PHYSICAL REVIEW A

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

PERIODICALS
Postmaster send address changes to:
American Institute of Physics
Suite 1NO1
2 Huntington Quadrangle
Melville, NY 11747-4502

THIRD SERIES, VOLUME 66, NUMBER 5 ***CONTENTS*** **NOVEMBER 2002**

RAPID COMMUNICATIONS

Quantum information

Quantum-information processing in bosonic lattices *(4 pages)* . . . . . 050301(R)
Radu Ionicioiu and Paolo Zanardi

Atomic and molecular structure and dynamics

Nearly real trajectories in complex semiclassical dynamics *(4 pages)* . . . . . 050501(R)
Troy Van Voorhis and Eric J. Heller

Atomic and molecular collisions and interactions

Regge poles and residues for singular scattering potentials *(4 pages)* . . . . . 050701(R)
C. R. Handy, C. J. Tymczak, and A. Z. Msezane

Atomic and molecular processes in external fields

Cold-atom gas at very high densities in an optical surface microtrap *(4 pages)* . . . . . 051401(R)
M. Hammes, D. Rychtarik, H.-C. Nägerl, and R. Grimm

Simultaneous trapping of rubidium and metastable argon in a magneto-optical trap *(4 pages)* . . . . . 051402(R)
C. I. Sukenik and H. C. Busch

Strong-field and plasma aspects of multiphoton radiative recombination *(4 pages)* . . . . . 051403(R)
C. Leone, S. Bivona, R. Burlon, and G. Ferrante

Electron diffraction in above-threshold ionization of molecules *(4 pages)* . . . . . 051404(R)
M. Lein, J. P. Marangos, and P. L. Knight

Matter waves

Collapse of Bose-Einstein condensates with dipole-dipole interactions *(4 pages)* . . . . . 051601(R)
Pavel M. Lushnikov

Thermodynamics of an interacting trapped Bose-Einstein gas in the classical field approximation *(4 pages)* . . . . . 051602(R)
Krzysztof Góral, Mariusz Gajda, and Kazimierz Rzążewski

Copyright 2002 by The American Physical Society

(Continued)

1050-2947(200211)66:5;1-6

PHYSICAL REVIEW A THIRD SERIES, VOLUME 66, NUMBER 5 NOVEMBER 2002

ARTICLES

Fundamental concepts

Generalized Bogoliubov transformation for confined fields: Applications for the Casimir effect *(8 pages)* 052101
J. C. da Silva, F. C. Khanna, A. Matos Neto, and A. E. Santana
Classical aspects of quantum walls in one dimension *(10 pages)* 052102
Tamás Fülöp, Taksu Cheon, and Izumi Tsutsui
Casimir force in absorbing multilayers *(7 pages)* 052103
M. S. Tomaš
Measurement-based approach to quantum arrival times *(8 pages)* 052104
J. A. Damborenea, I. L. Egusquiza, G. C. Hegerfeldt, and J. G. Muga
Perturbative approach to non-Markovian stochastic Schrödinger equations *(16 pages)* 052105
Jay Gambetta and H. M. Wiseman
Weak measurement of arrival time *(6 pages)* 052106
J. Ruseckas and B. Kaulakys
Measuring energy, estimating Hamiltonians, and the time-energy uncertainty relation *(11 pages)* 052107
Y. Aharonov, S. Massar, and S. Popescu
How entangled pairs act as measuring rods on manifolds of generalized coherent states *(5 pages)* 052108
Daniel I. Fivel
Bohm's interpretation and maximally entangled states *(11 pages)* 052109
Thomas Durt and Yves Pierseaux
Dispersion relations between tunneling times *(4 pages)* 052110
Eran Rosenthal and Bilha Segev
Generation of phase-covariant quantum cloning *(6 pages)* 052111
V. Karimipour and A. T. Rezakhani
Bell inequalities resistant to detector inefficiency *(12 pages)* 052112
Serge Massar, Stefano Pironio, Jérémie Roland, and Bernard Gisin
Perspective on semiclassical quantization: How periodic orbits converge to quantizing tori *(11 pages)* 052113
Shuangbo Yang and Michael E. Kellman
Einstein-Podolsky-Rosen correlations of spin measurements in two moving inertial frames *(9 pages)* 052114
Jakub Rembieliński and Kordian Andrzej Smoliński

