

PHYSICAL REVIEW A

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

PERIODICALS
Postmaster send address changes to:
APS Subscription Services
Suite 1NO1
2 Huntington Quadrangle
Melville, NY 11747-4502

THIRD SERIES, VOLUME 79, NUMBER 2
PARTS A AND B

CONTENTS

FEBRUARY 2009

The Table of Contents is a total listing of Parts A and B.
Part A consists of pages 020101(R)-023423, and Part B pages 023601-029903(E).

PART A

RAPID COMMUNICATIONS

Fundamental concepts

- Relative tomography of an unknown quantum state (*4 pages*) 020101(R)
D. Mogilevtsev, J. Řeháček, and Z. Hradil
- Numerical studies of Lifshitz interactions between dielectrics (*4 pages*) 020102(R)
S. Pasquali and A. C. Maggs
- Gamma flashes from relativistic electron-positron plasma droplets (*4 pages*) 020103(R)
Munshi G. Mustafa and B. Kämpfer

Quantum information

- High-fidelity fast quantum transport with imperfect controls (*4 pages*) 020301(R)
M. Murphy, L. Jiang, N. Khaneja, and T. Calarco
- Compact Toffoli gate using weighted graph states (*4 pages*) 020302(R)
M. S. Tame, Ş. K. Özdemir, M. Koashi, N. Imoto, and M. S. Kim
- Optimal ratio between phase basis and bit basis in quantum key distributions (*4 pages*) 020303(R)
Masahito Hayashi
- High-fidelity entanglement of $^{43}\text{Ca}^+$ hyperfine clock states (*4 pages*) 020304(R)
G. Kirchmair, J. Benhelm, F. Zähringer, R. Gerritsma, C. F. Roos, and R. Blatt
- Coupling strength estimation for spin chains despite restricted access (*4 pages*) 020305(R)
Daniel Burgarth, Koji Maruyama, and Franco Nori

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

- Modified ant-colony-optimization algorithm as an alternative to genetic algorithms (*4 pages*) 021401(R)
C. Gollub and R. de Vivie-Riedle



Copyright 2009 by The American Physical Society

(Continued)



1050-2947(200902)79:2:A;1-A

Efficient formation of deeply bound ultracold molecules probed by broadband detection (<i>4 pages</i>)	021402(R)
Matthieu Viteau, Amodsen Chotia, Maria Allegrini, Nadia Bouloufa, Olivier Dulieu, Daniel Comparat, and Pierre Pillet	

Matter waves

All-optical formation of quantum degenerate mixtures (<i>4 pages</i>)	021601(R)
Takeshi Fukuhara, Seiji Sugawa, Yosuke Takasu, and Yoshiro Takahashi	
Vortices near the Mott phase of a trapped Bose-Einstein condensate (<i>4 pages</i>)	021602(R)
Daniel S. Goldbaum and Erich J. Mueller	
Optimizing number squeezing when splitting a mesoscopic condensate (<i>4 pages</i>)	021603(R)
Julian Grond, Jörg Schmiedmayer, and Ulrich Hohenester	
Uniformly frustrated bosonic Josephson-junction arrays (<i>4 pages</i>)	021604(R)
Kenichi Kasamatsu	
Technique for measuring atomic recoil frequency using coherence functions (<i>4 pages</i>)	021605(R)
S. Beattie, B. Barrett, I. Chan, C. Mok, I. Yavin, and A. Kumarakrishnan	
Atom-atom correlations in colliding Bose-Einstein condensates (<i>4 pages</i>)	021606(R)
Magnus Ögren and K. V. Kheruntsyan	
Coherent pumping of a Mott insulator: Fermi golden rule versus Rabi oscillations (<i>4 pages</i>)	021607(R)
F. Hassler and S. D. Huber	
Quenches in quantum many-body systems: One-dimensional Bose-Hubbard model reexamined (<i>4 pages</i>)	021608(R)
Guillaume Roux	

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

Antibunching and bunching of photons in resonance fluorescence from a few atoms into guided modes of an optical nanofiber (<i>4 pages</i>)	021801(R)
K. P. Nayak, Fam Le Kien, M. Morinaga, and K. Hakuta	
Photon trapping and transfer with solitons (<i>4 pages</i>)	021802(R)
Ken Steiglitz and Darren Rand	
Soliton with different topological charges (<i>4 pages</i>)	021803(R)
Milan S. Petrović, Slobodan Prvanović, and Dragana M. Jović	
Integrated atom detector: Single atoms and photon statistics (<i>4 pages</i>)	021804(R)
Dennis Heine, Marco Wilzbach, Thomas Raub, Björn Hessmo, and Jörg Schmiedmayer	

ARTICLES

Fundamental concepts

Decoherence of qubits interacting with a nonlinear dissipative classical or quantum system (<i>11 pages</i>)	022101
Nikola Burić	
Homogeneous and genuine Bell inequalities (<i>6 pages</i>)	022102
F. De Zela	
Parameter estimation with cluster states (<i>10 pages</i>)	022103
Matthias Rosenkranz and Dieter Jaksch	

