheric turbulence [Phys. Rev. A 83 , 053822 (2011)] (<i>1 page</i>)	049906(E)
Filippus S. Roux	
Erratum: Possible use of a Cooper-pair box for low-dose electron microscopy [Phys. Rev. A 85 , 043810 (2012)] (<i>1 page</i>)	049907(E)
Hiroshi Okamoto	

Photon, electron, atom, and molecule interactions with solids and surfaces

- Evidence for the incoming-velocity effect on negative fluorine ions scattering from a highly-oriented-pyrolytic-graphite surface (*5 pages*) 044901
 Lin Chen, Bin Ding, Yuan Li, Shunli Qiu, Feifei Xiong, Hu Zhou, Yanling Guo, and Ximeng Chen

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

- Rydberg tomography of an ultracold atomic cloud (*4 pages*) 045401
 M. M. Valado, N. Malossi, S. Scotto, D. Ciampini, E. Arimondo, and O. Morsch

Matter waves and collective properties of cold atoms and molecules

- Optomechanical generation of a photonic Bose-Einstein condensate (*5 pages*) 045601
 Martin Weitz, Jan Klaers, and Frank Vewinger
- Higher virial coefficients of a unitary Fermi gas (*3 pages*) 045602
 R. K. Bhaduri, W. van Dijk, and M. V. N. Murthy

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

- Stability of N -soliton molecules in dispersion-managed optical fibers (*4 pages*) 045801
 Abdelâali Boudjemâa and U. Al Khawaja
- Optimal probabilistic measurement of phase (*4 pages*) 045802
 Petr Marek
- Ground state of three qubits coupled to a harmonic oscillator with ultrastrong coupling (*5 pages*) 045803
 Li-Tuo Shen, Zhen-Biao Yang, and Rong-Xin Chen
- Optical cloaking using alternate Raman gain and free-space media in the presence of spatially distributed pump fields (*4 pages*) 045804
 Chengjie Zhu, L. Deng, E. W. Hagley, and Mo-Lin Ge

COMMENTS

- Comment on “Coherent states for exactly solvable potentials” (*1 page*) 046101
 Mohamad Toutounji
- Comment on “Past of a quantum particle” (*5 pages*) 046102
 Zheng-Hong Li, M. Al-Amri, and M. Suhail Zubairy
- Reply to “Comment on ‘Past of a quantum particle’ ” (*2 pages*) 046103
 L. Vaidman
- Comment on “Adiabatic quantum computation with a one-dimensional projector Hamiltonian” (*3 pages*) 046301
 Alastair Kay
- Comment on “Nonanalyticity of the optimized effective potential with finite basis sets” (*4 pages*) 046501
 Christoph Friedrich, Markus Betzinger, and Stefan Blügel
- Reply to “Comment on ‘Nonanalyticity of the optimized effective potential with finite basis sets’ ” (*5 pages*) 046502
 Nikitas I. Gidopoulos and Nektarios N. Lathiotakis

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW A

THIRD SERIES, VOLUME 88, NUMBER 4

OCTOBER 2013

Spin displacements of a Gaussian beam at an air–multilayer-film interface (<i>5 pages</i>)	043842
Bo Wang, Yan Li, Meng-Meng Pan, Jin-Li Ren, Yun-Feng Xiao, Hong Yang, and Qihuang Gong	
Virtual single-photon transition interrupted: Time-gated optical gain and loss (<i>5 pages</i>)	043843
Jens Herrmann, Matthias Weger, Reto Locher, Mazyar Sabbar, Paula Rivière, Ulf Saalmann, Jan-Michael Rost, Lukas Gallmann, and Ursula Keller	
Degenerate astigmatic cavities (<i>9 pages</i>)	043844
Jérémie Courtois, Ajmal Mohamed, and Daniele Romanini	
Dispersion cancellation in high-resolution two-photon interference (<i>5 pages</i>)	043845
Masayuki Okano, Ryo Okamoto, Akira Tanaka, Shutaro Ishida, Norihiko Nishizawa, and Shigeki Takeuchi	
Quantization of the electromagnetic field in nondispersive polarizable moving media above the Cherenkov threshold (<i>15 pages</i>)	043846
Mário G. Silveirinha	
Effective magnetic field for photons based on the magneto-optical effect (<i>6 pages</i>)	043847
Kejie Fang and Shanhui Fan	
Signature of the transversal coherence length in high-order harmonic generation (<i>7 pages</i>)	043848
C. Hernández-García, I. J. Sola, and L. Plaja	
Third-harmonic generation in resonant-metamaterial-based photonic-band-gap materials (<i>6 pages</i>)	043849
Jolly Jose	

BRIEF REPORTS

Fundamental concepts

Coherent control of tunneling and traversal of ultracold atoms through vacuum-induced potentials (<i>5 pages</i>)	044101
Fazal Badshah, Muhammad Irfan, Sajid Qamar, and Shahid Qamar	

Quantum information

Mixing nonclassical pure states in a linear-optical network almost always generates modal entanglement (<i>4 pages</i>)	044301
Zhang Jiang, Matthias D. Lang, and Carlton M. Caves	
Two-way deterministic quantum key distribution against detector-side-channel attacks (<i>4 pages</i>)	044302
Hua Lu, Chi-Hang Fred Fung, and Qing-yu Cai	
Creating cluster states in flux qubits with <i>XY</i> -type exchange interactions (<i>4 pages</i>)	044303
Zu-Rong Zhang, Chun-Yan Li, Chun-Wang Wu, Hong-Yi Dai, and Cheng-Zu Li	
Robust state transfer in the quantum spin channel via weak measurement and quantum measurement reversal (<i>5 pages</i>)	044304
Zhi He, Chunmei Yao, and Jian Zou	

Atomic and molecular collisions and interactions

Long-range interactions of excited He atoms with ground-state noble-gas atoms (<i>5 pages</i>)	044701
J.-Y. Zhang, Y. Qian, Z.-C. Yan, and U. Schwingenschlögl	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW A

