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 65, NUMBER 5 ***CONTENTS*** **MAY 2002**

The Table of Contents is a total listing of Parts A and B.
Part A consists of pages 050301(R)–052728, and Part B pages 052901–059902.

PART A

Announcement: Change in Printing Schedule to Synchronize Online and Print Journals i
Note to Reader ii

RAPID COMMUNICATIONS

Quantum information

Entanglement-enhanced information transmission over a quantum channel with correlated noise *(4 pages)* . . . . 050301(R)
Chiara Macchiavello and G. Massimo Palma
Quantum-information processing in strongly detuned optical cavities *(4 pages)* . . . . . 050302(R)
E. Jané, M. B. Plenio, and D. Jonathan
Self-learning estimation of quantum states *(4 pages)* . . . . . 050303(R)
Th. Hannemann, D. Reiss, Ch. Balzer, W. Neuhauser, P. E. Toschek, and Ch. Wunderlich
Comparison of quantum oracles *(4 pages)* . . . . . 050304(R)
Elham Kashefi, Adrian Kent, Vlatko Vedral, and Konrad Banaszek
Minimum-error discrimination between subsets of linearly dependent quantum states *(4 pages)* . . . . . 050305(R)
Ulrike Herzog and János A. Bergou

Atomic and molecular collisions and interactions

Angle-optimized energy-variable method for electron differential cross-section measurements *(4 pages)* . . . . . 050701(R)
A. Z. Msezane, Z. Felfli, and D. Bessis

Clusters (including fullerenes)

Cluster calorimetry by femtosecond stimulated emission pumping: Excitation and evaporative cooling of $I_2^-(CO_2)_n$ *(4 pages)* . . . . . 051201(R)
R. Wester, A. V. Davis, A. E. Bragg, and D. M. Neumark

Atomic and molecular processes in external fields

Atom reflection in a tapered magnetic guide *(4 pages)* . . . . . 051401(R)
B. K. Teo and G. Raithel
Threshold-related effects in high-order harmonic generation *(4 pages)* . . . . . 051402(R)
Bogdan Borca, Anthony F. Starace, A. V. Flegel, M. V. Frolov, and N. L. Manakov

Copyright 2002 by The American Physical Society

(Continued)

1050-2947(200205)65:5:B;1-P

PHYSICAL REVIEW A THIRD SERIES, VOLUME 65, NUMBER 5 MAY 2002

Three-level system driven by delayed pulses of finite duration *(4 pages)* . . . . . 051403(R)
Artur Ishkhanyan and Kalle-Antti Suominen

Matter waves

Two-body correlations in Bose-Einstein condensates *(4 pages)* . . . . . 051601(R)
O. Sørensen, D. V. Fedorov, A. S. Jensen, and E. Nielsen

Quantum optics, physics of lasers, nonlinear optics

Efficient frequency up-conversion in resonant coherent media *(4 pages)* . . . . . 051801(R)
A. S. Zibrov, M. D. Lukin, L. Hollberg, and M. O. Scully
Controlling the cavity field with enhanced Kerr nonlinearity in three-level atoms *(4 pages)* . . . . . 051802(R)
Hai Wang, David Goorskey, and Min Xiao
Experimental coherent control of lasers *(4 pages)* . . . . . 051803(R)
R. Gordon, A. P. Heberle, A. J. Ramsay, and J. R. A. Cleaver
Fast scheme for the generation of entangled states of multiple hot trapped ions *(4 pages)* . . . . . 051804(R)
Shi-Biao Zheng
Optical-wave group-velocity reduction without electromagnetically induced transparency *(4 pages)* . . . . . 051805(R)
L. Deng, E. W. Hagley, M. Kozuma, and M. G. Payne

ARTICLES

Fundamental concepts

Finite-precision measurement does not nullify the Kochen-Specker theorem *(4 pages)* 052101
Adán Cabello
Pseudopotential approximation in a harmonic trap *(4 pages)* 052102
Martin Block and Martin Holthaus
Appearance of classical coherent oscillator states under environment-induced decoherence *(6 pages)* 052103
Kanwarpreet S. Grewal
Creation of large-photon-number path entanglement conditioned on photodetection *(5 pages)* 052104
Pieter Kok, Hwang Lee, and Jonathan P. Dowling
Entanglement and quantal coherence: Study of two limiting cases of rapid system-bath interactions *(12 pages)* 052105
Nicole F. Bell, R. F. Sawyer, and Raymond R. Volkas
Hierarchy of local minimum solutions of Heisenberg's uncertainty principle *(13 pages)* 052106
David K. Hoffman and Donald J. Kouri
Perturbation theory for quantum-mechanical observables *(8 pages)* 052107
J. D. Franson and Michelle M. Donegan
Semiclassical quantization for the spherically symmetric systems under an Aharonov-Bohm magnetic flux *(10 pages)* 052108
W. F. Kao, P. G. Luan, and D. H. Lin
Dimensional enhancement of kinetic energies *(6 pages)* 052109
W. P. Schleich and J. P. Dahl
Localization and diffusion in Ising-type quantum networks *(7 pages)* 052110
P. Törmä, I. Jex, and W. P. Schleich
Observation of off-diagonal geometric phases in polarized-neutron-interferometer experiments *(10 pages)* . . . 052111
Y. Hasegawa, R. Loidl, G. Badurek, M. Baron, N. Manini, F. Pistolesi, and H. Rauch