(Continued)

Entropic uncertainty relation for mutually unbiased bases (<i>5 pages</i>)	022104
Shengjun Wu (吴盛俊), Sixia Yu (郁司夏), and Klaus Mølmer	
Relaxation due to random collisions with a many-qudit environment (<i>7 pages</i>)	022105
Giuseppe Gennaro, Giuliano Benenti, and G. Massimo Palma	
Influence of the state of light on the optically induced interparticle interaction (<i>9 pages</i>)	022106
Justo Rodríguez and David L. Andrews	
Decoherence in adiabatic quantum computation (<i>4 pages</i>)	022107
M. H. S. Amin, Dmitri V. Averin, and James A. Nesteroff	
Robustness of highly entangled multiqubit states under decoherence (<i>7 pages</i>)	022108
A. Borrás, A. P. Majtey, A. R. Plastino, M. Casas, and A. Plastino	
Numerical strategies for quantum tomography: Alternatives to full optimization (<i>11 pages</i>)	022109
Max S. Kaznady and Daniel F. V. James	
Clauser-Horne-Shimony-Holt-type Bell inequalities involving a party with two or three local binary settings (<i>5 pages</i>)	022110
Yu-Chun Wu, Piotr Badziag, and Marek Żukowski	
Maximal violations of a Bell inequality by entangled spin-coherent states (<i>4 pages</i>)	022111
Christopher C. Gerry, Adil Benmoussa, Edwin E. Hach, III, and Jaroslav Albert	
Typical features of the Mintert-Buchleitner lower bound for concurrence (<i>6 pages</i>)	022112
A. Borrás, A. P. Majtey, A. R. Plastino, M. Casas, and A. Plastino	
Kinetic energy contribution to the exchange-correlation energy functional of the extended constrained-search theory (<i>8 pages</i>)	022113
Katsuhiko Higuchi and Masahiko Higuchi	
Quasiprobability distribution functions for finite-dimensional discrete phase spaces: Spin-tunneling effects in a toy model (<i>7 pages</i>)	022114
Marcelo A. Marchioli, Evandro C. Silva, and Diógenes Galetti	
Semiclassical theory of energy diffusive escape (<i>10 pages</i>)	022115
Alvise Verso and Joachim Ankerhold	
Geometric phase and quantum phase transition in an inhomogeneous periodic XY spin- $\frac{1}{2}$ model (<i>7 pages</i>) . . .	022116
Yu-Quan Ma and Shu Chen	
Coefficients for sensitivity of fine-structure transitions in carbonlike ions to α variation (<i>5 pages</i>)	022117
M. G. Kozlov, I. I. Tupitsyn, and D. Reimers	
Prospects for a new search for the electron electric-dipole moment in solid gadolinium-iron-garnet ceramics (<i>8 pages</i>)	022118
A. O. Sushkov, S. Eckel, and S. K. Lamoreaux	
Feedback control on geometric phase in dissipative two-level systems (<i>4 pages</i>)	022119
H. Y. Sun, P. L. Shu, C. Li, and X. X. Yi	
Quantum bounds on Bell inequalities (<i>12 pages</i>)	022120
Károly F. Pál and Tamás Vértesi	
Quantum connectivity of space-time and gravitationally induced decorrelation of entanglement (<i>8 pages</i>)	022121
T. C. Ralph, G. J. Milburn, and T. Downes	

(Continued)

Experimental test of nonclassicality criteria for phase-diffused squeezed states (<i>6 pages</i>)	022122
T. Kiesel, W. Vogel, B. Hage, J. DiGuglielmo, A. Sambrowski, and R. Schnabel	
Dynamical programming of continuously observed quantum systems (<i>10 pages</i>)	022123
Viacheslav P. Belavkin, Antonio Negretti, and Klaus Mølmer	
Quantum information	
Quantum control gates with weak cross-Kerr nonlinearity (<i>5 pages</i>)	022301
Qing Lin and Jian Li	
Quantum instability and edge entanglement in the quasi-long-range order (<i>5 pages</i>)	022302
W. Son, L. Amico, F. Plastina, and V. Vedral	
Finite-time and infinite-time disentanglement of multipartite Greenberger-Horne-Zeilinger-type states under the collective action of different types of noise (<i>5 pages</i>)	022303
Nguyen Ba An and Jaewan Kim	
High-efficiency cluster-state generation with atomic ensembles via the dipole-blockade mechanism (<i>9 pages</i>)	022304
Marcin Zwierz and Pieter Kok	
Linear-optical hyperentanglement-assisted quantum error-correcting code (<i>6 pages</i>)	022305
Mark M. Wilde and Dmitry B. Uskov	
Entanglement distillation with local common reservoirs (<i>6 pages</i>)	022306
D. F. Mundarain and M. Orszag	
Tripartite entanglement transfer from flying modes to localized qubits (<i>12 pages</i>)	022307
Federico Casagrande, Alfredo Lulli, and Matteo G. A. Paris	
Entropy and negativity of Fermi-resonance coupling vibrations in a spectroscopic Hamiltonian (<i>7 pages</i>)	022308
Xi-Wen Hou, Ming-Fang Wan, and Zhong-Qi Ma	
Preparation of decoherence-free cluster states with optical superlattices (<i>16 pages</i>)	022309
Liang Jiang, Ana Maria Rey, Oriol Romero-Isart, Juan José García-Ripoll, Anna Sanpera, and Mikhail D. Lukin	
Dynamical oscillator-cavity model for quantum memories (<i>15 pages</i>)	022310
Q. Y. He, M. D. Reid, E. Giacobino, J. Cviklinski, and P. D. Drummond	
Multiqubit entanglement engineering via projective measurements (<i>8 pages</i>)	022311
Witlef Wieczorek, Nikolai Kiesel, Christian Schmid, and Harald Weinfurter	
Demonstration of geometric operations on the Bloch vectors in an ensemble of rare-earth metal atoms (<i>5 pages</i>)	022312
Mingzhen Tian, Ijaz Zafarullah, Tiejun Chang, R. Krishna Mohan, and Wm. Randall Babbitt	
High-fidelity state transfer in binary-tree spin networks (<i>6 pages</i>)	022313
T. Tufarelli and V. Giovannetti	
Single-shot parameter estimation via continuous quantum measurement (<i>9 pages</i>)	022314
Bradley A. Chase and J. M. Geremia	
Experimentally friendly bounds on non-Gaussian entanglement from second moments (<i>5 pages</i>)	022315
Gerardo Adesso	