Quantum information

Bounds for state-dependent quantum cloning *(6 pages)* 052301
Yong-Jian Han, Yong-Sheng Zhang, and Guang-Can Guo
Information-theoretical meaning of quantum-dynamical entropy *(6 pages)* 052302
Robert Alicki
Entanglement of two atomic samples by quantum-nondemolition measurements *(7 pages)* 052303
Antonio Di Lisi and Klaus Mølmer
Entanglement of mesoscopic systems *(8 pages)* 052304
Heide Narnhofer and Walter Thirring
Demonstration of feed-forward control for linear optics quantum computation *(7 pages)* 052305
T. B. Pittman, B. C. Jacobs, and J. D. Franson
Quantum gates using linear optics and postselection *(5 pages)* 052306
E. Knill
Quantum relays and noise suppression using linear optics *(6 pages)* 052307
B. C. Jacobs, T. B. Pittman, and J. D. Franson
S-matrix approach to the construction of decoherence-free subspaces *(4 pages)* 052308
Moshe Shapiro and Paul Brumer

(Continued)

PHYSICAL REVIEW A **THIRD SERIES, VOLUME 66, NUMBER 5** **NOVEMBER 2002**

Multipartite bound entanglement and three-setting Bell inequalities *(5 pages)* 052309
Dagomir Kaszlikowski, L. C. Kwek, Jingling Chen, and C.h. Oh
Multi-output programmable quantum processor *(5 pages)* 052310
Yafei Yu, Jian Feng, and Mingsheng Zhan
Quantum gambling using three nonorthogonal states *(4 pages)* 052311
Won-Young Hwang and Keiji Matsumoto
Maximal entanglement of squeezed vacuum states via swapping with number-phase measurement *(4 pages)* 052312
Akira Kitagawa and Katsuji Yamamoto
Entanglement required in achieving entanglement-assisted channel capacities *(8 pages)* 052313
Garry Bowen
Trade-offs in the quantum search algorithm *(5 pages)* 052314
Lov K. Grover
Structural physical approximations of unphysical maps and generalized quantum measurements *(5 pages)* . . . 052315
Jaromír Fiurášek
Communication channels analogous to one out of two oblivious transfers based on quantum uncertainty *(15 pages)* 052316
Kaoru Shimizu and Nobuyuki Imoto
Decoherence slowing down in a symmetry-broken environment *(6 pages)* 052317
S. Paganelli, F. de Pasquale, and S. M. Giampaolo
Multipartite entanglement for entanglement teleportation *(5 pages)* 052318
Jinhyoung Lee, Hyegeun Min, and Sung Dahm Oh
Quantum walks in optical lattices *(8 pages)* 052319
W. Dür, R. Raussendorf, V. M. Kendon, and H.-J. Briegel
Fetching marked items from an unsorted database in NMR ensemble computing *(5 pages)* 052320
L. Xiao and G. L. Long
Chains of quasiclassical information for bipartite correlations and the role of twin observables *(6 pages)* 052321
Fedor Herbut
Preparing encoded states in an oscillator *(5 pages)* 052322
B. C. Travaglione and G. J. Milburn
Natural entanglement in Bose-Einstein condensates *(4 pages)* 052323
Christoph Simon
Quantumlike bits and logic gates based on classical oscillators *(4 pages)* 052324
Yuri F. Orlov

Atomic and molecular structure and dynamics

Mixed configuration-interaction and many-body perturbation-theory calculations of energies and oscillator strengths of $J=1$ odd states of neon *(5 pages)* 052501
I. M. Savukov, W. R. Johnson, and H. G. Berry
Renormalized ladder-type expansions for many-particle propagators *(12 pages)* 052502
John M. Herbert
Expectation values of r^q between Dirac and quasirelativistic wave functions in the quantum-defect approximation *(16 pages)* 052503
L. C. Owono Owono, M. G. Kwato Njock, and B. Oumarou
Measurement of the Stark shift within the $6P_{1/2}$-$7S_{1/2}$ 378-nm transition in atomic thallium *(7 pages)* 052504
S. C. Doret, P. D. Friedberg, A. J. Speck, D. S. Richardson, and P. K. Majumder
Branching-ratio measurements of multiphoton decays of positronium *(6 pages)* 052505
P. A. Vetter and S. J. Freedman