(Continued)

PHYSICAL REVIEW A **THIRD SERIES, VOLUME 65, NUMBER 5** **MAY 2002**

Four qubits can be entangled in nine different ways *(5 pages)* 052112
F. Verstraete, J. Dehaene, B. De Moor, and H. Verschelde
Thermodynamical aspects of the Casimir force between real metals at nonzero temperature *(7 pages)* 052113
V. B. Bezerra, G. L. Klimchitskaya, and V. M. Mostepanenko
Proposed demonstration of the Einstein-Poldosky-Rosen paradox using trapped electrons *(6 pages)* 052114
Ana M. Martins
Reevaluation of the role of nuclear uncertainties in experiments on atomic parity violation with isotopic chains *(5 pages)* 052115
Andrei Derevianko and Sergey G. Porsev
How macroscopic properties dictate microscopic probabilities *(4 pages)* 052116
Yakir Aharonov and Benni Reznik
Model for dissipative quantum dynamics and nonlinear coupling: Lennard-Jones potential *(5 pages)* 052117
Mathias Nest
Existence of the quantum action *(7 pages)* 052118
H. Kröger
Decoherence, irreversibility, and selection by decoherence of exclusive quantum states with definite probabilities *(18 pages)* 052119
Roland Omnès
Nonlinear coupling mechanism in a quantum system *(8 pages)* 052120
Jing-Dong Bao
Uniqueness of the solution of the contracted Schrödinger equation *(11 pages)* 052121
Koji Yasuda
Inverse Schrödinger equation and the exact wave function *(15 pages)* 052122
Hiroshi Nakatsuji
Renormalized path integral for the two-dimensional δ-function interaction *(11 pages)* 052123
Horacio E. Camblong and Carlos R. Ordóñez
Superoscillations and tunneling times *(5 pages)* 052124
Yakir Aharonov, Noam Erez, and Benni Reznik

Quantum information

Operation of a quantum phase gate using neutral atoms in microscopic dipole traps *(14 pages)* 052301
I. E. Protsenko, G. Reymond, N. Schlosser, and P. Grangier
Properties of entanglement monotones for three-qubit pure states *(7 pages)* 052302
R. M. Gingrich
Some analogies between quantum cloning and quantum deleting *(4 pages)* 052303
Daowen Qiu
Continuous measurement of entangled qubits *(5 pages)* 052304
Alexander N. Korotkov
Exponential lower bound on the highest fidelity achievable by quantum error-correcting codes *(4 pages)* 052305
Mitsuru Hamada
Polarization squeezing and continuous-variable polarization entanglement *(12 pages)* 052306
Natalia Korolkova, Gerd Leuchs, Rodney Loudon, Timothy C. Ralph, and Christine Silberhorn
Multiparticle reduced density matrix and a useful kind of entangled state for quantum teleportation *(11 pages)* 052307
Jin-yan Zeng, Hong-bo Zhu, and Shou-yong Pei
Minimum-error discrimination between three mirror-symmetric states *(4 pages)* 052308
Erika Andersson, Stephen M. Barnett, Claire R. Gilson, and Kieran Hunter

(Continued)