THIRD SERIES, VOLUME 88, NUMBER 4

OCTOBER 2013

Spiraling elliptic solitons in nonlocal nonlinear media without anisotropy (<i>6 pages</i>)	043825
Guo Liang and Qi Guo	
Equivalence between an optomechanical system and a Kerr medium (<i>10 pages</i>)	043826
Samuel Aldana, Christoph Bruder, and Andreas Nunnenkamp	
Hierarchy of feasible nonclassicality criteria for sources of photons (<i>6 pages</i>)	043827
Radim Filip and Lukáš Lachman	
X-ray quantum optics with Mössbauer nuclei embedded in thin-film cavities (<i>12 pages</i>)	043828
Kilian P. Heeg and Jörg Evers	
Scattering of gap solitons by $\mathcal{PT}$ -symmetric defects (<i>9 pages</i>)	043829
F. Kh. Abdullaev, V. A. Brazhnyi, and M. Salerno	
Photon-number splitting of squeezed light by a single qubit in circuit QED (<i>6 pages</i>)	043830
Kyungsun Moon	
Modulation theory in $\mathcal{PT}$ -symmetric magnetic metamaterial arrays in the continuum limit (<i>7 pages</i>)	043831
Danhua Wang and Alejandro B. Aceves	
Quantum Fisher information of entangled coherent states in the presence of photon loss (<i>7 pages</i>)	043832
Y. M. Zhang, X. W. Li, W. Yang, and G. R. Jin	
Jetlike tunneling from a trapped vortex (<i>6 pages</i>)	043833
E. Cohen, S. Muenzel, O. Farberovich, J. Fleischer, V. Fleurov, and A. Soffer	
Dynamics of phase-locking random lasers (<i>5 pages</i>)	043834
Marco Leonetti, Claudio Conti, and Cefe López	
Dynamics of the Dicke model close to the classical limit (<i>12 pages</i>)	043835
L. Bakemeier, A. Alvermann, and H. Fehske	
Rotation of the noise ellipse for squeezed vacuum light generated via four-wave mixing (<i>8 pages</i>)	043836
Neil V. Corzo, Quentin Glorieux, Alberto M. Marino, Jeremy B. Clark, Ryan T. Glasser, and Paul D. Lett	
One-way photonic band gaps and optical isolation with three-dimensional photonic crystals of low symmetry (<i>5 pages</i>)	043837
Vassilios Yannopapas	
Subwavelength interference with an effective entangled source (<i>5 pages</i>)	043838
Peilong Hong and Guoquan Zhang	
Theory of nondegenerate-spectrum reversal and its breaking (<i>10 pages</i>)	043839
Chenji Gu, Boaz Ilan, and Jay E. Sharping	
Polarization radiation of vortex electrons with large orbital angular momentum (<i>15 pages</i>)	043840
Igor P. Ivanov and Dmitry V. Karlovets	
Quantum interferometric lithography with pair-coherent states (<i>5 pages</i>)	043841
Yan-Xiao Gong	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW A

THIRD SERIES, VOLUME 88, NUMBER 4

OCTOBER 2013

Sum-frequency generation as a detector of high-power two-mode squeezing (<i>7 pages</i>)	043808
Faina Shikerman and Avi Pe'er	
Multipath multicomponent self-accelerating beams through spectrum-engineered position mapping (<i>5 pages</i>)	043809
Yi Hu, Domenico Bongiovanni, Zhigang Chen, and Roberto Morandotti	
Exploiting the coupling between a Rydberg atom and a surface phonon polariton for single-photon subtraction (<i>5 pages</i>)	043810
H. Kübler, D. Booth, J. Sedlacek, P. Zabawa, and J. P. Shaffer	
Two-level system with broken inversion symmetry coupled to a quantum harmonic oscillator (<i>6 pages</i>)	043811
H. K. Avetissian and G. F. Mkrtchian	
Harmonic generation in multiresonant plasma films (<i>5 pages</i>)	043812
M. A. Vincenti, D. de Ceglia, J. W. Haus, and M. Scalora	
Self-organization, pattern formation, cavity solitons, and rogue waves in singly resonant optical parametric oscillators (<i>10 pages</i>)	043813
Gian-Luca Oppo, Alison M. Yao, and Domenico Cuozzo	
Spontaneous emission from two coaxial disks of atoms (<i>12 pages</i>)	043814
P. R. Berman	
Faraday and Cotton-Mouton effects of helium at $\lambda = 1064$ nm (<i>11 pages</i>)	043815
A. Cadène, D. Sordes, P. Berceau, M. Fouché, R. Battesti, and C. Rizzo	
Two-photon absorption and emission by Rydberg atoms in coupled cavities (<i>7 pages</i>)	043816
Huaizhi Wu, Zhen-Biao Yang, and Shi-Biao Zheng	
Tailoring photonic forces on a magnetodielectric nanoparticle with a fluctuating optical source (<i>11 pages</i>)	043817
Juan Miguel Añón, Cheng Wei Qiu, and Manuel Nieto-Vesperinas	
Tunable non-Gaussian resources for continuous-variable quantum technologies (<i>13 pages</i>)	043818
F. Dell'Anno, D. Buono, G. Nocerino, A. Porzio, S. Solimeno, S. De Siena, and F. Illuminati	
Quantum input-output theory for optical cavities with arbitrary coupling strength: Application to two-photon wave-packet shaping (<i>11 pages</i>)	043819
M. G. Raymer and C. J. McKinstrie	
Ground-state properties of a Bose-Einstein condensate in an optomechanical cavity (<i>8 pages</i>)	043820
Jinling Lian, Ni Liu, J.-Q. Liang, Gang Chen, and Suotang Jia	
Correlation measurements with on-off detectors (<i>8 pages</i>)	043821
J. Sperling, W. Vogel, and G. S. Agarwal	
Direct laser writing of three-dimensional network structures as templates for disordered photonic materials (<i>9 pages</i>)	043822
Jakub Haberko, Nicolas Muller, and Frank Scheffold	
Two-color lasing in cold atoms (<i>5 pages</i>)	043823
Jin-Hui Wu, M. Artoni, and G. C. La Rocca	
Preservation of spatial coherence of an optical pulse in atomic vapor quantum memory (<i>4 pages</i>)	043824
Jong-Chan Lee, Kwang-Kyoon Park, Young-Wook Cho, and Yoon-Ho Kim	

(Continued)