(Continued)

Accurate microwave control and real-time diagnostics of neutral-atom qubits (<i>9 pages</i>)	022316
Worawarong Rakreungdet, Jae Hoon Lee, Kim Fook Lee, Brian E. Mischuck, Enrique Montano, and Poul S. Jessen	
Renormalization algorithm with graph enhancement (<i>6 pages</i>)	022317
R. Hübener, C. Kruszynska, L. Hartmann, W. Dür, F. Verstraete, J. Eisert, and M. B. Plenio	
Necessary and sufficient conditions for bipartite entanglement (<i>7 pages</i>)	022318
J. Sperling and W. Vogel	
Differential-quadrature-phase-shift quantum key distribution (<i>9 pages</i>)	022319
Kyo Inoue and Yuuki Iwai	
Complementarity of information sent via different bases (<i>6 pages</i>)	022320
Shengjun Wu (吴盛俊), Sixia Yu (郁司夏), and Klaus Mølmer	
Atomic and molecular structure and dynamics	
Calculations of low-lying ^1P states of the beryllium atom (<i>6 pages</i>)	022501
Sergiy Bubín and Ludwik Adamowicz	
Observation of the $^2S_{1/2}$ metastable state in Pt^- (<i>5 pages</i>)	022502
P. Andersson, A. O. Lindahl, D. Hanstorp, and D. J. Pegg	
Many-body theory for systems with particle conversion: Extending the multiconfigurational time-dependent Hartree method (<i>22 pages</i>)	022503
Ofir E. Alon, Alexej I. Streltsov, and Lorenz S. Cederbaum	
Discontinuity of the chemical potential in reduced-density-matrix-functional theory for open-shell systems (<i>9 pages</i>)	022504
N. Helbig, N. N. Lathiotakis, and E. K. U. Gross	
Nuclear-spin effects in the photoionization of krypton (<i>15 pages</i>)	022505
Th. A. Paul, J. Liu, and F. Merkt	
Photoelectron-recoil-induced rotational excitation of the $B\ ^2\Sigma_u^+$ state in N_2^+ (<i>4 pages</i>)	022506
T. D. Thomas, E. Kukk, H. Fukuzawa, K. Ueda, R. Püttner, Y. Tamenori, T. Asahina, N. Kuze, H. Kato, M. Hoshino, H. Tanaka, M. Meyer, J. Plenge, A. Wirsing, E. Serdaroglu, R. Flesch, E. Rühl, S. Gavriluk, F. Gel'mukhanov, A. Lindblad, and L. J. Sæthre	
Discrete sets of Sturmian functions applied to two-electron atoms (<i>9 pages</i>)	022507
J. M. Randazzo, A. L. Frapiccini, F. D. Colavecchia, and G. Gasaneo	
X-ray-absorption spectroscopy beyond the natural width measured in partial Auger yield mode (<i>11 pages</i>) . . .	022508
Yasen Velkov, Yasumasa Hikosaka, Eiji Shigemasa, Tatsuo Kaneyasu, Yusuke Tamenori, Ji-Cai Liu, and Faris Gel'mukhanov	
$4p$ -inner-shell and double-excitation spectrum of Sr II (<i>10 pages</i>)	022509
C. Banahan, J. T. Costello, D. Kilbane, and P. van Kampen	
Virtual resonant states in two-photon decay processes: Lower-order terms, subtractions, and physical interpretations (<i>7 pages</i>)	022510
Ulrich D. Jentschura	
Theoretical studies of spectroscopic properties of Cm^{4+} and Am^{3+} (<i>8 pages</i>)	022511
Gediminas Gaigalas, Erikas Gaidamauskas, Zenonas Rudzikas, Nicola Magnani, and Roberto Caciuffo	