PHYSICAL REVIEW A **THIRD SERIES, VOLUME 65, NUMBER 5** **MAY 2002**

Scalable architecture for spin-based quantum computers with a single type of gate *(5 pages)* 052309
Dieter Suter and Kyungwon Lim
Security of quantum key distribution with entangled photons against individual attacks *(16 pages)* 052310
Edo Waks, Assaf Zeevi, and Yoshihisa Yamamoto
Probabilistic deletion of copies of linearly independent quantum states *(5 pages)* 052311
Jian Feng, Yun-Feng Gao, Ji-Suo Wang, and Ming-Sheng Zhan
Generic quantum block compression *(4 pages)* 052312
John Langford
Quantum teleportation with close-to-maximal entanglement from a beam splitter *(9 pages)* 052313
Ngoc-Khanh Tran and Olivier Pfister
Quantum operations, state transformations and probabilities *(9 pages)* 052314
Anthony Chefles
Classification of nonasymptotic bipartite pure-state entanglement transformations *(4 pages)* 052315
Somshubhro Bandyopadhyay, Vwani Roychowdhury, and Ujjwal Sen
Quantum encodings in spin systems and harmonic oscillators *(4 pages)* 052316
Stephen D. Bartlett, Hubert de Guise, and Barry C. Sanders
Lorentz-invariant look at quantum clock-synchronization protocols based on distributed entanglement *(6 pages)* 052317
Ulvi Yurtsever and Jonathan P. Dowling
Local transformation of mixed states of two qubits to Bell diagonal states *(6 pages)* 052318
Li-Xiang Cen, Nan-Jian Wu, Fu-Hua Yang, and Jun-Hong An
Entanglement purification in cavity QED using local operations *(9 pages)* 052319
J. L. Romero, L. Roa, J. C. Retamal, and C. Saavedra
Noisy quantum game *(6 pages)* 052320
Jing-Ling Chen, L. C. Kwek, and C. H. Oh
Modified Grover's algorithm for an expectation-value quantum computer *(8 pages)* 052321
David Collins
General SU(2) formulation for quantum searching with certainty *(4 pages)* 052322
Jin-Yuan Hsieh and Che-Ming Li
Nonadditive information measure and quantum entanglement in a class of mixed states of an N^n system *(6 pages)* 052323
Sumiyoshi Abe
Cavity QED implementation of the discrete quantum Fourier transform *(4 pages)* 052324
Marlan O. Scully and M. Suhail Zubairy
Quantum nonlocality in two three-level systems *(8 pages)* 052325
A. Acín, T. Durt, N. Gisin, and J. I. Latorre
Quantum identification schemes with entanglements *(4 pages)* 052326
Takashi Mihara
Robustness of multiparty entanglement *(4 pages)* 052327
Christoph Simon and Julia Kempe
Backwards-induction outcome in a quantum game *(8 pages)* 052328
A. Iqbal and A. H. Toor
Combinations of probabilistic and approximate quantum cloning and deleting *(5 pages)* 052329
Daowen Qiu
Exact gate sequences for universal quantum computation using the XY interaction alone *(6 pages)* 052330
J. Kempe and K. B. Whaley
Quantum key distribution for d-level systems with generalized Bell states *(7 pages)* 052331
Vahid Karimipour, Alireza Bahraminasab, and Saber Bagherinezhad

(Continued)

PHYSICAL REVIEW A THIRD SERIES, VOLUME 65, NUMBER 5 MAY 2002

Atomic and molecular structure and dynamics

Kilohertz-resolution spectroscopy of the $^2S_{1/2}$-$^2F_{7/2}$ electric octupole transition in a single $^{171}Yb^+$ ion *(9 pages)* 052501
S. A. Webster, P. Taylor, M. Roberts, G. P. Barwood, and P. Gill

Time-resolved laser-induced fluorescence lifetime measurements and theoretical transition probabilities in Tb III *(7 pages)* 052502
E. Biémont, H. P. Garnir, P. Quinet, S. Svanberg, and Z. G. Zhang

Dynamics of excited OCS investigated by resonance-enhanced multiphoton ionization *(5 pages)* 052503
Hong-Ping Liu, Jian-Yang Zhang, Shu-Hui Ying, Da-Li Xu, Bo Jiang, Li Wang, and Nan-Quan Lou

Density-functional approach to obtaining excited states: Study of some open-shell atomic systems *(6 pages)* 052504
Manoj K. Harbola

Nonadiabatic effects in the pseudorotational motion of triatomic molecules *(11 pages)* 052505
Frank Hagelberg and Erik Deumens

Undulations in potential curves analyzed using the Fermi model: LiH, LiHe, LiNe, and H_2 examples *(11 pages)* 052506
A. S. Dickinson and F. X. Gadéa

Grassmann products, cumulants, and two-electron reduced density matrices *(9 pages)* 052507
John E. Harriman

Density-functional calculations on singly and doubly excited Rydberg states of many-electron atoms *(9 pages)* 052508
Amlan K. Roy and Shih-I Chu

Nuclear polarization in hydrogenlike $^{208}_{82}Pb^{81+}$ *(11 pages)* 052509
Akihiro Haga, Yataro Horikawa, and Yasutoshi Tanaka

Ground-state atomic ionization energies for $Z=2-18$ and up to 18 electrons *(5 pages)* 052510
Neng Wu Zheng, Tao Zhou, Tao Wang, Ru Yi Yang, Yu Jie Sun, Feng Wang, and Chao Guang Chen

