

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 1N01
2 Huntington Quadrangle
Melville, NY 11747-4502

THIRD SERIES, VOLUME 78, NUMBER 6
PARTS A AND B

CONTENTS

DECEMBER 2008

*The Table of Contents is a total listing of Parts A and B.
Part A consists of pages 060101(R)-062718, and Part B pages 062901-069904(E).*

PART A

RAPID COMMUNICATIONS

Fundamental concepts

- Full quantum reconstruction of vortex states (*4 pages*) 060101(R)
I. Rigas, L. L. Sánchez-Soto, A. B. Klimov, J. Řeháček, and Z. Hradil
- Decoherence as a signature of an excited-state quantum phase transition (*4 pages*) 060102(R)
A. Relaño, J. M. Arias, J. Dukelsky, J. E. García-Ramos, and P. Pérez-Fernández
- Casimir effect for massless fermions in one dimension: A force-operator approach (*4 pages*) 060103(R)
Dina Zhabinskaya, Jesse M. Kinder, and E. J. Mele
- Detection of continuous variable entanglement without coherent local oscillators (*4 pages*) 060104(R)
Andrew J. Ferris, Murray K. Olsen, Eric G. Cavalcanti, and Matthew J. Davis

Quantum information

- Multiparticle entanglement under the influence of decoherence (*4 pages*) 060301(R)
O. Gühne, F. Bodoky, and M. Blaabøer
- Entanglement trapping in structured environments (*4 pages*) 060302(R)
Bruno Bellomo, Rosario Lo Franco, Sabrina Maniscalco, and Giuseppe Compagno
- Quantifying the non-Gaussian character of a quantum state by quantum relative entropy (*4 pages*) 060303(R)
Marco G. Genoni, Matteo G. A. Paris, and Konrad Banaszek

Atomic and molecular collisions and interactions

- Interference effects due to projectile target nucleus scattering in single ionization of H₂ by 75-keV proton impact (*4 pages*) 060701(R)
J. S. Alexander, A. C. Laforge, A. Hasan, Z. S. Machavariani, M. F. Ciappina, R. D. Rivarola, D. H. Madison, and M. Schulz
- Effect of Förster resonances on the excitation statistics of many-body Rydberg systems (*4 pages*) 060702(R)
A. Reinhard, K. C. Younge, and G. Raithel



Copyright 2008 by The American Physical Society

(Continued)



1050-2947(200812)78:6:B;1-8

- Collision-induced spin depolarization of alkali-metal atoms in cold ^3He gas (*4 pages*) 060703(R)
 T. V. Tscherbul, P. Zhang, H. R. Sadeghpour, A. Dalgarno, N. Brahm, Y. S. Au, and J. M. Doyle

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

- Translational cooling and storage of protonated proteins in an ion trap at subkelvin temperatures (*4 pages*) 061401(R)
 D. Offenberger, C. B. Zhang, Ch. Wellers, B. Roth, and S. Schiller
- Retrieving photorecombination cross sections of atoms from high-order harmonic spectra (*4 pages*) 061402(R)
 Shinichirou Minemoto, Toshihito Umegaki, Yuichiro Oguchi, Toru Morishita, Anh-Thu Le, Shinichi Watanabe, and Hirofumi Sakai

Matter waves

- Association of ultracold double-species bosonic molecules (*4 pages*) 061601(R)
 C. Weber, G. Barontini, J. Catani, G. Thalhammer, M. Inguscio, and F. Minardi
- Radio-frequency association of heteronuclear Feshbach molecules (*4 pages*) 061602(R)
 C. Klempt, T. Henninger, O. Topic, M. Scherer, L. Kattner, E. Tiemann, W. Ertmer, and J. J. Arlt
- Tunneling-induced damping of phase coherence revivals in deep optical lattices (*4 pages*) 061603(R)
 Uwe R. Fischer and Ralf Schützhold
- Coherent energy manipulation in single-neutron interferometry (*4 pages*) 061604(R)
 S. Sponar, J. Klepp, R. Loidl, S. Filipp, G. Badurek, Y. Hasegawa, and H. Rauch
- Interference of Bose-Einstein condensates: Quantum nonlocal effects (*4 pages*) 061605(R)
 W. J. Mullin and F. Laloë
- Phase separation in a mixture of a Bose-Einstein condensate and a two-component Fermi gas as a probe of Fermi superfluidity (*4 pages*) 061606(R)
 S. G. Bhongale and H. Pu
- Collapse times of dipolar Bose-Einstein condensates (*4 pages*) 061607(R)
 C. Ticknor, N. G. Parker, A. Melatos, S. L. Cornish, D. H. J. O'Dell, and A. M. Martin
- Stirring trapped atoms into fractional quantum Hall puddles (*4 pages*) 061608(R)
 Stefan K. Baur, Kaden R. A. Hazzard, and Erich J. Mueller