(Continued)

PHYSICAL REVIEW A THIRD SERIES, VOLUME 66, NUMBER 5 NOVEMBER 2002

Determination of the Cs_2 $0_g^-(P_{3/2})$ potential curve and of Cs $6P_{1/2,3/2}$ atomic radiative lifetimes from photoassociation spectroscopy *(9 pages)* 052506
C. Amiot, O. Dulieu, R. F. Gutterres, and F. Masnou-Seeuws

$M1$ transition rate in Cl^{12+} from an electron-beam ion trap and heavy-ion storage ring *(5 pages)* 052507
E. Träbert, P. Beiersdorfer, G. Gwinner, E. H. Pinnington, and A. Wolf

Experimental studies of the NaRb ground-state potential up to the $v''=76$ level *(8 pages)* 052508
O. Docenko, O. Nikolayeva, M. Tamanis, R. Ferber, E. A. Pazyuk, and A. V. Stolyarov

Vibrational and rotational cooling of H_3^+ *(11 pages)* 052509
H. Kreckel, S. Krohn, L. Lammich, M. Lange, J. Levin, M. Scheffel, D. Schwalm, J. Tennyson, Z. Vager, R. Wester, A. Wolf, and D. Zajfman

Lifetime of $1s2s2p\ ^4P^o_{5/2}$ in V^{20+} using beam-foil techniques *(6 pages)* 052510
T. Nandi, P. Marketos, P. Joshi, R.P. Singh, C.P. Safvan, P. Verma, A. Mandal, A. Roy, and R.K. Bhowmik

Relativistic many-body calculations of transition rates from core-excited states in sodiumlike ions *(8 pages)* 052511
U. I. Safronova, W. R. Johnson, M. S. Safronova, and J. R. Albritton

Atomic and molecular collisions and interactions

Multiple ionization of diatomic molecules in collisions with 50–300-keV hydrogen and helium ions *(9 pages)* 052701
B. Siegmann, U. Werner, Z. Kaliman, Z. Roller-Lutz, N. M. Kabachnik, and H. O. Lutz

Scaling limit of virtual states of triatomic systems *(7 pages)* 052702
M. T. Yamashita, T. Frederico, A. Delfino, and Lauro Tomio

Influence of the exchange interaction on Ly-α radiation of multicharged ions *(4 pages)* 052703
A. Devdariani, E. Leboucher-Dalimier, P. Sauvan, and P. Angelo

Resonance structures in the multichannel quantum-defect theory for the photofragmentation processes involving one closed and many open channels *(7 pages)* 052704
Chun-Woo Lee

Young-type interference patterns in electron emission spectra produced by impact of swift ions on H_2 molecules *(4 pages)* 052705
M. E. Galassi, R. D. Rivarola, P. D. Fainstein, and N. Stolterfoht

Ultrarelativistic limit for the two-electron photoionization cross section *(5 pages)* 052706
M. Ya. Amusia, E. G. Drukarev, R. Krivec, and V. B. Mandelzweig

Case study of the Ar^{9+}-He collision system at low velocity *(11 pages)* 052707
S. Bliman, R. Bruch, M. Cornille, A. Langereis, and J. Nordgren

Electron-impact ionization of all ionization stages of krypton *(7 pages)* 052708
S. D. Loch, M. S. Pindzola, C. P. Ballance, D. C. Griffin, D. M. Mitnik, N. R. Badnell, M. G. O'Mullane, H. P. Summers, and A. D. Whiteford

Molecular three-continuum approximation for ionization of H_2 by electron impact *(8 pages)* 052709
C. R. Stia, O. A. Fojón, P. F. Weck, J. Hanssen, B. Joulakian, and R. D. Rivarola