Atomic and molecular collisions and interactions

''Hidden'' vibrations in CO: Reinvestigation of resonant Auger decay for the C $1s\rightarrow\pi$ excitation *(8 pages)* 052701
R. Feifel, L. Karlsson, M.-N. Piancastelli, R. F. Fink, M. Bässler, O. Björneholm, K. Wiesner, C. Miron, H. Wang, A. Giertz, S. L. Sorensen, A. Naves de Brito, and S. Svensson

Relativistic photoionization cross sections for C II *(5 pages)* 052702
Sultana N. Nahar

Ionization of core electrons *(15 pages)* 052703
Mattias N. R. Wohlfarth and Lorenz S. Cederbaum

Comprehensive theoretical and experimental analysis of Coster-Kronig electron spectra from 64-MeV S^{12+} ions excited through He gas and C-foil targets *(11 pages)* 052704
M. Sataka, M. Imai, K. Kawatsura, K. Komaki, H. Tawara, A. Vasilyev, and U. I. Safronova

Applicability of a nonrelativistic asymptotic description of high-energy photoionization *(6 pages)* 052705
N. B. Avdonina, E. G. Drukarev, and R. H. Pratt

Electron excitation during inner-shell ionization *(4 pages)* 052706
Takeshi Mukoyama and Masayuki Uda

L-shell ionization study of indium, tin, and rhenium by low-energy electron impact *(6 pages)* 052707
Changhuan Tang, Zhengming Luo, Zhu An, Fuqing He, Xiufeng Peng, and Xianguan Long

(Continued)

PHYSICAL REVIEW A **THIRD SERIES, VOLUME 65, NUMBER 5** **MAY 2002**

Continuum coupling in one-dimensional scattering using a transformed harmonic oscillator basis *(8 pages)* 052708
I. Martel, F. Pérez-Bernal, M. Rodríguez-Gallardo, J. M. Arias, and J. Gómez-Camacho

Shell corrections in stopping powers *(11 pages)* 052709
H. Bichsel

Equivalence of the Siegert-pseudostate and Lagrange-mesh *R*-matrix methods *(9 pages)* 052710
D. Baye, J. Goldbeter, and J.-M. Sparenberg

Absolute cross sections for near-threshold electron-impact excitation of the dipole-allowed transitions $3s^2\,{}^1S \rightarrow 3s3p\,{}^1P$ in Cl^{5+} and $3s\,{}^2S \rightarrow 3p\,{}^2P$ in Cl^{6+} *(7 pages)* 052711
N. Djurić, M. E. Bannister, A. M. Derkatch, D. C. Griffin, H. F. Krause, D. B. Popović, A. C. H. Smith, B. Wallbank, and G. H. Dunn

Magnetic-field effects in ultracold molecular collisions *(8 pages)* 052712
Alessandro Volpi and John L. Bohn

Computing the exchange interaction in electron scattering from polyatomic molecules *(8 pages)* 052713
P. Čarsky, R. Čurik, F. A. Gianturco, R. R. Lucchese, and M. Polasek

Capture of negative muons and antiprotons by noble-gas atoms *(7 pages)* 052714
James S. Cohen

Postcollision interaction and two-center effects in ionizing collisions *(8 pages)* 052715
L. Sarkadi, L. Gulyás, and L. Lugosi

Polarization of photons emitted in radiative electron capture by bare high-*Z* ions *(5 pages)* 052716
Jörg Eichler and Akira Ichihara

Double photoionization of helium at an excess energy of 60 eV using left- and right-elliptically-polarized light *(8 pages)* 052717
S. A. Collins, S. Cvejanović, C. Dawson, T. J. Reddish, D. P. Seccombe, A. Huetz, L. Malegat, P. Selles, A. K. Kazansky, A. Danjo, K. Soejima, K. Okuno, and A. Yagishita

Quantum-mechanical effects in a time-varying reflection barrier *(4 pages)* 052718
Somshubhro Bandyopadhyay, A. S. Majumdar, and Dipankar Home

Polarization-dependent spectra in the photoassociative ionization of cold atoms in a bright sodium beam *(8 pages)* 052719
Jaime Ramirez-Serrano, William DeGraffenreid, and John Weiner

Extended description for electron capture in ion-atom collisions: Application of model potentials within the framework of the continuum-distorted-wave theory *(9 pages)* 052720
L. Gulyás, P. D. Fainstein, and T. Shirai

Electron-impact ionization of atomic hydrogen close to threshold *(6 pages)* 052721
N. C. Deb and D. S. F. Crothers

Ejected-electron spectrum in low-energy proton-hydrogen collisions *(11 pages)* 052722
D. R. Schultz, C. O. Reinhold, P. S. Krstić, and M. R. Strayer