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

- Dark polariton solitons in semiconductor microcavities (*4 pages*) 061801(R)
 A. V. Yulin, O. A. Egorov, F. Lederer, and D. V. Skryabin
- Computational ghost imaging (*4 pages*) 061802(R)
 Jeffrey H. Shapiro
- Self-focusing of few optical cycle pulses (*4 pages*) 061803(R)
 A. A. Balakin, A. G. Litvak, V. A. Mironov, and S. A. Skobelev
- Multiple-stream instabilities and soliton turbulence in photonic plasma (*4 pages*) 061804(R)
 Dmitry V. Dylov and Jason W. Fleischer

(Continued)

ARTICLES

Fundamental concepts

Casimir effect in a superconducting cavity and the thermal controversy (<i>9 pages</i>)	062101
Giuseppe Bimonte	
Casimir force between dissimilar mirrors and the role of the surface plasmons (<i>7 pages</i>)	062102
A. Lambrecht and I. G. Pirozhenko	
Variational ground state for relativistic ions in strong magnetic fields (<i>9 pages</i>)	062103
D. H. Jakubassa-Amundsen	
Linear quantum feedback networks (<i>11 pages</i>)	062104
J. E. Gough, R. Gohm, and M. Yanagisawa	
Structural approximations to positive maps and entanglement-breaking channels (<i>17 pages</i>)	062105
J. K. Korbicz, M. L. Almeida, J. Bae, M. Lewenstein, and A. Acín	
Entanglement, Berry phases, and level crossings for the atomic Breit-Rabi Hamiltonian (<i>7 pages</i>)	062106
Sangchul Oh, Zhen Huang, Uri Peskin, and Sabre Kais	
Complementarity and uncertainty relations for matter-wave interferometry (<i>10 pages</i>)	062107
Karl-Peter Marzlin, Barry C. Sanders, and Peter L. Knight	
Fast-forward problem in quantum mechanics (<i>9 pages</i>)	062108
Shumpei Masuda and Katsuhiro Nakamura	
Laser-photon merging in proton-laser collisions (<i>13 pages</i>)	062109
A. Di Piazza, K. Z. Hatsagortsyan, and C. H. Keitel	
Testing a Bell inequality in multipair scenarios (<i>8 pages</i>)	062110
Jean-Daniel Bancal, Cyril Branciard, Nicolas Brunner, Nicolas Gisin, Sandu Popescu, and Christoph Simon	
Attractive-repulsive transition of the Casimir force between anisotropic plates (<i>5 pages</i>)	062111
Gang Deng, Zhong-Zhu Liu, and Jun Luo	
Lower bound on the dimension of a quantum system given measured data (<i>8 pages</i>)	062112
Stephanie Wehner, Matthias Christandl, and Andrew C. Doherty	
Non-Hermitian Hamiltonians with space-time symmetry (<i>8 pages</i>)	062113
Shachar Klaiman and Lorenz S. Cederbaum	
Effective Hamiltonian approach to open systems and its applications (<i>9 pages</i>)	062114
X. L. Huang, X. X. Yi, Chunfeng Wu, X. L. Feng, S. X. Yu, and C. H. Oh	
Entanglement entropy and determination of an unknown quantum state (<i>5 pages</i>)	062115
Gerardo Aquino and Filippo Giraldi	
Dynamical regimes of a quantum SWAP gate beyond the Fermi golden rule (<i>10 pages</i>)	062116
Axel D. Dente, Raúl A. Bustos-Marún, and Horacio M. Pastawski	

Quantum information

Dynamics of nonequilibrium thermal entanglement (<i>5 pages</i>)	062301
Ilya Sinaysky, Francesco Petruccione, and Daniel Burgarth	
Partial-state fidelity and quantum phase transitions induced by continuous level crossing (<i>5 pages</i>)	062302
Ho-Man Kwok, Chun-Sing Ho, and Shi-Jian Gu	

(Continued)