High-field measurement of the ^{129}Xe-Rb spin-exchange rate due to binary collisions *(7 pages)* 052710
Yuan-Yu Jau, Nicholas N. Kuzma, and William Happer

Correlated eikonal initial state in ion-atom collisions *(5 pages)* 052711
M. F. Ciappina, S. Otranto, and C. R. Garibotti

Near-threshold photodetachment of heavy alkali-metal anions *(10 pages)* 052712
C. Bahrim, U. Thumm, A. A. Khuskivadze, and I. I. Fabrikant

Photodetachment of negative helium ions below and above the 1*s* ionization threshold: A complex scaled configuration-interaction approach *(20 pages)* 052713
José Luis Sanz-Vicario, Eva Lindroth, and Nicklas Brandefelt

(Continued)

PHYSICAL REVIEW A THIRD SERIES, VOLUME 66, NUMBER 5 NOVEMBER 2002

Electron-hydrogen scattering in the Faddeev-Merkuriev integral-equation approach *(8 pages)* 052714
Z. Papp and C.-Y. Hu
Dielectronic recombination for oxygenlike ions relevant to astrophysical applications *(6 pages)* 052715
M. H. Chen
Total electron scattering cross sections of CH_4, C_2H_2, C_2H_4, and C_2H_6 in the energy range 200–1400 eV *(6 pages)* 052716
W. M. Ariyasinghe and D. Powers
Inverted potential by the phase-integral method: He-Na elastic scattering *(5 pages)* 052717
A. Zerarka, Y. Boumedjane, and J. Hans
Collisional dynamics of ultracold OH molecules in an electrostatic field *(10 pages)* 052718
Alexandr V. Avdeenkov and John L. Bohn
Time-dependent independent-particle model calculation of multiple capture and ionization processes in p-Ar, $\bar{p}$-Ar, and He^{2+}-Ar collisions *(12 pages)* 052719
T. Kirchner, M. Horbatsch, and H. J. Lüdde
Contributions to the generalized oscillator strength for the inner-shell C $1s \rightarrow 3s\sigma_g$ transition in CO_2 from the vibronic coupling mechanism *(4 pages)* 052720
Alexandre B. Rocha and Carlos E. Bielschowsky

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

Theory of average charge and energy loss of cluster ions in foils *(13 pages)* 052901
Toshiaki Kaneko
Computer-simulation calculations of the electronic stopping of slow, heavy charges by a classical harmonic oscillator *(7 pages)* 052902
E. R. Custidiano, F. J. Pérez de la Rosa, and M. M. Jakas

Clusters (including fullerenes)

Predicted infrared and Raman spectra for neutral Ti_8C_{12} isomers *(6 pages)* 053201
Tunna Baruah, Mark R. Pederson, M. L. Lyn, and A. W. Castleman, Jr.
Multiple plasmons and anharmonic effects in small metallic clusters *(8 pages)* 053202
L. G. Gerchikov, C. Guet, and A. N. Ipatov

Atomic and molecular processes in external fields

Ultracold ground-state molecule production in sodium *(7 pages)* 053401
Fredrik K. Fatemi, Kevin M. Jones, Paul D. Lett, and Eite Tiesinga
Semiclassical analysis of long-wavelength multiphoton processes: The periodically driven harmonic oscillator *(10 pages)* 053402
Ronald F. Fox and Luz V. Vela-Arevalo
Ferromagnetic atom guide with *in situ* loading *(4 pages)* 053403
M. Vengalattore, W. Rooijakkers, and M. Prentiss
Two-color pulsed laser excitation of dipolar molecules: Absolute laser carrier-phase effects *(10 pages)* 053404
Alex Brown
Damped Bloch oscillations of cold atoms in optical lattices *(6 pages)* 053405
A. R. Kolovsky, A. V. Ponomarev, and H. J. Korsch
Chaotic scattering from hydrogen atoms in a circularly polarized laser field *(9 pages)* 053406
Elias Okon, William Parker, Will Chism, and Linda E. Reichl
Quantum control of double ionization of calcium *(9 pages)* 053407
Maxim Sukharev, Eric Charron, and Annick Suzor-Weiner