(Continued)

- Third-order relativistic many-body calculations of energies, transition rates, hyperfine constants, and blackbody radiation shift in $^{171}\text{Yb}^+$ (10 pages) 022512
U. I. Safronova and M. S. Safronova

Atomic and molecular collisions and interactions

- Ab initio* frame-transformation calculations of direct and indirect dissociative recombination rates of $\text{HeH}^+ + e^-$ (7 pages) 022701
Daniel J. Haxton and Chris H. Greene
- Range corrections to three-body observables near a Feshbach resonance (15 pages) 022702
L. Platter, C. Ji, and D. R. Phillips
- Formation of molecular oxygen in ultracold $\text{O} + \text{OH}$ collisions (8 pages) 022703
Goulven Quémener, Naduvalath Balakrishnan, and Brian K. Kendrick
- Absolute cross section for positron-impact ionization of hydrogen near threshold (9 pages) 022704
Krista Jansen, S. J. Ward, J. Shertzer, and J. H. Macek
- Spin torque on molecular rotation induced by polarized electrons (5 pages) 022705
J. W. Maseberg and T. J. Gay
- Low-energy electron collisions with acetic acid (6 pages) 022706
T. C. Freitas, M. T. do N. Varella, R. F. da Costa, M. A. P. Lima, and M. H. F. Bettega
- Radiative electron capture and subsequent radiative decay in collisions of U^{89+} ions with N_2 (8 pages) 022707
Jian-Jie Wan, Chen-Zhong Dong, Xiao-Bin Ding, Xin-Wen Ma, Jacek Rzakiewicz, Thomas Stöhlker, and Stephan Fritzsche
- Ionization of He, Ne, Ar, Kr, and Xe by proton impact: Single differential distributions in energy and angles (8 pages) 022708
J. E. Miraglia
- Projectile-target core interaction in single ionization of helium by 100-MeV/u C^{6+} and 1-GeV/u U^{92+} ions (6 pages) 022709
A. B. Voitkiv and B. Najjari

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

- Dynamic properties of ion guiding through nanocapillaries in an insulating polymer (7 pages) 022901
N. Stolterfoht, R. Hellhammer, D. Fink, B. Sulik, Z. Juhász, E. Bodewits, H. M. Dang, and R. Hoekstra
- Potential and kinetic sputtering of alkanethiol self-assembled monolayers by impact of highly charged ions (7 pages) 022902
M. Flores, B. E. O'Rourke, Y. Yamazaki, and V. A. Esaulov
- Local-field-corrected van der Waals potentials in magnetodielectric multilayer systems (11 pages) 022903
Agnes Sambale, Dirk-Gunnar Welsch, Ho Trung Dung, and Stefan Yoshi Buhmann

Clusters (including fullerenes)

- Sb_4 clusters: 4d core ionization, subsequent Auger decay, and fragmentation pathways of the Auger final states (11 pages) 023201
S. Urpelainen, A. Caló, L. Partanen, M. Huttula, S. Aksela, H. Aksela, S. Granroth, and E. Kukk

(Continued)