Nanomechanical squeezing with detection via a microwave cavity (<i>11 pages</i>)	062303
M. J. Woolley, A. C. Doherty, G. J. Milburn, and K. C. Schwab	
Distributed implementation of standard oracle operators (<i>5 pages</i>)	062304
Anthony Chefles	
Hyperentanglement witness (<i>6 pages</i>)	062305
Giuseppe Vallone, Raino Ceccarelli, Francesco De Martini, and Paolo Mataloni	
Spin lattices with two-body Hamiltonians for which the ground state encodes a cluster state (<i>15 pages</i>)	062306
Tom Griffin and Stephen D. Bartlett	
Experimental quantum secret sharing using telecommunication fiber (<i>6 pages</i>)	062307
Jan Bogdanski, Nima Rafiei, and Mohamed Bourennane	
Local measurements are sufficient to obtain maximal information on independently prepared quantum states (<i>5 pages</i>)	062308
Chi-Hang Fred Fung and H. F. Chau	
Dynamics of non-classically-reproducible entanglement (<i>4 pages</i>)	062309
Bruno Bellomo, Rosario Lo Franco, and Giuseppe Compagno	
State transfer in highly connected networks and a quantum Babinet principle (<i>5 pages</i>)	062310
D. I. Tsomokos, M. B. Plenio, I. de Vega, and S. F. Huelga	
Experimental realization of a programmable quantum gate (<i>5 pages</i>)	062311
Michal Mičuda, Miroslav Ježek, Miloslav Dušek, and Jaromír Fiurášek	
Entanglement properties of topological color codes (<i>10 pages</i>)	062312
Mehdi Kargarian	
Efficient purification protocols using iSWAP gates in solid-state qubits (<i>10 pages</i>)	062313
Tetsufumi Tanamoto, Koji Maruyama, Yu-xi Liu, Xuedong Hu, and Franco Nori	
Computation with coherent states via teleportations to and from a quantum bus (<i>10 pages</i>)	062314
Marcus Silva and Casey R. Myers	
Nonbinary codeword-stabilized quantum codes (<i>7 pages</i>)	062315
Xie Chen, Bei Zeng, and Isaac L. Chuang	
Design and stability of NOR and NAND logic gates constructed with three quantum states (<i>10 pages</i>)	062316
N. Renaud and C. Joachim	
Message passing in fault-tolerant quantum error correction (<i>7 pages</i>)	062317
Zachary W. E. Evans and Ashley M. Stephens	
Decoherence of two qubits in non-Markovian reservoirs without the rotating-wave approximation (<i>6 pages</i>)	062318
Fa-Qiang Wang, Zhi-Ming Zhang, and Rui-Sheng Liang	
Quantum repeaters using coherent-state communication (<i>10 pages</i>)	062319
Peter van Loock, Norbert Lütkenhaus, W. J. Munro, and Kae Nemoto	
Quantum multiplexing with the orbital angular momentum of light (<i>10 pages</i>)	062320
Juan Carlos García-Escartín and Pedro Chamorro-Posada	
Quantum gate operations in the decoherence-free subspace of superconducting quantum-interference devices (<i>5 pages</i>)	062321
Chunfeng Wu, Xun-Li Feng, X. X. Yi, Isabel Meiqi Chen, and C. H. Oh	

Entanglement genesis under continuous parity measurement (<i>11 pages</i>)	062322
Nathan S. Williams and Andrew N. Jordan	
Shor's factorization algorithm with a single control qubit and imperfections (<i>8 pages</i>)	062323
Ignacio García-Mata, Klaus M. Frahm, and Dima L. Shepelyansky	
One-shot entanglement generation over long distances in noisy quantum networks (<i>6 pages</i>)	062324
S. Perseguers, L. Jiang, N. Schuch, F. Verstraete, M. D. Lukin, J. I. Cirac, and K. G. H. Vollbrecht	
Entanglement in a class of multiqubit mixed states without multipartite tangles (<i>5 pages</i>)	062325
Yan-Kui Bai, Ming-Yong Ye, and Z. D. Wang	
Minimization of a quantum automaton: The transducer (<i>10 pages</i>)	062326
A. M. Martins	
Biphoton wave packets in parametric down-conversion: Spectral and temporal structure and degree of entanglement (<i>17 pages</i>)	062327
Yu. M. Mikhailova, P. A. Volkov, and M. V. Fedorov	
Entanglement transformation with no classical communication (<i>4 pages</i>)	062328
Bing He and János A. Bergou	
Efficiency of producing random unitary matrices with quantum circuits (<i>8 pages</i>)	062329
Ludovic Arnaud and Daniel Braun	
Evolution of entanglement for quantum mixed states (<i>6 pages</i>)	062330
Chang-shui Yu, X. X. Yi, and He-shan Song	
Wigner crystals of ions as quantum hard drives (<i>6 pages</i>)	062331
J. M. Taylor and T. Calarco	
Geometric entanglement in a one-dimensional valence-bond solid state (<i>4 pages</i>)	062332
Román Orús	
Quantum-information splitting using multipartite cluster states (<i>5 pages</i>)	062333
Sreramam Muralidharan and Prasanta K. Panigrahi	
Separability bounds on multiqubit moments due to positivity under partial transpose (<i>7 pages</i>)	062334
A. R. Usha Devi and A. K. Rajagopal	
Lower bounds on the nonzero capacity of Pauli channels (<i>9 pages</i>)	062335
Jesse Fern and K. Birgitta Whaley	
High-speed quantum gates with cavity quantum electrodynamics (<i>5 pages</i>)	062336
Chun-Hsu Su, Andrew D. Greentree, William J. Munro, Kae Nemoto, and Lloyd C. L. Hollenberg	
Nonoptimality of unitary encoding with quantum channels assisted by entanglement (<i>8 pages</i>)	062337
Michael R. Beran and Scott M. Cohen	
Simulation of high-spin Heisenberg models in coupled cavities (<i>4 pages</i>)	062338
Jaeyoon Cho, Dimitris G. Angelakis, and Sougato Bose	
Global controllability with a single local actuator (<i>9 pages</i>)	062339
S. G. Schirmer, I. C. H. Pullen, and P. J. Pemberton-Ross	
Optimal fidelity of teleportation of coherent states and entanglement (<i>9 pages</i>)	062340
A. Mari and D. Vitali	