(Continued)

PHYSICAL REVIEW A THIRD SERIES, VOLUME 66, NUMBER 5 NOVEMBER 2002

Theoretical studies of the long-range Coulomb potential effect on photoionization by strong lasers *(10 pages)* 053408
K. Mishima, M. Hayashi, J. Yi, S. H. Lin, H. L. Selzle, and E. W. Schlag

Phase-dependent interaction in a four-level atomic configuration *(9 pages)* 053409
Giovanna Morigi, Sonja Franke-Arnold, and Gian-Luca Oppo

Origin of light-induced states in intense laser fields and their observability in photoelectron spectra *(10 pages)* 053410
Tomokazu Yasuike and Kiyohiko Someda

Two-color stabilization of atomic hydrogen in circularly polarized laser fields *(11 pages)* 053411
D. Bauer and F. Ceccherini

Photodissociation of H_2^+ and HD^+ in an intense laser field *(8 pages)* 053412
A. Kondorskiy and H. Nakamura

Rydberg-atom population transfer by population trapping in a chirped microwave pulse *(7 pages)* 053413
J. Lambert, Michael W. Noel, and T. F. Gallagher

Theory of phase characterization of harmonics through interference with the fundamental *(7 pages)* 053414
M. G. Makris, L. A. A. Nikolopoulos, and P. Lambropoulos

Ion momentum distributions for He single and double ionization in strong laser fields *(7 pages)* 053415
J. Chen and C. H. Nam

Microwave ionization of alkali-metal Rydberg states in a realistic numerical experiment *(10 pages)* 053416
Andreas Krug and Andreas Buchleitner

Matter waves

Wave-function recombination instability in cold-atom interferometers *(5 pages)* 053601
James A. Stickney and Alex A. Zozulya

Equivalent linear two-body method for Bose-Einstein condensates in time-dependent harmonic traps *(7 pages)* 053602
Yeong E. Kim and Alexander L. Zubarev

Bose-Einstein condensates in strong electric fields: Effective gauge potentials and rotating states *(5 pages)* 053603
J. M. Kailasvuori, T. H. Hansson, and G. M. Kavoulakis

Coreless vortex ground state of the rotating spinor condensate *(6 pages)* 053604
J.-P. Martikainen, A. Collin, and K.-A. Suominen

Reflection of matter waves in potential structures *(8 pages)* 053605
Markku Jääskeläinen and Stig Stenholm

Giant hole and circular superflow in a fast rotating Bose-Einstein condensate *(4 pages)* 053606
Kenichi Kasamatsu, Makoto Tsubota, and Masahito Ueda

Nonequilibrium Gross-Pitaevskii dynamics of boson lattice models *(17 pages)* 053607
Anatoli Polkovnikov, Subir Sachdev, and S. M. Girvin

Interaction of dark solitons with localized impurities in Bose-Einstein condensates *(9 pages)* 053608
Dimitri J. Frantzeskakis, G. Theocharis, F. K. Diakonos, Peter Schmelcher, and Yuri S. Kivshar

Focusing of atoms with spatially localized light pulses *(5 pages)* 053609
Lars Egil Helseth

Axisymmetric versus nonaxisymmetric vortices in spinor Bose-Einstein condensates *(8 pages)* 053610
T. Mizushima, K. Machida, and T. Kita

(Continued)