Dissociative excitation and fragmentation cross section of HeH^+ molecular ions in collision with He *(5 pages)* 052723
F. B. Yousif and J. I. Domínguez

Doubly charged negative ions via charge-exchange collisions: $C_{60}F_{36}^- + CH_4 \rightarrow C_{60}F_{36}^{-2} + CH_4^+$ *(3 pages)* 052724
A. A. Tuinman and R. N. Compton

Potential scattering of electron wave packets by large-size targets *(11 pages)* 052725
M. A. Efremov and M. V. Fedorov

Polarization properties of ion-excitation mechanisms in high-voltage gaps *(11 pages)* 052726
E. Stambulchik, Y. Maron, J. E. Bailey, and M. E. Cuneo

(Continued)

PHYSICAL REVIEW A THIRD SERIES, VOLUME 65, NUMBER 5 MAY 2002

Scaling behavior of the fully differential cross section for ionization of hydrogen atoms by the impact of fast elementary charged particles *(9 pages)* 052727
S. Jones and D. H. Madison

Measurement of the field-induced dielectronic-recombination-rate enhancement of O^{5+} ions differential in the Rydberg quantum number *n (11 pages)* 052728
S. Böhm, S. Schippers, W. Shi, A. Müller, N. Eklöw, R. Schuch, H. Danared, N. R. Badnell, D. M. Mitnik, and D. C. Griffin

PART B

Note to Reader i

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

Surface-topography dependence of line shapes in electron spectra due to decay of autoionizing states produced in inelastic ion-surface collisions *(5 pages)* 052901
V. A. Esaulov, L. Guillemot, O. Grizzi, and E. A. Sánchez

Secondary-electron emission from thin carbon foils by H^0 and H^+ in frozen-charge states *(5 pages)* 052902
H. Ogawa, H. Tsuchida, M. Haba, and N. Sakamoto

Role of surface roughness in hard-x-ray emission from femtosecond-laser-produced copper plasmas *(5 pages)* 052903
P. P. Rajeev, S. Banerjee, A. S. Sandhu, R. C. Issac, L. C. Tribedi, and G. R. Kumar

Characterization of the channeling process in the scattering of relativistic electrons with periodic structures *(8 pages)* 052904
Julio San Roman, Luis Plaja, Luis Roso, and Uwe Schwengelbeck

Clusters (including fullerenes)

Kinetic-energy release and fragment distribution of exploding, highly charged C_{60} molecules *(7 pages)* 053201
S. Tomita, H. Lebius, A. Brenac, F. Chandezon, and B. A. Huber

Statistical electron emission after laser excitation of C_{60}^- ions from an electrospray source *(6 pages)* 053202
J. U. Andersen, P. Hvelplund, S. B. Nielsen, U. V. Pedersen, and S. Tomita

Structure and properties of small sodium clusters *(19 pages)* 053203
Ilia A. Solov'yov, Andrey V. Solov'yov, and Walter Greiner

Ground-state geometries and optical properties of $Na_{8-x}Li_x$ $(x=0-8)$ clusters *(5 pages)* 053204
M. D. Deshpande, D. G. Kanhere, P. V. Panat, Igor Vasiliev, and Richard M. Martin

Atomic and molecular processes in external fields

Raman cooling and heating of two trapped Ba^+ ions *(7 pages)* 053401
D. Reiß, K. Abich, W. Neuhauser, Ch. Wunderlich, and P. E. Toschek

Thresholds to chaos and ionization for the hydrogen atom in rotating fields *(10 pages)* 053402
C. Chandre, David Farrelly, and T. Uzer

Determination of lifetimes of $6P_J$ levels and ground-state polarizability of Cs from the van der Waals coefficient C_6 *(4 pages)* 053403
Andrei Derevianko and Sergey G. Porsev

Continuum-interference mechanism of strong-field atomic stabilization *(5 pages)* 053404
O. V. Tikhonova, A.M. Popov, and M.V. Fedorov

Inner-electron ionization of Sr $5s16l$ states *(6 pages)* 053405
H. Maeda and T. F. Gallagher

(Continued)