Collective dipole excitations in sodium clusters (<i>12 pages</i>)	023202
A. A. Raduta, R. Budaca, and Al. H. Raduta	
Atomic and molecular processes in external fields, including interactions with strong fields and short pulses	
Photoassociation spectroscopy of a spin-1 Bose-Einstein condensate (<i>7 pages</i>)	023401
C. D. Hamley, E. M. Bookjans, G. Behin-Aein, P. Ahmadi, and M. S. Chapman	
Molecular quantum wave-packet splitting and revivals in shared phase space (<i>10 pages</i>)	023402
Dong Wang, Åsa Larson, Tony Hansson, and Hans O. Karlsson	
Quantum simulation of high-order harmonic spectra of the hydrogen atom (<i>14 pages</i>)	023403
A. D. Bandrauk, S. Chelkowski, D. J. Diestler, J. Manz, and K.-J. Yuan	
Controlling the rotation of asymmetric top molecules by the combination of a long and a short laser pulse (<i>12 pages</i>)	023404
Simon S. Viftrup, Vinod Kumarappan, Lotte Holmegaard, Christer Z. Bisgaard, Henrik Stapelfeldt, Maxim Artamonov, Edward Hamilton, and Tamar Seideman	
Theory of intense-field dynamic alignment and high-order harmonic generation from coherently rotating molecules and interpretation of intense-field ultrafast pump-probe experiments (<i>28 pages</i>)	023405
A. Abdurrouf and F. H. M. Faisal	
Cancellation of nonlinear Zeeman shifts with light shifts (<i>5 pages</i>)	023406
K. Jensen, V. M. Acosta, J. M. Higbie, M. P. Ledbetter, S. M. Rochester, and D. Budker	
Laser cooling of rubidium atoms from background vapor in diffuse light (<i>5 pages</i>)	023407
Hua-Dong Cheng, Wen-Zhuo Zhang, Hong-Yu Ma, Liang Liu, and Yu-Zhu Wang	
Photodetachment near a metal surface (<i>7 pages</i>)	023408
H. J. Zhao and M. L. Du	
Angular anisotropy parameters for sequential two-photon double ionization of helium (<i>7 pages</i>)	023409
I. A. Ivanov and A. S. Kheifets	
Operation of a Stark decelerator with optimum acceptance (<i>11 pages</i>)	023410
Ludwig Scharfenberg, Henrik Haak, Gerard Meijer, and Sebastiaan Y. T. van de Meerakker	
Coupling of electronic and motional dynamics in a cold-atom optical lattice (<i>6 pages</i>)	023411
Hashem Zoubi and Helmut Ritsch	
<i>KLL</i> Auger decay in free aluminum atoms (<i>6 pages</i>)	023412
M. Huttula, L. Partanen, A. Mäkinen, T. Kantia, H. Aksela, and S. Aksela	
Double photoionization of Be and Mg atoms using the <i>R</i> -matrix-with-pseudostates method (<i>6 pages</i>)	023413
D. C. Griffin, M. S. Pindzola, C. P. Ballance, and J. Colgan	
Interference effects in high-order harmonic generation by homonuclear diatomic molecules (<i>12 pages</i>)	023414
S. Odžak and D. B. Milošević	
Comparative study of strong-field ionization in laser-irradiated F ₂ and other diatomic molecules: Density-functional-theory-based molecular strong-field approximation (<i>12 pages</i>)	023415
Vladimir I. Usachenko, Pavel E. Pyak, and Vyacheslav V. Kim	
Extension of the basis generator method for application to laser-molecule interactions (<i>6 pages</i>)	023416
L. Fernández-Menchero, T. Kirchner, and H. J. Lüdde	

(Continued)

Two-electron ionization in strong laser fields below intensity threshold: Signatures of attosecond timing in correlated spectra (<i>10 pages</i>)	023417
Denys I. Bondar, Wing-Ki Liu, and Misha Yu. Ivanov	
Stimulated Raman adiabatic passage in molecular electronic states (<i>10 pages</i>)	023418
Chuan-Cun Shu, Jie Yu, Kai-Jun Yuan, Wen-Hui Hu, Jing Yang, and Shu-Lin Cong	
Experimental study of the coherence of a terahertz-separated metastable-state qubit in $^{40}\text{Ca}^+$ (<i>6 pages</i>)	023419
K. Toyoda, H. Shiibara, S. Haze, R. Yamazaki, and S. Urabe	
Double-slit, confinement, and non-Franck-Condon effects in photoionization of H_2 at high photon energy (<i>12 pages</i>)	023420
J. Fernández, O. Fojón, and F. Martín	
Generalized gauge-invariant formulations of the strong-field approximation (<i>7 pages</i>)	023421
Yulian V. Vanne and Alejandro Saenz	
Complete transfer of populations from a single state to a preselected superposition of states using piecewise adiabatic passage: Theory (<i>7 pages</i>)	023422
Evgeny A. Shapiro, Valery Milner, and Moshe Shapiro	
Fractional resonances in the atom-optical δ -kicked accelerator (<i>17 pages</i>)	023423
M. Saunders, P. L. Halkyard, S. A. Gardiner, and K. J. Challis	

PART B**Matter waves**

 Universal properties of the ultracold Fermi gas (<i>12 pages</i>)	023601
Shizhong Zhang and Anthony J. Leggett	
Projected Gross-Pitaevskii equation theory of finite-temperature collective modes for a trapped Bose gas (<i>14 pages</i>)	023602
A. Bezett and P. B. Blakie	
Chaotic shock waves of a Bose-Einstein condensate (<i>5 pages</i>)	023603
Wenhua Hai, Qianquan Zhu, and Shiguang Rong	
Probing ultracold Fermi atoms with a single ion (<i>5 pages</i>)	023604
Y. Sherkunov, B. Muzykantskii, N. d'Ambrumenil, and B. D. Simons	
Dynamics of dark solitons in superfluid Fermi gases in the BCS-BEC crossover (<i>12 pages</i>)	023605
Wen Wen and Guoxiang Huang	
Vortex sheet in rotating two-component Bose-Einstein condensates (<i>7 pages</i>)	023606
Kenichi Kasamatsu and Makoto Tsubota	
Density-wave and antiferromagnetic states of fermionic atoms in optical lattices (<i>6 pages</i>)	023607
Takuji Higashiyama, Kensuke Inaba, and Sei-ichiro Suga	
Photon-assisted tunneling in optical lattices: Ballistic transport of interacting boson pairs (<i>6 pages</i>)	023608
Christoph Weiss and Heinz-Peter Breuer	
Mott-insulator shells in the three-dimensional Bose-Hubbard model with harmonic confinement (<i>7 pages</i>) . . .	023609
Makoto Yamashita and Michael W. Jack	
Coherent scattering from a free gas (<i>9 pages</i>)	023610
Scott N. Sanders, Florian Mintert, and Eric J. Heller	