PHYSICAL REVIEW A **THIRD SERIES, VOLUME 66, NUMBER 5** **NOVEMBER 2002**

Bose-Einstein condensation temperature of a trapped interacting Bose-Fermi gas mixture *(5 pages)* 053611
Yong-li Ma and Siu-Tat Chui
Highly anisotropic Bose-Einstein condensates: Crossover to lower dimensionality *(7 pages)* 053612
Kunal K. Das
Fermionization of a bosonic gas under highly elongated confinement: A diffusion quantum Monte Carlo study *(8 pages)* 053613
D. Blume
Quantum Monte Carlo study of the three- to one-dimensional crossover for a trapped Bose gas *(6 pages)* . . . 053614
G. E. Astrakharchik and S. Giorgini
Floquet analysis of atom-optics tunneling experiments *(5 pages)* 053615
Robert Luter and L. E. Reichl
Effect of cold collisions on spin coherence and resonance shifts in a magnetically trapped ultracold gas *(6 pages)* 053616
D. M. Harber, H. J. Lewandowski, J. M. McGuirk, and E. A. Cornell
Imaging population distribution between two coupled atomic Bose-Einstein condensates by using short laser pulses *(6 pages)* 053617
Aranyabhuti Bhattacherjee and Man Mohan
Simulations of thermal Bose fields in the classical limit *(15 pages)* 053618
M. J. Davis, S. A. Morgan, and K. Burnett
Loading a Bose-Einstein condensate onto an optical lattice: An application of optimal control theory to the nonlinear Schrödinger equation *(9 pages)* 053619
Shlomo E. Sklarz and David J. Tannor
Flat-phase loading of a Bose-Einstein condensate into an optical lattice *(8 pages)* 053620
Shlomo E. Sklarz, Inbal Friedler, David J. Tannor, Yehuda B. Band, and Carl J. Williams

Quantum optics, physics of lasers, nonlinear optics

Application of quantum inequalities to quantum optics *(8 pages)* 053801
Piotr Marecki
Transverse mode dynamics in vertical-cavity surface-emitting lasers: Spatiotemporal versus modal expansion descriptions *(8 pages)* 053802
Josep Mulet and Salvador Balle
Measurement of angular distribution of radiation from dye molecules coupled to evanescent wave *(7 pages)* 053803
Hyun Ho Choi, Hyoung Joo Kim, Jaewoo Noh, Chang-Woo Lee, and Wonho Jhe
Anomalous dispersion of transparent atomic two- and three-level ensembles *(5 pages)* 053804
A. Rocco, A. Wicht, R.-H. Rinkleff, and K. Danzmann
Tailoring single-photon and multiphoton probabilities of a single-photon on-demand source *(4 pages)* 053805
A. L. Migdall, D. Branning, and S. Castelletto
Stochastic initiation of superradiance in a cavity: Decoherence through pseudospin exchange *(6 pages)* 053806
Hyunchul Nha and H. J. Carmichael
Two-atom spontaneous emission in a planar microcavity *(10 pages)* 053807
Kikuo Ujihara and Ho Trung Dung
Theory of excess noise in unstable resonator lasers *(4 pages)* 053808
C. Lamprecht and H. Ritsch
Pulse-mode quantum projection synthesis: Effects of mode mismatch on optical state truncation and preparation *(12 pages)* 053809
Şahin Kaya Özdemir, Adam Miranowicz, Masato Koashi, and Nobuyuki Imoto
Spatial antibunching of photons with parametric down-conversion *(5 pages)* 053810
W. A. T. Nogueira, S. P. Walborn, S. Pádua, and C. H. Monken

(Continued)