Suppression of the quantum collapse in binary bosonic gases (<i>8 pages</i>)	043638
Hidetsugu Sakaguchi and Boris A. Malomed	
☞ Snake instability of dark solitons in fermionic superfluids (<i>8 pages</i>)	043639
A. Cetoli, J. Brand, R. G. Scott, F. Dalfovo, and L. P. Pitaevskii	
Condensation of quasiparticles and density modulation beyond the superfluid critical velocity (<i>6 pages</i>)	043640
András Sütő and Péter Szépfalusy	
Principles of an atomtronic battery (<i>9 pages</i>)	043641
Alex A. Zozulya and Dana Z. Anderson	
Suppression of directional light-wave mixing in normal and quantum gases (<i>9 pages</i>)	043642
L. Deng, Chengjie Zhu, E. W. Hagley, and W. R. Garrett	
Relaxation towards negative temperatures in bosonic systems: Generalized Gibbs ensembles and beyond integrability (<i>7 pages</i>)	043643
Stephan Mandt, Adrian E. Feiguin, and Salvatore R. Manmana	
Compressibility in strongly correlated superconductors and superfluids: From the BCS regime to Bose-Einstein condensates (<i>5 pages</i>)	043644
Hao Guo, Yan He, Chih-Chun Chien, and K. Levin	
Density profiles and collective modes of a Bose-Einstein condensate with light-induced spin-orbit coupling (<i>8 pages</i>)	043645
Qin-Qin Lü and Daniel E. Sheehy	
Pseudospin orders in the supersolid phases in binary Rydberg-dressed Bose-Einstein condensates (<i>5 pages</i>)	043646
C.-H. Hsueh, Y.-C. Tsai, K.-S. Wu, M.-S. Chang, and W. C. Wu	
Shortcut to adiabaticity in internal bosonic Josephson junctions (<i>6 pages</i>)	043647
A. Yuste, B. Juliá-Díaz, E. Torrontegui, J. Martorell, J. G. Muga, and A. Polls	
Quantum optics, physics of lasers, nonlinear optics, classical optics	
Controlling multimode coupling by boundary-wave scattering (<i>9 pages</i>)	043801
Li Ge, Qinghai Song, Brandon Redding, Alexander Eberspächer, Jan Wiersig, and Hui Cao	
Robust continuous-variable entanglement of microwave photons with cavity electromechanics (<i>7 pages</i>)	043802
Peng-Bo Li, Shao-Yan Gao, and Fu-Li Li	
☞ Measurement of the Gouy phase anomaly for electron waves (<i>4 pages</i>)	043803
T. C. Petersen, D. M. Paganin, M. Weyland, T. P. Simula, S. A. Eastwood, and M. J. Morgan	
Spectral invariance and the scaling law with random electromagnetic fields (<i>6 pages</i>)	043804
Timo Hassinen, Jani Tervo, Tero Setälä, Jari Turunen, and Ari T. Friberg	
Geometric interpretation of four-wave mixing (<i>8 pages</i>)	043805
J. R. Ott, H. Steffensen, K. Rottwitt, and C. J. McKinstrie	
Input-output theory for waveguide QED with an ensemble of inhomogeneous atoms (<i>15 pages</i>)	043806
Kevin Lalumière, Barry C. Sanders, A. F. van Loo, A. Fedorov, A. Wallraff, and A. Blais	
Dicke states in multiple quantum dots (<i>10 pages</i>)	043807
Anna Sitek and Andrei Manolescu	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW A

THIRD SERIES, VOLUME 88, NUMBER 4

OCTOBER 2013

Spin liquid phases of alkaline-earth-metal atoms at finite temperature (<i>13 pages</i>)	043619
P. Sinkovicz, A. Zamora, E. Szirmai, M. Lewenstein, and G. Szirmai	
Composite pairing and superfluidity in a one-dimensional resonant Bose-Fermi mixture (<i>14 pages</i>)	043620
Shimul Akhanjee, Masahisa Tsuchiizu, and Akira Furusaki	
Ramsey-Bordé interferometer for electrons (<i>5 pages</i>)	043621
Karl-Peter Marzlin	
Immersing carbon nanotubes in cold atomic gases (<i>11 pages</i>)	043623
C. T. Weiß, P. V. Mironova, J. Fortágh, W. P. Schleich, and R. Walser	
Phases of attractive spin-imbalanced fermions in square lattices (<i>6 pages</i>)	043624
Simone Chiesa and Shiwei Zhang	
Simulation of the magnetoresistance of ultracold atomic Bose gases in bichromatic lattices (<i>5 pages</i>)	043625
J. Towers, S. C. Cormack, and D. A. W. Hutchinson	
Diffraction catastrophes threaded by quantized vortex skeletons caused by atom-optical aberrations induced in trapped Bose-Einstein condensates (<i>8 pages</i>)	043626
T. P. Simula, T. C. Petersen, and D. M. Paganin	
Test of the He-McKellar-Wilkens topological phase by atom interferometry. I. Theoretical discussion (<i>14 pages</i>)	043627
S. Lepoutre, A. Gauguet, M. Büchner, and J. Vigué	
Test of the He-McKellar-Wilkens topological phase by atom interferometry. II. The experiment and its results (<i>14 pages</i>)	043628
S. Lepoutre, J. Gillot, A. Gauguet, M. Büchner, and J. Vigué	
Fluctuation-induced and symmetry-prohibited metastabilities in spinor Bose-Einstein condensates (<i>18 pages</i>)	043629
Nguyen Thanh Phuc, Yuki Kawaguchi, and Masahito Ueda	
First and second sound in a highly elongated Fermi gas at unitarity (<i>14 pages</i>)	043630
Yan-Hua Hou, Lev P. Pitaevskii, and Sandro Stringari	
Normal mass density of a superfluid Fermi gas at unitarity (<i>5 pages</i>)	043631
Gordon Baym and C. J. Pethick	
Back-action-free quantum optomechanics with negative-mass Bose-Einstein condensates (<i>5 pages</i>)	043632
Keye Zhang, Pierre Meystre, and Weiping Zhang	
Pair tunneling of two atoms out of a trap (<i>8 pages</i>)	043633
Massimo Rontani	
Spin relaxation in an ultracold spin-orbit-coupled ^{40}K gas (<i>11 pages</i>)	043634
T. Yu and M. W. Wu	
One-dimensional Bose-Hubbard model far from equilibrium (<i>11 pages</i>)	043635
Iztok Pižorn	
Scale breaking and fluid dynamics in a dilute two-dimensional Fermi gas (<i>7 pages</i>)	043636
Clifford Chafin and Thomas Schäfer	
Optical tweezers for vortex rings in Bose-Einstein condensates (<i>5 pages</i>)	043637
A. I. Yakimenko, Yu. M. Bidasyuk, O. O. Prikhodko, S. I. Vilchinskii, E. A. Ostrovskaya, and Yu. S. Kivshar	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW A