Atomic and molecular structure and dynamics

Endohedrally confined helium: Study of mirror collapses (10 pages)	062501
D. M. Mitnik, J. Randazzo, and G. Gasaneo	
Calculation of the spectra for the superheavy element $Z=112$ (5 pages)	062502
T. H. Dinh, V. A. Dzuba, and V. V. Flambaum	
Recoil corrections to decay rates of hydrogenic ions (6 pages)	062503
G. S. Adkins and J. Sapirstein	
Calculation of radial matrix elements and anticrossings for highly excited Stark states using the B -spline approach (7 pages)	062504
Hongwei Song and Yong Li	
Hyperfine-interaction-dependent $4s4p\ ^3P_2$ lifetimes in Zn-like ions (11 pages)	062505
M. Andersson, Y. Liu, C. Y. Chen, R. Hutton, Y. Zou, and T. Brage	
Lifetime measurements of the $5d$ states of rubidium (8 pages)	062506
D. Sheng, A. Pérez Galván, and L. A. Orozco	
Ground-state hyperfine structure of H-, Li-, and B-like ions in the intermediate- Z region (11 pages)	062507
A. V. Volotka, D. A. Glazov, I. I. Tupitsyn, N. S. Oreshkina, G. Plunien, and V. M. Shabaev	
Experimental transition probabilities for infrared lines of Cl I (5 pages)	062508
J. M. Bridges and W. L. Wiese	
Lifetime of the $A(v'=0)$ state and Franck-Condon factor of the $A-X(0-0)$ transition of CaF measured by the saturation of laser-induced fluorescence (10 pages)	062509
T. E. Wall, J. F. Kanem, J. J. Hudson, B. E. Sauer, D. Cho, M. G. Boshier, E. A. Hinds, and M. R. Tarbutt	
Microwave spectroscopy of high- L $n=10$ Rydberg states of argon (14 pages)	062510
M. E. Hanni, Julie A. Keele, S. R. Lundeen, and W. G. Sturuss	
Bound-bound transitions in hydrogenlike ions in Debye plasmas (11 pages)	062511
Y. Y. Qi, J. G. Wang, and R. K. Janev	

Atomic and molecular collisions and interactions

Adiabatic hyperspherical study of triatomic helium systems (10 pages)	062701
Hiroya Suno and B. D. Esry	
$K\alpha$ x-ray satellite and hypersatellite spectra of vanadium metal and oxides excited in heavy-ion collisions (9 pages)	062702
R. L. Watson, V. Horvat, and Y. Peng	
Formation of a molecule by atoms incident upon an external potential (5 pages)	062703
Mark R. A. Shegelski, Jeff Hnybida, and Rob Vogt	
Absolute bremsstrahlung yields at 135° from 53-keV electrons on gold film targets (9 pages)	062704
Scott Williams and C. A. Quarles	
Competitive processes in the associative ionization of C^- with C^+ , N^+ , and O^+ (7 pages)	062705
A. Le Padellec, J. Liévin, E. M. Staicu-Casagrande, T. Nzeyimana, E. A. Naji, and X. Urbain	
Breakup of the SF_6^{3+} photoion revealed by momentum correlation between fragments (4 pages)	062706
S. Sunil Kumar, P. C. Deshmukh, R. K. Kushawaha, V. Sharma, I. A. Prajapati, K. P. Subramanian, and B. Bapat	

(Continued)

Spin- and fine-structure-resolved ionization of krypton (<i>14 pages</i>)	062707
S. Bellm, J. Lower, R. P. McEachran, E. Weigold, C. Ryan-Anderson, and D. H. Madison	
Two-photon photoassociative spectroscopy of ultracold ^{88}Sr (<i>8 pages</i>)	062708
Y. N. Martinez de Escobar, P. G. Mickelson, P. Pellegrini, S. B. Nagel, A. Traverso, M. Yan, R. Côté, and T. C. Killian	
(<i>e, 3e</i>) processes on two-electron atoms: Cusp conditions and scaling law (<i>11 pages</i>)	062709
L. U. Ancarani, C. Dal Cappello, I. Charpentier, K. V. Rodriguez, and G. Gasaneo	
Long-range interactions of copper and silver atoms with hydrogen, helium, and rare-gas atoms (<i>6 pages</i>)	062710
J. Y. Zhang, J. Mitroy, H. R. Sadeghpour, and M. W. J. Bromley	
Calculation of electron-positron production in supercritical uranium-uranium collisions near the Coulomb barrier (<i>8 pages</i>)	062711
Edward Ackad and Marko Horbatsch	
Feshbach projection-operator formalism applied to resonance scattering on Bargmann-type potentials (<i>11 pages</i>)	062712
Varvara V. Shamshudinova, Konstantin N. Pichugin, Ingrid Rotter, and Boris F. Samsonov	
Phase-index problem in the semiclassical description of molecular collisions (<i>19 pages</i>)	062713
L. Bonnet and C. Crespos	
Elastic scattering of slow electrons by <i>n</i> -propanol and <i>n</i> -butanol (<i>8 pages</i>)	062714
M. A. Khakoo, J. Muse, H. Silva, M. C. A. Lopes, C. Winstead, V. McKoy, E. M. de Oliveira, R. F. da Costa, M. T. do N. Varella, M. H. F. Bettega, and M. A. P. Lima	
Double capture cross sections in <i>p</i> -Ar collisions (<i>5 pages</i>)	062715
H. Martinez, F. B. Alarcon, and A. Amaya-Tapia	
Creation, destruction, and transfer of atomic multipole moments by electron scattering: Quantum-mechanical treatment (<i>15 pages</i>)	062716
G. Csanak, D. P. Kilcrease, D. V. Fursa, and I. Bray	
Scaling functions applied to three-body recombination of ^{133}Cs atoms (<i>6 pages</i>)	062717
L. Platter and J. R. Shepard	
<i>L</i> -shell ionization accompanied by one-electron capture in C^{q+} , O^{q+} ($q=2,3$)-Ne collisions (<i>5 pages</i>)	062718
B. W. Ding, X. M. Chen, D. Y. Yu, H. B. Fu, G. Z. Sun, and Y. W. Liu	