PHYSICAL REVIEW A **THIRD SERIES, VOLUME 65, NUMBER 5** **MAY 2002**

Theoretical analysis of quantum dynamics in one-dimensional lattices: Wannier-Stark description *(8 pages)* 053406
Quentin Thommen, Jean Claude Garreau, and Véronique Zehnlé
Cooper pairing and single-particle properties of trapped Fermi gases *(8 pages)* 053407
G. M. Bruun and H. Heiselberg
Absorption and recurrence spectra of hydrogen in crossed electric and magnetic fields *(15 pages)* 053408
S. Freund, R. Ubert, E. Flöthmann, K. Welge, D. M. Wang, and J. B. Delos
Dynamics of a H(n) atom in time-dependent electric and magnetic fields *(8 pages)* 053409
M. Førre, H. M. Nilsen, and J. P. Hansen
Reconstruction of motional states of neutral atoms via maximum entropy principle *(8 pages)* 053410
Gabriel Drobný and Vladimír Bužek
QED approach to the nuclear spin-spin coupling tensor *(9 pages)* 053411
Rodolfo H. Romero and Gustavo A. Aucar
Phase fluctuations of an electron cyclotron: Nondissipative decoherence in a quantum stochastic oscillator *(5 pages)* 053412
S. Brouard and J. Plata
Generalized qubits of the vibrational motion of a trapped ion *(3 pages)* 053413
L. M. Arévalo Aguilar and H. Moya-Cessa
Electron-nucleus interaction in laser fields: The laser-assisted internal conversion process *(9 pages)* 053414
Péter Kálmán and Tamás Bükki
Semiclassical modeling of Rydberg wave-packet dynamics in diatomic molecules: Average decoupling theory *(16 pages)* 053415
S. N. Altunata, J. Cao, and R. W. Field
Deceleration and trapping of ammonia using time-varying electric fields *(20 pages)* 053416
Hendrick L. Bethlem, Floris M. H. Crompvoets, Rienk T. Jongma, Sebastiaan Y. T. van de Meerakker, and Gerard Meijer
Gauge invariance in the interaction between atoms and few-cycle laser pulses *(5 pages)* 053417
Lars Bojer Madsen
Multielectron system in an ultrashort, intense laser field: A nonperturbative, time-dependent two-active-electron approach *(16 pages)* 053418
G. Lagmago Kamta and Anthony F. Starace

Matter waves

Exact results on the dynamics of a multicomponent Bose-Einstein condensate *(6 pages)* 053601
Pijush K. Ghosh
Bose-Einstein condensates in time-dependent light potentials: Adiabatic and nonadiabatic behavior of nonlinear wave equations *(5 pages)* 053602
Y. B. Band and Marek Trippenbach
Bistability and quantum fluctuations in coherent photoassociation of a Bose-Einstein condensate *(5 pages)* 053603
Ying Wu and Robin Côté
Continuous quantum measurement of a Bose-Einstein condensate: A stochastic Gross-Pitaevskii equation *(12 pages)* 053604
Diego A. R. Dalvit, Jacek Dziarmaga, and Roberto Onofrio
Dynamics of dark solitons in quasi-one-dimensional Bose-Einstein condensates *(12 pages)* 053605
Guoxiang Huang, Jacob Szeftel, and Shanhua Zhu

(Continued)

PHYSICAL REVIEW A **THIRD SERIES, VOLUME 65, NUMBER 5** **MAY 2002**

Bose-Einstein condensation in the presence of a uniform field and a pointlike impurity *(7 pages)* 053606
R. M. Cavalcanti, P. Giacconi, G. Pupillo, and R. Soldati
Quantum field theory of dilute homogeneous Bose-Fermi mixtures at zero temperature: General formalism and beyond mean-field corrections *(15 pages)* 053607
A. P. Albus, S. A. Gardiner, F. Illuminati, and M. Wilkens
Bose-Einstein atoms in atomic traps with predominantly attractive two-body interactions *(5 pages)* 053608
M.S. Hussein and O.K. Vorov
Generating vortex rings in Bose-Einstein condensates in the line-source approximation *(7 pages)* 053609
M. Guilleumas, D. M. Jezek, R. Mayol, M. Pi, and M. Barranco
Analytical expressions for the hydrodynamic excitation spectrum of Bose-Einstein condensates in axially anisotropic traps *(6 pages)* 053610
Yong-li Ma and Siu-Tat Chui
Nonlinear atom optics and bright-gap-soliton generation in finite optical lattices *(10 pages)* 053611
Iacopo Carusotto, Davide Embriaco, and Giuseppe C. La Rocca
Expansion of a Bose-Einstein condensate from a microtrap into a waveguide *(6 pages)* 053612
James A. Stickney and Alex A. Zozulya
Higher-order evaluation of the critical temperature for interacting homogeneous dilute Bose gases *(24 pages)* 053613
Frederico F. de Souza Cruz, Marcus B. Pinto, Rudnei O. Ramos, and Paulo Sena
Relation between optical and atomic solitons *(9 pages)* 053614
Dániel Schumayer and Barnabás Apagyi
Atomic diffraction from nanostructured optical potentials *(9 pages)* 053615
G. Lévêque, C. Meier, R. Mathevet, C. Robilliard, J. Weiner, C. Girard, and J. C. Weeber
Collective excitation frequencies and vortices of a Bose-Einstein condensed state with gravitylike interatomic attraction *(7 pages)* 053616
Tarun Kanti Ghosh
Resonance superfluidity: Renormalization of resonance scattering theory *(14 pages)* 053617
S. J. J. M. F. Kokkelmans, J. N. Milstein, M. L. Chiofalo, R. Walser, and M. J. Holland