THIRD SERIES, VOLUME 88, NUMBER 4

OCTOBER 2013

Distortion of interference fringes and the resulting vortex production of merging Bose-Einstein condensates (<i>9 pages</i>)	043602
Bo Xiong, Tao Yang, and Keith A. Benedict	
Stability and collapse of fermions in a binary dipolar boson-fermion ^{164}Dy - ^{161}Dy mixture (<i>9 pages</i>)	043603
S. K. Adhikari	
Ground state of a two-component dipolar Fermi gas in a harmonic potential (<i>7 pages</i>)	043604
Przemysław Bienias, Krzysztof Pałowski, Tilman Pfau, and Kazimierz Rzążewski	
Spin squeezing and Einstein-Podolsky-Rosen entanglement of two bimodal condensates in state-dependent potentials (<i>10 pages</i>)	043605
Hadrien Kurkjian, Krzysztof Pałowski, Alice Sinatra, and Philipp Treutlein	
Roton excitations in a trapped dipolar Bose-Einstein condensate (<i>7 pages</i>)	043606
R. N. Bisset, D. Baillie, and P. B. Blakie	
Fulde-Ferrell pairing instability of a Rashba spin-orbit-coupled Fermi gas (<i>8 pages</i>)	043607
Xia-Ji Liu	
Calculating the properties of a coreless vortex in a two-component condensate (<i>7 pages</i>)	043608
Peter Mason	
Effects of magnetic dipole-dipole interactions in atomic Bose-Einstein condensates with tunable <i>s</i> -wave interactions (<i>10 pages</i>)	043609
Abraham J. Olson, Daniel L. Whitenack, and Yong P. Chen	
Demonstration of an ultrahigh-sensitivity atom-interferometry absolute gravimeter (<i>6 pages</i>)	043610
Zhong-Kun Hu, Bu-Liang Sun, Xiao-Chun Duan, Min-Kang Zhou, Le-Le Chen, Su Zhan, Qiao-Zhen Zhang, and Jun Luo	
Quantum-statistics-induced flow patterns in driven ideal Fermi gases (<i>8 pages</i>)	043611
Marco Beria, Yasir Iqbal, Massimiliano Di Ventra, and Markus Müller	
Nambu-Goldstone modes in segregated Bose-Einstein condensates (<i>5 pages</i>)	043612
Hiromitsu Takeuchi and Kenichi Kasamatsu	
Universal behavior of four-boson systems from a functional-renormalization-group analysis (<i>8 pages</i>)	043613
Benjamín Jaramillo Ávila and Michael C. Birse	
Unconventional Fulde-Ferrell-Larkin-Ovchinnikov pairing states in a Fermi gas with spin-orbit coupling (<i>7 pages</i>)	043614
Fan Wu, Guang-Can Guo, Wei Zhang, and Wei Yi	
Simultaneous dual-species matter-wave accelerometer (<i>5 pages</i>)	043615
A. Bonnin, N. Zahzam, Y. Bidel, and A. Bresson	
Band-to-Mott-insulator transformations in four-component alkali-metal fermions at half-filling (<i>5 pages</i>)	043616
J. Jaramillo, S. Greschner, and T. Vekua	
Transition states and thermal collapse of dipolar Bose-Einstein condensates (<i>9 pages</i>)	043617
Andrej Junginger, Manuel Kreibich, Jörg Main, and Günter Wunner	
Quantum phases of incommensurate optical lattices due to cavity backaction (<i>17 pages</i>)	043618
Hessam Habibian, André Winter, Simone Paganelli, Heiko Rieger, and Giovanna Morigi	

(Continued)

Deceleration and trapping of ammonia molecules in a traveling-wave decelerator (<i>8 pages</i>)	043424
Paul Jansen, Marina Quintero-Pérez, Thomas E. Wall, Joost E. van den Berg, Steven Hoekstra, and Hendrick L. Bethlem	
Attosecond-resolved electron emission in nonsequential double ionization (<i>8 pages</i>)	043425
Liangyuan Chen, Yueming Zhou, Cheng Huang, Qingbin Zhang, and Peixiang Lu	
Dissociation of D_2^+ by UV and THz light pulses (<i>5 pages</i>)	043426
Tian-Yu Xu and Feng He	
 Guiding Rydberg atoms above surface-based transmission lines (<i>6 pages</i>)	043427
P. Lancuba and S. D. Hogan	
Transient absorption spectra of the laser-dressed hydrogen atom (<i>8 pages</i>)	043428
Mitsuko Murakami and Shih-I Chu	
Coherent manipulation of cold Rydberg atoms near the surface of an atom chip (<i>10 pages</i>)	043429
J. D. Carter and J. D. D. Martin	
Production of very-high- n strontium Rydberg atoms (<i>10 pages</i>)	043430
S. Ye, X. Zhang, T. C. Killian, F. B. Dunning, M. Hiller, S. Yoshida, S. Nagele, and J. Burgdörfer	
Two-dimensional crystals of Rydberg excitations in a resonantly driven lattice gas (<i>6 pages</i>)	043431
David Petrosyan	
Multichannel contributions in the nonsequential double ionization of CO_2 (<i>6 pages</i>)	043432
M. Oppermann, S. J. Weber, L. J. Frasinski, M. Yu. Ivanov, and J. P. Marangos	
Deceleration and trapping of a fast supersonic beam of metastable helium atoms with a 44-electrode chip decelerator (<i>8 pages</i>)	043433
P. Allmendinger, J. A. Agner, H. Schmutz, and F. Merkt	
Effect of defects on phonons and the effective spin-spin interactions of an ultracold Penning-trap quantum simulator (<i>11 pages</i>)	043434
M. McAneny, B. Yoshimura, and J. K. Freericks	
Terracelike structure in the above-threshold-ionization spectrum of an atom in an IR+XUV two-color laser field (<i>5 pages</i>)	043435
Kui Zhang, Jing Chen, Xiao-Lei Hao, Panming Fu, Zong-Chao Yan, and Bingbing Wang	
Exciton dynamics in emergent Rydberg lattices (<i>6 pages</i>)	043436
S. Bettelli, D. Maxwell, T. Fernholz, C. S. Adams, I. Lesanovsky, and C. Ates	
Quantum control of femtosecond resonance-enhanced multiphoton-ionization photoelectron spectroscopy (<i>5 pages</i>)	043437
Shian Zhang, Chenhui Lu, Tianqing Jia, Jianrong Qiu, and Zhenrong Sun	

PART B

Matter waves and collective properties of cold atoms and molecules

Quantum breathing dynamics of ultracold bosons in one-dimensional harmonic traps: Unraveling the pathway from few- to many-body systems (<i>9 pages</i>)	043601
Rüdiger Schmitz, Sven Krönke, Lushuai Cao, and Peter Schmelcher	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW A