PART B

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

van der Waals potentials of paramagnetic atoms (<i>17 pages</i>)	062901
Hassan Safari, Dirk-Gunnar Welsch, Stefan Yoshi Buhmann, and Stefan Scheel	

Clusters (including fullerenes)

Angular distributions of inner-shell photoelectrons from rare-gas clusters (<i>7 pages</i>)	063201
H. Zhang, D. Rolles, Z. D. Pešić, J. D. Bozek, and N. Berrah	

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

Power-law behavior in the quantum-resonant evolution of the δ -kicked accelerator (<i>15 pages</i>)	063401
P. L. Halkyard, M. Saunders, S. A. Gardiner, and K. J. Challis	

(Continued)

Nondipolar effects in the photoionization dynamics of carbon tetrafluoride (<i>10 pages</i>)	063402
Daniele Toffoli and Piero Decleva	
Charge-scaling law for angular correlation in double photoionization of ions and atoms with two active electrons (<i>9 pages</i>)	063403
Vladislav V. Serov, Vladimir L. Derbov, Boghos B. Joulakian, and Sergue I. Vinitzky	
Isolated short attosecond pulse produced by using an intense few-cycle shaped laser and an ultraviolet attosecond pulse (<i>7 pages</i>)	063404
Song-Feng Zhao, Xiao-Xin Zhou, Peng-Cheng Li, and Zhangjin Chen	
High-order harmonic generation in fullerenes with icosahedral symmetry (<i>6 pages</i>)	063405
M. F. Ciappina, A. Becker, and A. Jaroń-Becker	
Kinematic production of isolated millikelvin molecules (<i>5 pages</i>)	063406
Kevin E. Strecker and David W. Chandler	
Method to generate directly a broadband isolated attosecond pulse with stable pulse duration and high signal-to-noise ratio (<i>6 pages</i>)	063407
Weiyi Hong, Peixiang Lu, Pengfei Lan, Qiangang Li, Qingbin Zhang, Zhenyu Yang, and Xinbing Wang	
Guided locally optimal control of quantum dynamics in dissipative environments (<i>9 pages</i>)	063408
Jean Christophe Tremblay and Peter Saalfrank	
Radio-frequency-driven dipole-dipole interactions in spatially separated volumes (<i>7 pages</i>)	063409
Atreju Tauschinsky, C. S. E. van Ditzhuijzen, L. D. Noordam, and H. B. van Linden van den Heuvell	
Electrostatics of surface-electrode ion traps (<i>12 pages</i>)	063410
J. H. Wesenberg	
Perspectives for coherent optical formation of strontium molecules in their electronic ground state (<i>10 pages</i>)	063411
Christiane P. Koch	
Generation of nonground-state Bose-Einstein condensates by modulating atomic interactions (<i>6 pages</i>)	063412
E. R. F. Ramos, E. A. L. Henn, J. A. Seman, M. A. Caracanhas, K. M. F. Magalhães, K. Helmerson, V. I. Yukalov, and V. S. Bagnato	
Tailoring very-high- n circular wave packets (<i>9 pages</i>)	063413
C. O. Reinhold, S. Yoshida, J. Burgdörfer, J. J. Mestayer, B. Wyker, J. C. Lancaster, and F. B. Dunning	
Extracting irreversible dephasing rates from electric dipole echoes in Rydberg Stark wave packets (<i>15 pages</i>)	063414
S. Yoshida, C. O. Reinhold, J. Burgdörfer, W. Zhao, J. J. Mestayer, J. C. Lancaster, and F. B. Dunning	
Measurement of diffusion coefficients of francium and rubidium in yttrium based on laser spectroscopy (<i>6 pages</i>)	063415
C. de Mauro, R. Calabrese, L. Corradi, A. Dainelli, A. Khanbekyan, E. Mariotti, P. Minguzzi, L. Moi, S. Sanguinetti, G. Stancari, L. Tomassetti, and S. Veronesi	
Laser-induced selective alignment of water spin isomers (<i>6 pages</i>)	063416
E. Gershnel and I. Sh. Averbukh	
Laser-pulse photoassociation in a thermal gas of atoms (<i>7 pages</i>)	063417
Emanuel F. de Lima, Tak-San Ho, and Herschel Rabitz	