Quantum optics, physics of lasers, nonlinear optics

Twin photons with angular-momentum entanglement: Phase matching *(7 pages)* 053801
Geraldo A. Barbosa and Hugo H. Arnaut
Resonant and off-resonant transients in electromagnetically induced transparency: Turn-on and turn-off dynamics *(17 pages)* 053802
Andrew D. Greentree, T. B. Smith, S. R. de Echaniz, A. V. Durrant, J. P. Marangos, D. M. Segal, and J. A. Vaccaro
Phase-modulation bistability and threshold self-start of laser passive mode locking *(6 pages)* 053803
A. K. Komarov, K. P. Komarov, and F. M. Mitschke
Dynamical Casimir effect without boundary conditions *(12 pages)* 053804
Hiroki Saito and Hiroyuki Hyuga
High-order harmonic generation in laser-aligned molecules *(8 pages)* 053805
N. Hay, R. Velotta, M. Lein, R. de Nalda, E. Heesel, M. Castillejo, and J. P. Marangos
Quantum-theoretical treatments of three-photon processes *(9 pages)* 053806
M. K. Olsen,, L. I. Plimak, and M. Fleischhauer
Stabilization of self-focusing instability in wide-aperture semiconductor lasers *(5 pages)* 053807
V. Voignier, J. Houlihan, J. R. O'Callaghan, C. Sailliot, and G. Huyet
Propagation and nonlinear generation dynamics in a coherently prepared four-level system *(8 pages)* 053808
E. Paspalakis, N. J. Kylstra, and P. L. Knight

(Continued)

PHYSICAL REVIEW A **THIRD SERIES, VOLUME 65, NUMBER 5** **MAY 2002**

Dispersion cancellation and nonclassical noise reduction for large-photon-number states *(7 pages)* 053809
M. J. Fitch and J. D. Franson
Analytic stochastic treatment of a nonlinear quantum model with negative diffusion *(8 pages)* 053810
Roberta Zambrini and Stephen M. Barnett
Coherent medium as a polarization splitter of pulses *(5 pages)* 053811
G. S. Agarwal and Shubhrangshu Dasgupta
Origin of spectral hole burning in Brillouin fiber amplifiers and generators *(13 pages)* 053812
L. Stépien, S. Randoux, and J. Zemmouri
Positive-*P* and Wigner representations for quantum-optical systems with nonorthogonal modes *(8 pages)* 053813
C. Lamprecht, M. K. Olsen, P. D. Drummond, and H. Ritsch
Dielectric nonlinearity in photorefractive spatial soliton formation *(5 pages)* 053814
Eugenio DelRe and Aharon J. Agranat
Noise reduction in spatially coupled microchip lasers *(9 pages)* 053815
C. Serrat, M. C. Torrent, J. García-Ojalvo, and R. Vilaseca
Squeezing of atoms in a pulsed optical lattice *(9 pages)* 053816
M. Leibscher and I. Sh. Averbukh
Quantum-optical coherence tomography with dispersion cancellation *(6 pages)* 053817
Ayman F. Abouraddy, Magued B. Nasr, Bahaa E. A. Saleh, Alexander V. Sergienko, and Malvin C. Teich
Conditional generation of *N*-photon entangled states of light *(6 pages)* 053818
Jaromír Fiurášek
Atom correlations and spin squeezing near the Heisenberg limit: Finite-size effect and decoherence *(14 pages)* 053819
A. André and M. D. Lukin
Limits on partition noise from the heating rate of vibrational phonons in radio-frequency quadrupole traps *(4 pages)* 053820
Ralph G. DeVoe
Polarization cross-coupling in a polymer microlaser upon double-pulse excitation *(9 pages)* 053821
Steven A. van den Berg, Vladimir A. Sautenkov, Gert W. 't Hooft, and Eric R. Eliel
Spectral asymmetries in ground-state grating and stimulated emission pumping configurations of two-color resonant four-wave-mixing spectroscopy *(16 pages)* 053822
A. A. Villaeys
Increasing the efficiency of high-order harmonic generation using counterpropagating laser pulses *(6 pages)* 053823
I. P. Prokopovich, A. A. Khrutchinsky, D. Yu. Churmakov, J. Peatross, and A. A. Apolonsky
Three-terminal semiconductor laser for wave mixing *(4 pages)* 053824
Alexey Belyanin, Vitaly Kocharovsky, Vladimir Kocharovsky, and Marlan Scully
Quantum spin-flip model of vertical-cavity surface-emitting lasers *(13 pages)* 053825
J.-P. Hermier, M. I. Kolobov, I. Maurin, and E. Giacobino
Intensity-intensity correlations as a probe of interferences under conditions of noninterference in the intensity *(7 pages)* 053826
G. S. Agarwal, J. von Zanthier, C. Skornia, and H. Walther