THIRD SERIES, VOLUME 88, NUMBER 4

OCTOBER 2013

Dynamic Stark effect and interference photoelectron spectra of H_2^+ (5 pages)	043408
Chuan Yu, Ning Fu, Tian Hu, Guizhong Zhang, and Jianquan Yao	
Cold-atom densities of more than 10^{12} cm^{-3} in a holographically shaped dark spontaneous-force optical trap (4 pages)	043409
N. Radwell, G. Walker, and S. Franke-Arnold	
Dynamic formation of Rydberg aggregates at off-resonant excitation (7 pages)	043410
Martin Gärttner, Kilian P. Heeg, Thomas Gasenzer, and Jörg Evers	
Probing two-center interference in H_2^+ using chirped pulses (7 pages)	043411
Sigurd Askeland and Morten Førre	
Production of excited H atoms at the C 1s edge of the methane molecule studied by VUV-photon-photoion and metastable-fragment-photoion coincidence experiments (11 pages)	043412
A. Kivimäki, J. Álvarez-Ruiz, R. Sergio, and R. Richter	
Nuclear-wave-packet quantum interference in the intense laser dissociation of the D_2^+ molecule (6 pages)	043413
Gábor J. Halász, Ágnes Vibók, Nimrod Moiseyev, and Lorenz S. Cederbaum	
ac Stark effect in the electronic continuum and its impact on the photoionization of atoms by coherent intense short high-frequency laser pulses (11 pages)	043414
Philipp V. Demekhin and Lorenz S. Cederbaum	
Quantitative extraction of the emission times of high-order harmonics via the determination of instantaneous frequencies (5 pages)	043415
François Risoud, Jérémie Caillat, Alfred Maquet, Richard Taïeb, and Camille Lévêque	
Time-domain perspective on Autler-Townes splitting in attosecond transient absorption of laser-dressed helium atoms (9 pages)	043416
Mengxi Wu, Shaohao Chen, Mette B. Gaarde, and Kenneth J. Schafer	
High-order-harmonic generation from Rydberg states at fixed Keldysh parameter (11 pages)	043417
E. A. Bleda, I. Yavuz, Z. Altun, and T. Topcu	
Four-color stimulated optical forces for atomic and molecular slowing (8 pages)	043418
S. E. Galica, L. Aldridge, and E. E. Eyler	
Ultrafast dynamics of autoionizing states in O_2 probed by laser-field-assisted XUV photoionization (5 pages)	043419
Changjun Zhu, Dong Hyuk Ko, Kyung Sik Kang, Jisu Lee, Jae-hwan Lee, G. Umesh, E. Krishnakumar, and Chang Hee Nam	
Excitation of rotons in parahydrogen crystals: The laser-induced-molecular-alignment mechanism (15 pages)	043420
Johan Lindgren and Toni Kiljunen	
Measuring the angle-dependent photoionization cross section of nitrogen using high-harmonic generation (5 pages)	043421
Xiaoming Ren, Varun Makhija, Anh-Thu Le, Jan Troß, Sudipta Mondal, Cheng Jin, Vinod Kumarappan, and Carlos Trallero-Herrero	
Time-optimal control of $SU(2)$ quantum operations (12 pages)	043422
A. Garon, S. J. Glaser, and D. Sugny	
Photoabsorption spectra of the Ce atom encapsulated inside a C_{82} fullerene (4 pages)	043423
Zhifan Chen and Alfred Z. Msezane	

(Continued)

Observation of interatomic Coulombic decay and electron-transfer-mediated decay in high-energy electron-impact ionization of Ar ₂ (5 pages)	042712
S. Yan, P. Zhang, X. Ma, S. Xu, B. Li, X. L. Zhu, W. T. Feng, S. F. Zhang, D. M. Zhao, R. T. Zhang, D. L. Guo, and H. P. Liu	
Angular distributions for the electron-impact single ionization of sodium and magnesium (7 pages)	042713
G. S. J. Armstrong, J. Colgan, and M. S. Pindzola	
Nucleus-nucleus effects in differential cross sections for antiproton-impact ionization of H atoms (6 pages)	042714
M. F. Ciappina, T.-G. Lee, M. S. Pindzola, and J. Colgan	
Positron scattering from molecular hydrogen (8 pages)	042715
J. R. Machacek, E. K. Anderson, C. Makocheanwa, S. J. Buckman, and J. P. Sullivan	
Clusters (including fullerenes)	
Quantum and classical features of the photoionization spectrum of C ₆₀ (8 pages)	043201
A. V. Verkhovtsev, A. V. Korol, and A. V. Solov'yov	
Hybridization of angular-momentum eigenstates in nonspherical sodium clusters (5 pages)	043202
C. Bartels, C. Hock, R. Kuhn, M. Walter, and B. v. Issendorff	
Crossover in the photoionization processes of neon clusters with increasing EUV free-electron-laser intensity (5 pages)	043203
S. Yase, K. Nagaya, Y. Mizoguchi, M. Yao, H. Fukuzawa, K. Motomura, A. Yamada, Ri Ma, K. Ueda, N. Saito, M. Nagasono, T. Togashi, K. Tono, M. Yabashi, T. Ishikawa, H. Ohashi, and Y. Senba	
Atomic and molecular processes in external fields, including interactions with strong fields and short pulses	
Influence of ionization suppression on high-harmonic generation in molecules: Dependence of cutoff energy on driver wavelength (6 pages)	043401
Guihua Li, Jinping Yao, Haisu Zhang, Chenrui Jing, Bin Zeng, Wei Chu, Jielei Ni, Hongqiang Xie, Xiaojun Liu, Jing Chen, Ya Cheng, and Zhizhan Xu	
Resonance effects in two-photon double ionization of H ₂ by femtosecond XUV laser pulses (5 pages)	043402
Xiaoxu Guan, Klaus Bartschat, Barry I. Schneider, and Lars Koesterke	
Hybrid surface-flux method for extraction of the ionization amplitude from the calculated wave function (7 pages)	043403
Vladislav V. Serov, Vladimir L. Derbov, Tatyana A. Sergeeva, and Sergue I. Vinitisky	
Zhu-Nakamura theory and the superparabolic level-glancing models (8 pages)	043404
J. Lehto	
Photoionization and fragmentation of H ₃ O ⁺ under XUV irradiation (12 pages)	043405
C. Domesle, S. Dziarzhyski, N. Guerassimova, L. S. Harbo, O. Heber, L. Lammich, B. Jordon-Thaden, R. Treusch, A. Wolf, and H. B. Pedersen	
Shaking-induced dynamics of cold atoms in magnetic traps (6 pages)	043406
I. Llorente García, B. Darquié, C. D. J. Sinclair, E. A. Curtis, M. Tachikawa, J. J. Hudson, and E. A. Hinds	
Intensity landscape and the possibility of magic trapping of alkali-metal Rydberg atoms in infrared optical lattices (5 pages)	043407
Turker Topcu and Andrei Derevianko	

(Continued)