(Continued)

Universal behavior of a trapped Fermi superfluid in the BCS-unitarity crossover (<i>5 pages</i>)	023611
S. K. Adhikari	
Phase-imprint-induced domain formation and spin dynamics in spinor condensates (<i>5 pages</i>)	023612
Chengjun Tao and Qiang Gu	
Binary mixture of spinor atomic Bose-Einstein condensates (<i>5 pages</i>)	023613
Z. F. Xu, Yunbo Zhang, and L. You	
Lieb-Liniger model of a dissipation-induced Tonks-Girardeau gas (<i>13 pages</i>)	023614
S. Dürr, J. J. García-Ripoll, N. Syassen, D. M. Bauer, M. Lettner, J. I. Cirac, and G. Rempe	
Zero sound and first sound in a disk-shaped normal Fermi gas (<i>8 pages</i>)	023615
Giovanni Mazzearella, Luca Salasnich, and Flavio Toigo	
Momentum-space interferometry with trapped ultracold atoms (<i>8 pages</i>)	023616
A. Ruschhaupt, A. del Campo, and J. G. Muga	
Test of particle-correlated tunneling for strongly interacting fermions in an optical superlattice (<i>4 pages</i>)	023617
T. Goodman and L.-M. Duan	
Vortex-splitting and phase-separating instabilities of coreless vortices in $F=1$ spinor Bose-Einstein condensates (<i>10 pages</i>)	023618
M. Takahashi, V. Pietilä, M. Möttönen, T. Mizushima, and K. Machida	
Dynamics and modulation of ring dark solitons in two-dimensional Bose-Einstein condensates with tunable interaction (<i>7 pages</i>)	023619
Xing-Hua Hu, Xiao-Fei Zhang, Dun Zhao, Hong-Gang Luo, and W. M. Liu	
Atom-laser coherence via multiloop feedback control (<i>8 pages</i>)	023620
M. Yanagisawa and M. R. James	
Wave-packet dynamics in energy space of a chaotic trimeric Bose-Hubbard system (<i>17 pages</i>)	023621
Moritz Hiller, Tsampikos Kottos, and Theo Geisel	
Coherent bimolecular reactions with quantum-degenerate matter waves (<i>9 pages</i>)	023622
H. Jing, J. Cheng, and P. Meystre	
Fermionization of a strongly interacting Bose-Fermi mixture in a one-dimensional harmonic trap (<i>8 pages</i>)	023623
Bess Fang, Patrizia Vignolo, Christian Miniatura, and Anna Minguzzi	
Ultracold atomic gases in non-Abelian gauge potentials: The case of constant Wilson loop (<i>11 pages</i>)	023624
N. Goldman, A. Kubasiak, P. Gaspard, and M. Lewenstein	
Quantum optics, physics of lasers, nonlinear optics, classical optics	
Non-Gaussian two-mode squeezing and continuous-variable entanglement of linearly and circularly polarized light beams interacting with cold atoms (<i>9 pages</i>)	023801
R. J. Messori, M. C. de Oliveira, and K. Furuya	
Competition between Raman- and Rayleigh-enhanced four-wave mixings in attosecond polarization beats (<i>21 pages</i>)	023802
Chenli Gan, Yanpeng Zhang, Zhiqiang Nie, Yan Zhao, Keqing Lu, Jinhai Si, and Min Xiao	
Complex-variable-function Gaussian beam in strongly nonlocal nonlinear media (<i>6 pages</i>)	023803
Dongmei Deng, Qi Guo, and Wei Hu	

(Continued)