(Continued)

Effective-range theory for an electron in a short-range potential and a laser field (27 pages)	063418
M. V. Frolov, N. L. Manakov, and Anthony F. Starace	
Elusive enhanced ionization structure for H_2^+ in intense ultrashort laser pulses (7 pages)	063419
I. Ben-Itzhak, P. Q. Wang, A. M. Sayler, K. D. Carnes, M. Leonard, B. D. Esry, A. S. Alnaser, B. Ulrich, X. M. Tong, I. V. Litvinyuk, C. M. Maharjan, P. Ranitovic, T. Osipov, S. Ghimire, Z. Chang, and C. L. Cocke	
Combined R -matrix eigenstate basis set and finite-difference propagation method for the time-dependent Schrödinger equation: The one-electron case (12 pages)	063420
L. A. A. Nikolopoulos, J. S. Parker, and K. T. Taylor	
Cooling and trapping of ^{85}Rb atoms in the ground hyperfine $F=2$ state (5 pages)	063421
V. B. Tiwari, S. Singh, H. S. Rawat, and S. C. Mehendale	
Control of quantum dynamics by optimized measurements (7 pages)	063422
Feng Shuang, Mianlai Zhou, Alexander Pechen, Rebing Wu, Ofer M. Shir, and Herschel Rabitz	
Coincidence technique using synchrotron radiation for triple photoionization: Results on rare gas atoms (6 pages)	063423
J. H. D. Eland, P. Linusson, L. Hedin, E. Andersson, J.-E. Rubensson, and R. Feifel	
Controlling the strong field dynamics by a time-delayed near- and mid-infrared two-color laser field (7 pages)	063424
Chengpu Liu and Takashi Nakajima	
Matter waves	
Dynamical thermalization and vortex formation in stirred two-dimensional Bose-Einstein condensates (22 pages)	063601
T. M. Wright, R. J. Ballagh, A. S. Bradley, P. B. Blakie, and C. W. Gardiner	
Thermodynamics of a trapped unitary Fermi gas (10 pages)	063602
R. Haussmann and W. Zwerger	
Unitary polarized Fermi gas under adiabatic rotation (8 pages)	063603
I. Bausmerth, A. Recati, and S. Stringari	
Matter-wave dark solitons in a double-well potential (6 pages)	063604
Ryoko Ichihara, Ippei Danshita, and Tetsuro Nikuni	
Theory of quasi-one-dimensional imbalanced Fermi gases (8 pages)	063605
Erhai Zhao and W. Vincent Liu	
Localized matter-wave patterns with attractive interaction in rotating potentials (10 pages)	063606
Hidetsugu Sakaguchi and Boris A. Malomed	
Absolute absorption spectroscopy based on molecule interferometry (8 pages)	063607
Stefan Nimmrichter, Klaus Hornberger, Hendrik Ulbricht, and Markus Arndt	
Shape-independent approximation for Bose-Einstein condensates interacting through a van der Waals potential (7 pages)	063608
Barnali Chakrabarti and Tapan Kumar Das	
Mean-field analysis of pairing in asymmetric Fermi systems at finite temperature (12 pages)	063609
Rishi Sharma and Sanjay Reddy	

Cold atoms in double-well optical lattices (<i>10 pages</i>)	063610
V. I. Yukalov and E. P. Yukalova	
Reflection and refraction of Bose-Einstein-condensate excitations (<i>9 pages</i>)	063611
Shohei Watabe and Yusuke Kato	
Generalized mean-field approach to a resonant Bose-Fermi mixture (<i>13 pages</i>)	063612
D. C. E. Bortolotti, A. V. Avdeenkov, and J. L. Bohn	
Fermion and spin counting in strongly correlated systems (<i>9 pages</i>)	063613
Sibylle Braungardt, Aditi Sen(De), Ujjwal Sen, Roy J. Glauber, and Maciej Lewenstein	
Incoherence of Bose-Einstein condensates at supersonic speeds due to quantum noise (<i>5 pages</i>)	063614
R. G. Scott and D. A. W. Hutchinson	
Bright solitons in the one-dimensional discrete Gross-Pitaevskii equation with dipole-dipole interactions (<i>10 pages</i>)	063615
Goran Gligorić, Aleksandra Maluckov, Ljupčo Hadžievski, and Boris A. Malomed	
Stability of fermionic gases close to a p -wave Feshbach resonance (<i>14 pages</i>)	063616
J. Levinsen, N. R. Cooper, and V. Gurarie	
Tunneling properties of a bound pair of Fermi atoms in an optical lattice (<i>9 pages</i>)	063617
Y. Ohashi	
Coupled two-component atomic gas in an optical lattice (<i>9 pages</i>)	063618
Jonas Larson and Jani-Petri Martikainen	
Equation of state and effective mass of the unitary Fermi gas in a one-dimensional periodic potential (<i>5 pages</i>)	063619
Gentaro Watanabe, Giuliano Orso, Franco Dalfovo, Lev P. Pitaevskii, and Sandro Stringari	
Relationship between spin squeezing and single-particle coherence in two-component Bose-Einstein condensates with Josephson coupling (<i>5 pages</i>)	063620
G. R. Jin and C. K. Law	
Nonlinear Ramsey interferometry with Rosen-Zener pulses on a two-component Bose-Einstein condensate (<i>8 pages</i>)	063621
Sheng-Chang Li, Li-Bin Fu, Wen-Shan Duan, and Jie Liu	
Ground state of low-dimensional dipolar gases: Linear and zigzag chains (<i>6 pages</i>)	063622
G. E. Astrakharchik, Giovanna Morigi, Gabriele De Chiara, and J. Boronat	
Fragility of fragmentation in Bose-Einstein condensates (<i>4 pages</i>)	063623
A. D. Jackson, G. M. Kavoulakis, and M. Magiropoulos	
Interferometric probe of paired states (<i>16 pages</i>)	063624
V. Gritsev, E. Demler, and A. Polkovnikov	
Quantum optics, physics of lasers, nonlinear optics, classical optics	
Demonstration of a bright and compact source of tripartite nonclassical light (<i>7 pages</i>)	063801
Alessia Allevi, Maria Bondani, Matteo G. A. Paris, and Alessandra Andreoni	
Rabi cycling of two pulses in a mode-locked ring laser cavity with electro-optical control (<i>6 pages</i>)	063802
Andreas Schmitt-Sody, Ladan Arissian, Andreas Velten, Jean-Claude Diels, and David D. Smith	