Lifetime and population of the $2S$ state in muonic hydrogen and deuterium (<i>6 pages</i>)	042520
Marc Diepold, Fernando D. Amaro, Aldo Antognini, François Biraben, João M. R. Cardoso, Daniel S. Covita, Andreas Dax, Satish Dhawan, Luis M. P. Fernandes, Adolf Giesen, Andrea L. Gouvea, Thomas Graf, Theodor W. Hänsch, Paul Indelicato, Lucile Julien, Cheng-Yang Kao, Paul Knowles, Franz Kottmann, Eric-Olivier Le Bigot, Yi-Wei Liu, José A. M. Lopes, Livia Ludhova, Cristina M. B. Monteiro, Françoise Mulhauser, Tobias Nebel, François Nez, Paul Rabinowitz, Joaquim M. F. dos Santos, Lukas A. Schaller, Karsten Schuhmann, Catherine Schwob, David Taqqu, João F. C. A. Veloso, Jan Vogelsang, and Randolph Pohl (CREMA Collaboration)	
Atomic and molecular collisions and interactions	
Collinear laser spectroscopy on the ground state and an excited state in neutral ^{55}Mn (<i>7 pages</i>)	042701
A. Klose, K. Minamisono, and P. F. Mantica	
Total electron-scattering cross sections from pyrimidine as measured using a magnetically confined experimental system (<i>8 pages</i>)	042702
Martina C. Fuss, Ana G. Sanz, Francisco Blanco, Juan Carlos Oller, Paulo Limão-Vieira, Michael J. Brunger, and Gustavo García	
Average charge states of heavy and superheavy ions passing through a rarified gas: Theory and experiment (<i>8 pages</i>)	042703
J. Khuyagbaatar, V. P. Shevelko, A. Borschevsky, Ch. E. Düllmann, I. Yu. Tolstikhina, and A. Yakushev	
KLL dielectronic-recombination measurement for Li-like to O-like gold (<i>7 pages</i>)	042704
Gang Xiong, Jiyang Zhang, Zhimin Hu, Nobuyuki Nakamura, Yueming Li, Xiaoying Han, Jiamin Yang, and Baohan Zhang	
Elastic and inelastic collisions of $^2\Sigma$ molecules in a magnetic field (<i>9 pages</i>)	042705
Jie Cui and Roman V. Krems	
Electron elastic scattering off a semifilled-shell atom: The Mn atom (<i>7 pages</i>)	042706
V. K. Dolmatov, M. Ya. Amusia, and L. V. Chernysheva	
Ion-impact-induced interatomic Coulombic decay in neon and argon dimers (<i>9 pages</i>)	042707
H.-K. Kim, H. Gassert, M. S. Schöffler, J. N. Titze, M. Waitz, J. Voigtsberger, F. Trinter, J. Becht, A. Kalinin, N. Neumann, C. Zhou, L. Ph. H. Schmidt, O. Jagutzki, A. Czasch, H. Merabet, H. Schmidt-Böcking, T. Jahnke, A. Cassimi, and R. Dörner	
Relative dissociation fractions of SF_6 under impact of 15-keV to 30-keV H^- and C^- negative ions (<i>8 pages</i>)	042708
Zilong Zhao, Junqin Li, and Xuemei Zhang	
Electron-induced double ionization of isolated water molecules (<i>11 pages</i>)	042709
D. Oubaziz, C. Champion, and H. Aouchiche	
Two-dimensional electron-momentum distributions for transfer ionization in fast proton-helium collisions (<i>7 pages</i>)	042710
M. S. Schöffler, O. Chuluunbaatar, S. Houamer, A. Galstyan, J. N. Titze, L. Ph. H. Schmidt, T. Jahnke, H. Schmidt-Böcking, R. Dörner, Yu. V. Popov, A. A. Gusev, and C. Dal Cappello	
Low-energy positron scattering from gas-phase pyrimidine: A quantum treatment of the dynamics and a comparison with experiments (<i>8 pages</i>)	042711
J. Franz and F. A. Gianturco	

(Continued)

Shift and broadening of resonance lines of antiprotonic helium atoms in liquid ^4He (7 pages)	042505
Andrzej Adamczak and Dimitar Bakalov	
Infrared absorption by molecular gases as a probe of nanoporous silica xerogel and molecule-surface collisions: Low-pressure results (10 pages)	042506
J. Vander Auwera, N. H. Ngo, H. El Hamzaoui, B. Capoen, M. Bouazaoui, P. Ausset, C. Boulet, and J.-M. Hartmann	
Double-core-polarization contribution to atomic parity-nonconservation and electric-dipole-moment calculations (5 pages)	042507
B. M. Roberts, V. A. Dzuba, and V. V. Flambaum	
Absence of dynamical steps in the exact correlation potential in the linear response regime (6 pages)	042508
Kai Luo, Peter Elliott, and Neepa T. Maitra	
 Quantum Cherenkov radiation and noncontact friction (10 pages)	042509
Mohammad F. Maghrebi, Ramin Golestanian, and Mehran Kardar	
Dynamic polarizability of Rydberg atoms: Applicability of the near-free-electron approximation, gauge invariance, and the Dirac sea (5 pages)	042510
Turker Topcu and Andrei Derevianko	
Excited-state energies and fine structure of highly charged lithiumlike ions (6 pages)	042511
Jin-ying Li, Da-jun Ding, and Zhi-wen Wang	
Two-photon decay of inner-shell vacancies in heavy atoms (7 pages)	042512
A. Surzhykov, R. H. Pratt, and S. Fritzsche	
Influence of the exchange-correlation potential in methods based on time-dependent density-functional theory (10 pages)	042513
P. Bleiziffer, A. Heßelmann, C. J. Umrigar, and Andreas Görling	
Nonexistence of a Taylor expansion in time due to cusps (14 pages)	042514
Zeng-hui Yang and Kieron Burke	
Quantum phase transitions via density-functional theory: Extension to the degenerate case (6 pages)	042515
Á. Nagy and E. Romera	
All-order calculations of the spectra of Ba II, Ra II, Fr I, and superheavy elements E119 I and E120 II (6 pages) . . .	042516
V. A. Dzuba	
Time-resolved determination of ortho-positronium kinetic energy utilizing p -wave scattering during positronium-xenon collisions (5 pages)	042517
Kengo Shibuya, Yoshihiro Kawamura, and Haruo Saito	
Three-body recombination at finite energy within an optical model (5 pages)	042518
P. K. Sørensen, D. V. Fedorov, A. S. Jensen, and N. T. Zinner	
Shielding vacuum fluctuations with graphene (6 pages)	042519
Sofia Ribeiro and Stefan Scheel	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW A