PHYSICAL REVIEW A THIRD SERIES, VOLUME 66, NUMBER 5 NOVEMBER 2002

Optimal quantum control in nanostructures: Theory and application to a generic three-level system *(6 pages)* 053811
Alfio Borzì, Georg Stadler, and Ulrich Hohenester
Observation of laser transverse modes analogous to a SU(2) wave packet of a quantum harmonic oscillator *(6 pages)* 053812
Y. F. Chen and Y. P. Lan
Mode structure and photon number correlations in squeezed quantum pulses *(14 pages)* 053813
T. Opatrný, N. Korolkova, and G. Leuchs
Correlation spectroscopy of excitons and biexcitons on a single quantum dot *(7 pages)* 053814
Valéry Zwiller, Per Jonsson, Hans Blom, Sören Jeppesen, Mats-Erik Pistol, Lars Samuelson, A. A. Katznelson, E. Yu. Kotelnikov, Vadim Evtikhiev, and Gunnar Björk
Improved measurement of multimode squeezed light via an eigenmode approach *(5 pages)* 053815
Ryan S. Bennink and Robert W. Boyd
Quantum-interference effects on the index of refraction in an Er^{3+}-doped yttrium aluminum garnet crystal *(5 pages)* 053816
Hui-Fang Zhang, Jin-Hui Wu, Xue-Mei Su, and Jin-Yue Gao
Transverse-mode dynamics in vertical-cavity surface-emitting lasers with optical feedback *(9 pages)* 053817
M. S. Torre, C. Masoller, and Paul Mandel
Rate-equation approach to atomic-laser light statistics *(7 pages)* 053818
Laurent Chusseau, Jacques Arnaud, and Fabrice Philippe
Targeting steady states in a laser *(5 pages)* 053819
Bernard Ségard, Sophie Matton, and Pierre Glorieux
Coherent phase locking, collective oscillations, and stability in coupled vertical-cavity-surface emitting laser arrays *(17 pages)* 053820
S. Riyopoulos
Dark propagation modes in optical lattices *(5 pages)* 053821
M. Schiavoni, L. Sanchez-Palencia, F.-R. Carminati, F. Renzoni, and G. Grynberg

BRIEF REPORTS

Quantum information

Simulation of chaos-assisted tunneling in a semiclassical regime on existing quantum computers *(4 pages)* 054301
A. D. Chepelianskii and D. L. Shepelyansky
More efficient entanglement purification *(4 pages)* 054302
Nasser Metwally
Quantum computing with trapped ions in an optical cavity via Raman transition *(4 pages)* 054303
Mang Feng

Atomic and molecular structure and dynamics

Complete functional theory for the fermion density of independent particles subject to harmonic confinement in *d* dimensions for an arbitrary number of closed shells *(4 pages)* 054501
I. A. Howard, N. H. March, and L. M. Nieto

Atomic and molecular collisions and interactions

Zero- and negative-energy solutions of the coupled *T*-matrix equations: Application to positronium-hydrogen singlet scattering *(4 pages)* 054701
P. K. Biswas, T. Frederico, and J. S. E. Germano

(Continued)

PHYSICAL REVIEW A THIRD SERIES, VOLUME 66, NUMBER 5 NOVEMBER 2002

D-wave resonances in positronium hydride *(4 pages)* 054702
Joseph DiRienzi and Richard J. Drachman

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

Nonlinear effects in the energy loss of a slow dipole in a free-electron gas *(4 pages)* 054901
M. Alducin, R. Díez Muiño, J. I. Juaristi, and P. M. Echenique

Matter waves

Temperature dependence of density profiles for a cloud of noninteracting fermions moving inside a harmonic trap in one dimension *(4 pages)* 055601
Z. Akdeniz, P. Vignolo, A. Minguzzi, and M. P. Tosi

Quantum optics, physics of lasers, nonlinear optics

Self-organized patterns and spatial solitons in liquid-crystal microcavities *(4 pages)* 055801
S. Hoogland, J. J. Baumberg, S. Coyle, J. Baggett, M. J. Coles, and H. J. Coles
Frequency modulation and pulse compression by coherent multimode molecular motion *(4 pages)* 055802
Fam Le Kien, K. Hakuta, and A. V. Sokolov

COMMENTS

Reply to ''Comment on 'Quantum search protocol for an atomic array' '' *(2 pages)* 056301
Marlan O. Scully and M. Suhail Zubairy

ERRATA

Erratum: Fidelity of a *t*-error-correcting quantum code with more than *t* errors [Phys. Rev. A **64**, 022314 (2001)] *(1 page)* . . . . . 059901(E)
Ryutaroh Matsumoto
Erratum: Low-dimensional Bose gases [Phys. Rev. A **66**, 013615 (2002)] *(2 pages)* . . . . . 059902(E)
U. Al Khawaja, J. O. Andersen, N. P. Proukakis, and H. T. C. Stoof
Publisher's Note: Analytical local electron-electron interaction model potentials for atoms [Phys. Rev. A **66**, 022717 (2002)] *(1 page)* . . . . . 059903(E)
Johannes Neugebauer, Markus Reiher, and Juergen Hinze

Cumulative Author Index i