Effect of the orientation of a weak magnetic field on the radiative decay of a cesium atom near a nanofiber (6 pages)	063803
Fam Le Kien and K. Hakuta	
Acoustic black holes in a two-dimensional “photon fluid” (5 pages)	063804
Francesco Marino	
Dynamics in a coupled-cavity array (9 pages)	063805
C. D. Ogden, E. K. Irish, and M. S. Kim	
Three-dimensional coherence of light speckles: Theory (11 pages)	063806
A. Gatti, D. Magatti, and F. Ferri	
Adiabatic shape preservation and solitary waves in a five-level atomic medium (5 pages)	063807
F. T. Hioe	
Collisionless shock resolution in nematic liquid crystals (9 pages)	063808
Gaetano Assanto, T. R. Marchant, and Noel F. Smyth	
Three-mode optoacoustic parametric interactions with a coupled cavity (6 pages)	063809
H. Miao, C. Zhao, L. Ju, S. Gras, P. Barriga, Z. Zhang, and D. G. Blair	
Increase of the fractional delay of the pulse in an electromagnetically-induced-transparency medium (10 pages)	063810
R. N. Shakhmuratov and J. Odeurs	
Generating “squeezed” superpositions of coherent states using photon addition and subtraction (8 pages)	063811
P. Marek, H. Jeong, and M. S. Kim	
Linear instability of two-dimensional low-amplitude gap solitons near band edges in periodic media (15 pages)	063812
Zuoqiang Shi, Jiandong Wang, Zhigang Chen, and Jianke Yang	
Resonant interaction of coupled polarization waves with a degenerate resonant two-photon transition (6 pages)	063813
A. A. Zabolotskii	
Coherent states of a harmonic oscillator on a sphere in the motion of a trapped ion (6 pages)	063814
A. Mahdifar, W. Vogel, Th. Richter, R. Roknizadeh, and M. H. Naderi	
Scattering of scalar light fields from collections of particles (10 pages)	063815
Serkan Sahin and Olga Korotkova	
Dark Raman resonances due to Ramsey interference in vacuum vapor cells (7 pages)	063816
Z. D. Grujić, M. Mijailović, D. Arsenović, A. Kovačević, M. Nikolić, and B. M. Jelenković	
Binding mechanism of temporal soliton molecules (9 pages)	063817
A. Hause, H. Hartwig, M. Böhm, and F. Mitschke	
Ramsey-like measurement of the decoherence rate between Zeeman sublevels (7 pages)	063818
M. Shuker, O. Firstenberg, Y. Sagi, A. Ben-kish, N. Davidson, and A. Ron	
Soliton-based discriminator of noncoherent optical pulses (6 pages)	063819
S. K. Turitsyn and S. A. Derevyanko	
Rubidium resonant squeezed light from a diode-pumped optical-parametric oscillator (6 pages)	063820
A. Predojević, Z. Zhai, J. M. Caballero, and M. W. Mitchell	