THIRD SERIES, VOLUME 88, NUMBER 4

OCTOBER 2013

Missing data outside the detector range: Continuous-variable entanglement verification and quantum cryptography (<i>6 pages</i>)	042326
Megan R. Ray and S. J. van Enk	
Gain tuning for continuous-variable quantum teleportation of discrete-variable states (<i>10 pages</i>)	042327
Shuntaro Takeda, Takahiro Mizuta, Maria Fuwa, Hidehiro Yonezawa, Peter van Loock, and Akira Furusawa	
Entropy vector formalism and the structure of multidimensional entanglement in multipartite systems (<i>7 pages</i>)	042328
Marcus Huber, Martí Perarnau-Llobet, and Julio I. de Vicente	
Genuine multiparty quantum entanglement suppresses multiport classical information transmission (<i>4 pages</i>)	042329
R. Prabhu, Aditi Sen(De), and Ujjwal Sen	
Universal quantum computation by the unitary control of ancilla qubits and using a fixed ancilla-register interaction (<i>9 pages</i>)	042330
Timothy J. Proctor, Erika Andersson, and Viv Kendon	
Continuous-variable dense coding by optomechanical cavities (<i>6 pages</i>)	042331
Shabir Barzanjeh, Stefano Pirandola, and Christian Weedbrook	
Equivalence between sharing quantum and classical secrets and error correction (<i>6 pages</i>)	042332
Anne Marin and Damian Markham	
Nonstrict inequality for Schmidt coefficients of three-qubit states (<i>5 pages</i>)	042333
Levon Tamaryan	
Continuous-time quantum walks with defects and disorder (<i>9 pages</i>)	042334
J. A. Izaac, J. B. Wang, and Z. J. Li	
Quantum channel detection (<i>6 pages</i>)	042335
C. Macchiavello and M. Rossi	
Comparison of ancilla preparation and measurement procedures for the Steane $[[7,1,3]]$ code on a model ion-trap quantum computer (<i>12 pages</i>)	042336
Yu Tomita, Mauricio Gutiérrez, Chingiz Kabytayev, Kenneth R. Brown, M. R. Hutsel, A. P. Morris, Kelly E. Stevens, and G. Mohler	
Classical and quantum capacities of a fully correlated amplitude damping channel (<i>15 pages</i>)	042337
A. D'Arrigo, G. Benenti, G. Falci, and C. Macchiavello	
Atomic and molecular structure and dynamics	
Relativistic effects on the hyperfine structures of $2p^4(^3P)3p^2D^o$, $^4D^o$, and $^4P^o$ in $^{19}\text{F I}$ (<i>9 pages</i>)	042501
Thomas Carette, Messaoud Nemouchi, Jiguang Li, and Michel Godefroid	
Two-loop QED corrections with closed fermion loops for the bound-electron g factor (<i>9 pages</i>)	042502
V. A. Yerokhin and Z. Harman	
Binding energies and geometry of the $^{24}\text{Mg-He}_2$ and $^{40}\text{Ca-He}_2$ triatomic systems (<i>8 pages</i>)	042503
Min-min Liu, Hui-li Han, Cheng-bin Li, and Si-hong Gu	
Higher ionization energies of atoms in density-functional theory (<i>9 pages</i>)	042504
Uri Argaman, Guy Makov, and Eli Kraisler	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW A

THIRD SERIES, VOLUME 88, NUMBER 4

OCTOBER 2013

Coping with qubit leakage in topological codes (<i>5 pages</i>)	042308
Austin G. Fowler	
Minimum number of input states required for quantum gate characterization (<i>9 pages</i>)	042309
Daniel M. Reich, Giulia Gualdi, and Christiane P. Koch	
Multipartite entangled light from driven microcavities (<i>9 pages</i>)	042310
D. Pagel, H. Fehske, J. Sperling, and W. Vogel	
Continuous-variable topological codes (<i>7 pages</i>)	042311
Tomoyuki Morimae	
Compact entanglement distillery using realistic quantum memories (<i>8 pages</i>)	042312
Levon Chakhmakhchyan, Stéphane Guérin, Joshua Nunn, and Animesh Datta	
Quantum secret sharing with continuous-variable cluster states (<i>18 pages</i>)	042313
Hoi-Kwan Lau and Christian Weedbrook	
Quadripartite entanglement from a double three-level Λ -type-atom model (<i>17 pages</i>)	042314
Dan Wang, Li-Yun Hu, Xiu-Mei Pang, Jun-Xiang Zhang, and Shi-Yao Zhu	
Phase-matching condition for enhancement of phase sensitivity in quantum metrology (<i>4 pages</i>)	042316
Jing Liu (刘京), Xiaoxing Jing (井晓幸), and Xiaoguang Wang (王晓光)	
Nonclassical two-photon interference between independent telecommunication light pulses converted by difference-frequency generation (<i>4 pages</i>)	042317
Rikizo Ikuta, Toshiki Kobayashi, Hiroshi Kato, Shigehito Miki, Taro Yamashita, Hirotaka Terai, Mikio Fujiwara, Takashi Yamamoto, Masato Koashi, Masahide Sasaki, Zhen Wang, and Nobuyuki Imoto	
Entanglement negativity and topological order (<i>12 pages</i>)	042318
Yirun Arthur Lee and Guifre Vidal	
Negativity and topological order in the toric code (<i>5 pages</i>)	042319
C. Castelnovo	
Global phase and minimum time of quantum Fourier transform for qudits represented by quadrupole nuclei (<i>8 pages</i>)	042320
V. P. Shauro and V. E. Zobov	
Quantum Zeno effect of general quantum operations (<i>9 pages</i>)	042321
Ying Li, David A. Herrera-Martí, and Leong Chuan Kwek	
Quantum circuits employing roots of the Pauli matrices (<i>7 pages</i>)	042322
Mathias Soeken, D. Michael Miller, and Rolf Drechsler	
Compact quantum gates on electron-spin qubits assisted by diamond nitrogen-vacancy centers inside cavities (<i>10 pages</i>)	042323
Hai-Rui Wei and Fu-Guo Deng	
Method for preparing two-atom entangled states in circuit QED and probing it via quantum nondemolition measurements (<i>5 pages</i>)	042324
D. Z. Rossatto and C. J. Villas-Boas	
Distillation of nonstabilizer states for universal quantum computation (<i>7 pages</i>)	042325
Guillaume Duclos-Cianci and Krysta M. Svore	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW A