BRIEF REPORTS

Quantum Information

Experimental realization of a target-accepting quantum search by NMR *(4 pages)* 054301
Jaehyun Kim, Jae-Seung Lee, and Soonchil Lee
Scheme for preparation of the *W* state via cavity quantum electrodynamics *(3 pages)* 054302
Guang-Can Guo and Yong-Sheng Zhang
Separability of two-party Gaussian states *(4 pages)* 054303
Berthold-Georg Englert and Krzysztof Wódkiewicz

(Continued)

PHYSICAL REVIEW A THIRD SERIES, VOLUME 65, NUMBER 5 MAY 2002

Alternative fidelity measure between two states of an *N*-state quantum system *(3 pages)* 054304
Jing-Ling Chen, Libin Fu, Abraham A. Ungar, and Xian-Geng Zhao

Atomic and molecular structure and dynamics

Ground-state energies for helium, H^-, and Ps^- *(4 pages)* 054501
G. W. F. Drake, Mark M. Cassar, and Razvan A. Nistor
Nonresonant corrections to the $1s$-$2s$ two-photon resonance for the hydrogen atom *(3 pages)* 054502
L. Labzowsky, D. Soloviev, G. Plunien, and G. Soff

Atomic and molecular collisions and interactions

Reinterpretation of the recently measured absolute generalized oscillator strength for the Ar $3p$-$4p$ transition *(4 pages)* 054701
A. Z. Msezane, Z. Felfli, M. Ya. Amusia, Z. Chen, and L. V. Chernysheva
He^{2+} formation in collisions between He^+ ions and Ne atoms *(2 pages)* 054702
Horacio Martinez

Atomic and molecular processes in external fields

Stabilization dynamics in an intense circularly polarized laser field *(4 pages)* 055401
Duck-Hee Kwon, Yong-Jin Chun, Hai-Woong Lee, and Yongjoo Rhee
Suppression of angular-momentum mixing in precision solutions of the Schrödinger equation for photoexcitation of Rydberg states *(3 pages)* 055402
H. G. Muller
Nonlinear magneto-optical rotation with frequency-modulated light *(4 pages)* 055403
D. Budker, D. F. Kimball, V. V. Yashchuk, and M. Zolotorev
Cold rubidium atomic beam produced by Zeeman-imbalanced radiation pressures *(4 pages)* 055404
Kihwan Kim, Heung-Ryoul Noh, Young-Hee Yeon, V. G. Minogin, and Wonho Jhe
Spectra of atoms at nonperturbative laser intensities *(3 pages)* 055405
H. R. Reiss

Matter waves

Analytical method for low-angular-momentum yrast states in a two-component Bose-Einstein condensate *(4 pages)* 055601
Bing-Hao Xie, Hui Jing, Shuo Jin, and Mo-Lin Ge

Quantum optics, physics of lasers, nonlinear optics

Efficient and lasting squeezed light due to constructive two-photon interference *(4 pages)* 055801
Rui-Hua Xie

COMMENTS

Comment on ''Charged particles in a rotating magnetic field'' *(1 page)* 056101
David J. Fernández C. and Bogdan Mielnik

ERRATA

Erratum: *K* x-ray production in H-like Si^{13+}, S^{15+}, and Ar^{17+} ions colliding with various atom and molecule gas targets at low collision energies [Phys. Rev. A **64**, 042712 (2001)] *(1 pages)* . . . . . 059901(E)
H. Tawara, P. Richard, U. I. Safronova, and P. C. Stancil

(Continued)

PHYSICAL REVIEW A **THIRD SERIES, VOLUME 65, NUMBER 5** **MAY 2002**

Publisher's note: Adiabaticity in nonlinear quantum dynamics: Bose-Einstein condensate in a time-varying box [Phys. Rev. A **65**, 033607 (2002)] *(1 page)* . . . . . 059902(E)
Y. B. Band, Boris Malomed, and Marek Trippenbach

Selected Abstracts from Other Physical Review Journals iii

Cumulative Author Index iv