Geometrical representation of sum frequency generation and adiabatic frequency conversion (<i>5 pages</i>)	063821
Haim Suchowski, Dan Oron, Ady Arie, and Yaron Silberberg	
Accuracy of the scalar approximation in computations of diffuse and coherent backscattering by discrete random media (<i>7 pages</i>)	063822
Michael I. Mishchenko and Janna M. Dlugach	
Intensity of parametric fluorescence pumped by ultrashort pulses (<i>9 pages</i>)	063823
Jan Chwedeńczuk and Wojciech Wasilewski	
Nonlocal quantum macroscopic superposition in a high-thermal low-purity state (<i>13 pages</i>)	063824
Mark E. Brezinski and Bin Liu	
Quantum theory of spontaneous emission in multilayer dielectric structures (<i>15 pages</i>)	063825
Celestino Creatore and Lucio Claudio Andreani	
Time-dependent QED model for high-order harmonic generation in ultrashort intense laser pulses (<i>9 pages</i>)	063826
Huayu Hu and Jianmin Yuan	
Quantum supercavity with atomic mirrors (<i>12 pages</i>)	063827
Lan Zhou (周兰), H. Dong (董辉), Yu-xi Liu (刘玉玺), C. P. Sun (孙昌璞), and Franco Nori (野理)	
Entangled Fock states for robust quantum optical metrology, imaging, and sensing (<i>5 pages</i>)	063828
Sean D. Huver, Christoph F. Wildfeuer, and Jonathan P. Dowling	
Inhibited spontaneous emission in a Kerr nonlinear blackbody (<i>7 pages</i>)	063829
Miao Yin and Ze Cheng	
Four-wave mixing in ultracold atoms using intermediate Rydberg states (<i>5 pages</i>)	063830
E. Brekke, J. O. Day, and T. G. Walker	
Representation theory for vector electromagnetic beams (<i>7 pages</i>)	063831
Chun-Fang Li	
Quantum interference effects of a single photon interacting with an atomic chain inside a one-dimensional waveguide (<i>5 pages</i>)	063832
T. S. Tsoi and C. K. Law	
Dark solitons on an intense parabolic background in nonlinear waveguides (<i>7 pages</i>)	063833
Lu Li, Xuesong Zhao, and Zhiyong Xu	
Soliton-number analysis of soliton-effect pulse compression to single-cycle pulse widths (<i>5 pages</i>)	063834
A. A. Voronin and A. M. Zheltikov	
Spatiotemporal evolution and multiple self-focusing of ultrashort pulses in a resonant two-level medium (<i>5 pages</i>)	063835
Yueping Niu, Keyu Xia, Ni Cui, Shangqing Gong, and Ruxin Li	
Off-resonance slow light (<i>10 pages</i>)	063836
R. N. Shakhmuratov and J. Odeurs	

BRIEF REPORTS

Fundamental concepts

General validity of reciprocity in quantum mechanics (<i>4 pages</i>)	064101
H. Y. Xie (謝懷毅), P. T. Leung (梁培德), and D. P. Tsai (蔡定平)	

(Continued)

Quantum information

Robustness of multiqubit entanglement against local decoherence (<i>4 pages</i>)	064301
Zhong-Xiao Man, Yun-Jie Xia, and Nguyen Ba An	
Entanglement control in coupled two-mode boson systems (<i>4 pages</i>)	064302
A. V. Chizhov and R. G. Nazmitdinov	
Adaptive estimation of qubits by symmetry measurements (<i>4 pages</i>)	064303
Christof J. Happ and Matthias Freyberger	
Quantum secure direct communication with χ -type entangled states (<i>4 pages</i>)	064304
Song Lin, Qiao-Yan Wen, Fei Gao, and Fu-Chen Zhu	
Geometric interpretation for the A fidelity and its relation with the Bures fidelity (<i>4 pages</i>)	064305
Zhihao Ma, Fu-Lin Zhang, and Jing-Ling Chen	

Clusters (including fullerenes)

Neighbor-induced photoelectron recapture in argon clusters: A photon-energy-dependent study of Auger spectra (<i>4 pages</i>)	065201
M. Lundwall, A. Lindblad, G. Öhrwall, S. Svensson, and O. Björneholm	

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

X-ray-absorption near-edge structure of laser-dressed neon (<i>4 pages</i>)	065401
Hari R. Varma, Lin Pan, Donald R. Beck, and Robin Santra	
Selective bond breakage within the HOD molecule using optimized femtosecond ultraviolet laser pulses (<i>4 pages</i>)	065402
Ashwani Kumar Tiwari, Klaus B. Møller, and Niels E. Henriksen	

ERRATA

Publisher's Note: Information-geometric reconstruction of quantum theory [Phys. Rev. A 78 , 052120 (2008)] (<i>1 page</i>)	069901(E)
Philip Goyal	
Erratum: Optimum unambiguous identification of d unknown pure qudit states [Phys. Rev. A 78 , 032320 (2008)] (<i>1 page</i>)	069902(E)
Ulrike Herzog and János A. Bergou	
Erratum: Simultaneous ionization of both collision partners in the strong perturbative energy range (20–500 keV/amu) [Phys. Rev. A 78 , 042701 (2008)] (<i>1 page</i>)	069903(E)
J. X. Shao, X. M. Chen, X. R. Zou, X. A. Wang, and F. J. Lou	
Publisher's Note: Phase-index problem in the semiclassical description of molecular collisions [Phys. Rev. A 78 , 062713 (2008)] (<i>1 page</i>)	069904(E)
L. Bonnet and C. Crespos	