THIRD SERIES, VOLUME 88, NUMBER 4

OCTOBER 2013

Bell's local causality, Leggett's crypto-nonlocality, and quantum separability are genuinely different concepts (<i>4 pages</i>)	042113
Cyril Branciard	
Quantum state tomography from a sequential measurement of two variables in a single setup (<i>6 pages</i>)	042114
Antonio Di Lorenzo	
Spontaneous synchronization and quantum correlation dynamics of open spin systems (<i>9 pages</i>)	042115
G. L. Giorgi, F. Plastina, G. Francica, and R. Zambrini	
Information amplification via postselection: A parameter-estimation perspective (<i>4 pages</i>)	042116
Saki Tanaka and Naoki Yamamoto	
Qualitative noise-disturbance relation for quantum measurements (<i>7 pages</i>)	042117
Teiko Heinosaari and Takayuki Miyadera	
Internal structure of the Heisenberg and Robertson-Schrödinger uncertainty relations: Multidimensional generalization (<i>5 pages</i>)	042118
L. Skála	
Non-self-adjoint model of a two-dimensional noncommutative space with an unbound metric (<i>6 pages</i>)	042119
Fabio Bagarello and Andreas Fring	
Cold-atom double- Λ coherent population trapping clock (<i>5 pages</i>)	042120
F.-X. Esnault, E. Blanshan, E. N. Ivanov, R. E. Scholten, J. Kitching, and E. A. Donley	
Comparing quantum cloning: A Fisher-information perspective (<i>5 pages</i>)	042121
Hongting Song, Shunlong Luo, Nan Li, and Lina Chang	
Epistemic restrictions in Hilbert space quantum mechanics (<i>9 pages</i>)	042122
Robert B. Griffiths	
Quantum information	
Quantum walks as massless Dirac fermions in curved space-time (<i>5 pages</i>)	042301
Giuseppe Di Molfetta, M. Brachet, and Fabrice Debbsch	
Entanglement generation in a system of two atomic quantum dots coupled to a pool of interacting bosons (<i>8 pages</i>)	042302
Anna Posazhennikova, Reinhard Birmuske, Martin Bruderer, and Wolfgang Belzig	
Gaussian entanglement induced by an extended thermal environment (<i>13 pages</i>)	042303
Antonio A. Valido, Daniel Alonso, and Sigmund Kohler	
Criterion of local unitary equivalence for multipartite states (<i>6 pages</i>)	042304
Ting-Gui Zhang, Ming-Jing Zhao, Ming Li, Shao-Ming Fei, and Xianqing Li-Jost	
Effective noise channels for encoded quantum systems (<i>9 pages</i>)	042305
Frederik Kesting, Florian Fröwis, and Wolfgang Dür	
Two-qubit gates for decoherence-free qubits using a ring exchange interaction (<i>10 pages</i>)	042306
Bobby Antonio and Sougato Bose	
Proof of the Gour-Wallach conjecture (<i>5 pages</i>)	042307
Lin Chen and Dragomir Ž. Đoković	

(Continued)

Fundamental quantum interferometry bound for the squeezed-light-enhanced gravitational wave detector GEO 600 (<i>5 pages</i>)	041802(R)
Rafał Demkowicz-Dobrzański, Konrad Banaszek, and Roman Schnabel	
$\mathcal{PT}$ -symmetric optical potentials in a coherent atomic medium (<i>6 pages</i>)	041803(R)
Jiteng Sheng, Mohammad-Ali Miri, Demetrios N. Christodoulides, and Min Xiao	
Free-space read-out and control of single-ion dispersion using quantum interference (<i>5 pages</i>)	041804(R)
G. Hétet, L. Slodička, N. Röck, and R. Blatt	
Remotely pumped stimulated emission at 337 nm in atmospheric nitrogen (<i>4 pages</i>)	041805(R)
Daniil Kartashov, Skirmantas Ališauskas, Andrius Baltuška, Andreas Schmitt-Sody, William Roach, and Pavel Polynkin	

ARTICLES

Fundamental concepts

Greenberger-Horne-Zeilinger theorem for N qudits (<i>5 pages</i>)	042101
Junghee Ryu, Changhyoup Lee, Marek Żukowski, and Jinhyoung Lee	
Survival of coherence for open quantum systems in thermal baths (<i>7 pages</i>)	042102
Filippo Giraldi and Francesco Petruccione	
QED in a momentum-cutoff vacuum (<i>12 pages</i>)	042103
Yan Gu	
Testing genuine tripartite quantum nonlocality with three two-level atoms in a driven cavity (<i>8 pages</i>)	042104
H. Yuan and L. F. Wei	
Natural orbitals and occupation numbers for harmonium: Fermions versus bosons (<i>11 pages</i>)	042105
Christian Schilling	
Reinterpretations of an experiment on the backaction in a weak measurement (<i>7 pages</i>)	042106
Kouji Nakamura and Masataka Iinuma	
Non-Abelian phases from quantum Zeno dynamics (<i>5 pages</i>)	042107
Daniel Burgarth, Paolo Facchi, Vittorio Giovannetti, Hiromichi Nakazato, Saverio Pascazio, and Kazuya Yuasa	
Geometric phase and phase diagram for a non-Hermitian quantum XY model (<i>5 pages</i>)	042108
X. Z. Zhang and Z. Song	
Intuitive reason for the usefulness of entanglement in quantum metrology (<i>5 pages</i>)	042109
Lorenzo Maccone	
Action principle for continuous quantum measurement (<i>7 pages</i>)	042110
A. Chantasri, J. Dressel, and A. N. Jordan	
Entropy production and information fluctuations along quantum trajectories (<i>9 pages</i>)	042111
B. Leggio, A. Napoli, A. Messina, and H.-P. Breuer	
Quantum limit for the measurement of a classical force coupled to a noisy quantum-mechanical oscillator (<i>15 pages</i>)	042112
C. L. Latune, B. M. Escher, R. L. de Matos Filho, and L. Davidovich	

(Continued)

*The Table of Contents is a total listing of Parts A and B.
Part A consists of pages 040101(R)-043437, and Part B pages 043601-049907(E).*

PART A

RAPID COMMUNICATIONS

Fundamental concepts

Generating shortcuts to adiabaticity in quantum and classical dynamics (5 pages) 040101(R)
Christopher Jarzynski

Quantum parameter estimation using general single-mode Gaussian states (5 pages) 040102(R)
O. Pinel, P. Jian, N. Treps, C. Fabre, and D. Braun

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

Universal heating curve of damped Coulomb plasmas in a Paul trap (4 pages) 041401(R)
J. D. Tarnas, Y. S. Nam, and R. Blümel

☞ Laser-induced electron localization in a triatomic molecular ion (5 pages) 041402(R)
Erik Lötstedt and Katsumi Midorikawa

Electron shakeoff following the β^+ decay of trapped $^{35}\text{Ar}^+$ ions (5 pages) 041403(R)
C. Couratin, X. Fabian, B. Fabre, B. Pons, X. Fléhard, E. Liénard, G. Ban, M. Breitenfeldt, P. Delahaye,
D. Durand, A. Méry, O. Naviliat-Cuncic, T. Porobic, G. Quémener, D. Rodríguez, N. Severijns,
J.-C. Thomas, and S. Van Gorp

Matter waves and collective properties of cold atoms and molecules

Optical control of a magnetic Feshbach resonance in an ultracold Fermi gas (5 pages) 041601(R)
Zhengkun Fu, Pengjun Wang, Lianghai Huang, Zengming Meng, Hui Hu, and Jing Zhang

Quantum systems of ultracold bosons with customized interparticle interactions (5 pages) 041602(R)
Alexej I. Streltsov

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

Phase conjugation in quantum optomechanics (5 pages) 041801(R)
L. F. Buchmann, E. M. Wright, and P. Meystre