Three-dimensional optical vortex and necklace solitons in highly nonlocal nonlinear media (6 pages)	023804
Wei-Ping Zhong and Milivoj Belić	
Coherent population trapping linewidths for open transitions: Cases of different transverse laser intensity distribution (9 pages)	023805
M. Radonjić, D. Arsenović, Z. Grujić, and B. M. Jelenković	
Cloaking with optimized homogeneous anisotropic layers (4 pages)	023806
Bogdan-Ioan Popa and Steven A. Cummer	
Dependence of high-order harmonic intensity on the length of preformed plasma plumes (7 pages)	023807
H. Singhal, V. Arora, B. S. Rao, P. A. Naik, U. Chakravarty, R. A. Khan, and P. D. Gupta	
Quantum public key distribution with imperfect device components (7 pages)	023808
Craig S. Hamilton, Hynek Lavička, Erika Andersson, John Jeffers, and Igor Jex	
Multiple wavelength diffractive imaging (4 pages)	023809
Bo Chen, Ruben A. Dilanian, Sven Teichmann, Brian Abbey, Andrew G. Peele, Garth J. Williams, Peter Hannaford, Lap Van Dao, Harry M. Quiney, and Keith A. Nugent	
Measurement of 1-ps soft-x-ray laser pulses from an injection-seeded plasma amplifier (4 pages)	023810
Y. Wang, M. Berrill, F. Pedaci, M. M. Shakya, S. Gilbertson, Zenghu Chang, E. Granados, B. M. Luther, M. A. Larotonda, and J. J. Rocca	
Optical analog of population trapping in the continuum: Classical and quantum interference effects (9 pages)	023811
Stefano Longhi	
Robust strategies for lossy quantum interferometry (4 pages)	023812
Lorenzo Maccone and Giovanni De Cillis	
Constraining validity of the Minkowski energy-momentum tensor (7 pages)	023813
Robert N. C. Pfeifer, Timo A. Nieminen, Norman R. Heckenberg, and Halina Rubinsztein-Dunlop	
Soliton interactions and transformations in colloidal media (6 pages)	023814
Michał Matuszewski, Wiesław Krolikowski, and Yuri S. Kivshar	
Time-dependent cross-phase-modulation in ^{87}Rb (7 pages)	023815
Gary F. Sinclair	
Entanglement of Gaussian states using a beam splitter (7 pages)	023816
Rabia Tahira, Manzoor Ikram, Hyunchul Nha, and M. Suhail Zubairy	
Broadening the bandwidth of entangled photons: A step towards the generation of extremely short biphotons (4 pages)	023817
M. Hendrych, Xiaojuan Shi, A. Valencia, and Juan P. Torres	
Dressed-state mixed-parity transitions for realizing negative refractive index (11 pages)	023818
Clifford M. Krowne and Jian Qi Shen	
N th-order coherence of thermal light (15 pages)	023819
Jianbin Liu and Yanhua Shih	
Complete tunneling of light through a composite barrier consisting of multiple layers (10 pages)	023820
Junghyun Park (박정현), Kyoung-Youm Kim (김경염), and Byoungcho Lee (이병호)	
Smooth quantum-classical transition in photon subtraction and addition processes (7 pages)	023821
A. V. Dodonov and S. S. Mizrahi	

(Continued)

High-order harmonic generation by a driven mesoscopic ring with a localized impurity (7 pages)	023822
N. F. Hinsche, A. S. Moskalenko, and J. Berakdar	
Understanding the nonlinear phase and frequency shift of an ultrashort light pulse induced by an inertial third-order optical nonlinearity (7 pages)	023823
A. M. Zheltikov	
Dispersive waves emitted by solitons perturbed by third-order dispersion inside optical fibers (6 pages)	023824
Samudra Roy, S. K. Bhadra, and Govind P. Agrawal	
Collapses and revivals of stored orbital angular momentum of light in a cold-atom ensemble (4 pages)	023825
D. Moretti, D. Felinto, and J. W. R. Tabosa	
Tunneling delay time in frustrated total internal reflection (4 pages)	023826
Herbert G. Winful and Chao Zhang	
Optical propagation in molecular gases undergoing filamentation-assisted field-free alignment (10 pages)	023827
F. Calegari, C. Vozzi, and S. Stagira	
Compression of an intensive light pulse in photonic-band-gap structures with a dense resonant medium (9 pages)	023828
Denis V. Novitsky	
Dynamical control of pulse propagation in electromagnetically induced transparency (10 pages)	023829
Martin Kiffner and T. N. Dey	
Intrinsic quantum noise in Faraday-rotation measurements of a single-electron spin (6 pages)	023830
Yanjun Ma and Jeremy Levy	
Spin squeezing of atomic ensembles by multicolor quantum nondemolition measurements (8 pages)	023831
M. Saffman, D. Oblak, J. Appel, and E. S. Polzik	
Semiconductor-cavity QED-based optical beam splitter (7 pages)	023832
Wen-Xi Lai, Hong-Cai Li, Xiu Lin, and Xiang Chen	
Signal-to-noise ratio of Gaussian-state ghost imaging (11 pages)	023833
Baris I. Erkmen and Jeffrey H. Shapiro	
Antiphase dynamics in a multimode semiconductor laser with optical injection (7 pages)	023834
S. Osborne, A. Amann, K. Buckley, G. Ryan, S. P. Hegarty, G. Huyet, and S. O'Brien	
Multiplicative noise-induced probability distributions in three-level atomic optical bistability (7 pages)	023835
Haibin Wu, Surendra Singh, and Min Xiao	
Emergence of classicality in small-number entangled systems (7 pages)	023836
Eduardo Mascarenhas and Marcelo França Santos	
Theory of single-photon transport in a single-mode waveguide. I. Coupling to a cavity containing a two-level atom (11 pages)	023837
Jung-Tsung Shen (沈榮聰) and Shanhui Fan (范汕洵)	
Theory of single-photon transport in a single-mode waveguide. II. Coupling to a whispering-gallery resonator containing a two-level atom (18 pages)	023838
Jung-Tsung Shen (沈榮聰) and Shanhui Fan (范汕洵)	
Refractive index and wave vector in passive or active media (5 pages)	023839
Paul Kinsler	

(Continued)

Four-photon scattering in birefringent fibers (<i>14 pages</i>)	023840
E. Brainis	
Atomic quantum superposition state generation via optical probing (<i>10 pages</i>)	023841
Anne E. B. Nielsen, Uffe V. Poulsen, Antonio Negretti, and Klaus Mølmer	

BRIEF REPORTS

Fundamental concepts

State operator, constants of the motion, and Wigner functions: The two-dimensional isotropic harmonic oscillator (<i>4 pages</i>)	024101
J. P. Dahl and W. P. Schleich	
No anomalous scaling in electrostatic calibrations for Casimir force measurements (<i>4 pages</i>)	024102
S. de Man, K. Heeck, and D. Iannuzzi	
Unexpected reemergence of the von Neumann theorem (<i>4 pages</i>)	024103
Marek Żukowski	

Quantum information

Generating EPR beams in a cavity optomechanical system (<i>4 pages</i>)	024301
Zhang-qi Yin and Y.-J. Han	
Bound on trace distance based on superfidelity (<i>4 pages</i>)	024302
Zbigniew Puchała and Jarosław Adam Miszcza	
Evolution equation of entanglement for bipartite systems (<i>4 pages</i>)	024303
Zong-Guo Li, Shao-Ming Fei, Z. D. Wang, and W. M. Liu	
Geometric quantum computation and dynamical invariant operators (<i>4 pages</i>)	024304
Z. S. Wang	
Physical model of continuous two-qubit parity measurement in a cavity-QED network (<i>4 pages</i>)	024305
Joseph Kerckhoff, Luc Bouten, Andrew Silberfarb, and Hideo Mabuchi	
Three-tangle for rank-three mixed states: Mixture of Greenberger-Horne-Zeilinger, W , and flipped- W states (<i>4 pages</i>)	024306
Eylee Jung, Mi-Ra Hwang, DaeKil Park, and Jin-Woo Son	
Faster transport with a directed quantum walk (<i>3 pages</i>)	024307
Stephan Hoyer and David A. Meyer	

Atomic and molecular structure and dynamics

Search for weakly bound states of the He-He-Be triatomic system (<i>4 pages</i>)	024501
Yong Li, Hongwei Song, Qingdong Gou, Huili Han, and Tingyun Shi	

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

Phase control of nonadiabatic optical transitions (<i>4 pages</i>)	025401
F. A. Hashmi and M. A. Bouchene	

(Continued)

Matter waves

Long storage time of collective coherence in an optically trapped Bose-Einstein condensate (<i>4 pages</i>)	025601
Yutaka Yoshikawa, Kazuyuki Nakayama, Yoshio Torii, and Takahiro Kuga	
Role of particle interactions in a many-body model of Feshbach-molecule formation in bosonic systems (<i>4 pages</i>)	025602
Jing Li, Di-Fa Ye, Chao Ma, Li-Bin Fu, and Jie Liu	

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

Stable higher-charge discrete vortices in hexagonal optical lattices (<i>4 pages</i>)	025801
Kody J. H. Law, P. G. Kevrekidis, Tristram J. Alexander, Wieslaw Królikowski, and Yuri S. Kivshar	
Distinction of tripartite Greenberger-Horne-Zeilinger and <i>W</i> states entangled in time (or energy) and space (<i>4 pages</i>)	025802
Jianming Wen and Morton H. Rubin	

COMMENTS

Comment on “Anomalies in electrostatic calibrations for the measurement of the Casimir force in a sphere-plane geometry” (<i>4 pages</i>)	026101
R. S. Decca, E. Fischbach, G. L. Klimchitskaya, D. E. Krause, D. López, U. Mohideen, and V. M. Mostepanenko	
Reply to “Comment on ‘Anomalies in electrostatic calibrations for the measurement of the Casimir force in a sphere-plane geometry’” (<i>4 pages</i>)	026102
W. J. Kim, M. Brown-Hayes, D. A. R. Dalvit, J. H. Brownell, and R. Onofrio	
Comment on “Functional derivative of the universal density functional in Fock space” (<i>4 pages</i>)	026501
Espen Sagvolden, John P. Perdew, and Mel Levy	
Comment on “Casimir force acting on magnetodielectric bodies embedded in media” (<i>4 pages</i>)	027801
Iver Brevik and Simen A. Ellingsen	

ERRATA

Publisher’s Note: Dependence of high-order harmonic intensity on the length of preformed plasma plumes [Phys. Rev. A 79 , 023807 (2009)] (<i>1 page</i>)	029901(E)
H. Singhal, V. Arora, B. S. Rao, P. A. Naik, U. Chakravarty, R. A. Khan, and P. D. Gupta	
Publisher’s Note: Influence of the state of light on the optically induced interparticle interaction [Phys. Rev. A 79 , 022106 (2009)] (<i>1 page</i>)	029902(E)
Justo Rodríguez and David L. Andrews	
Publisher’s Note: Constraining validity of the Minkowski energy-momentum tensor [Phys. Rev. A 79 , 023813 (2009)] (<i>1 page</i>)	029903(E)
Robert N. C. Pfeifer, Timo A. Nieminen, Norman R. Heckenberg, and Halina Rubinsztein-Dunlop	