

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 73, NUMBER 2
PARTS A AND B

CONTENTS

FEBRUARY 2006

*The Table of Contents is a total listing of Parts A and B.
Part A consists of pages 020101(R)-022724, and Part B pages 023201-029908(E).*

PART A

RAPID COMMUNICATIONS

Fundamental concepts

- Decoherence-free emergence of macroscopic local realism for entangled photons in a cavity (*4 pages*) 020101(R)
S. Portolan, O. Di Stefano, S. Savasta, F. Rossi, and R. Girlanda

Quantum information

- Experimental fault-tolerant quantum cryptography in a decoherence-free subspace (*4 pages*) 020301(R)
Qiang Zhang, Juan Yin, Teng-Yun Chen, Shan Lu, Jun Zhang, Xiao-Qiang Li, Tao Yang,
Xiang-Bin Wang, and Jian-Wei Pan
- Quantum memory for nonstationary light fields based on controlled reversible inhomogeneous broadening
(*4 pages*) 020302(R)
B. Kraus, W. Tittel, N. Gisin, M. Nilsson, S. Kröll, and J. I. Cirac

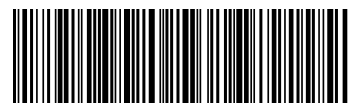
Atomic and molecular collisions and interactions

- Triple-differential cross-section measurements of electron-impact ionization of argon 3s in the backward
scattering direction (*4 pages*) 020701(R)
M. A. Stevenson and B. Lohmann
- Collisional deexcitation in a quasi-two-dimensional degenerate bosonic gas (*4 pages*) 020702(R)
I. B. Spielman, P. R. Johnson, J. H. Huckans, C. D. Fertig, S. L. Rolston, W. D. Phillips, and
J. V. Porto
- Laser-driven target of high-density nuclear-polarized hydrogen gas (*4 pages*) 020703(R)
B. Clasie, C. Crawford, J. Seely, W. Xu, D. Dutta, and H. Gao
- Emission of fast atoms from a cold Rydberg gas (*4 pages*) 020704(R)
B. Knuffman and G. Raithel
- Observation of resonant-excitation double autoionization in electron-I⁵⁰⁺ collisions (*4 pages*) 020705(R)
Nobuyuki Nakamura, Hirotsugu Tobiyama, Hiroaki Nohara, Daiji Kato, Hirofumi Watanabe,
Fred J. Currell, and Shunsuke Ohtani



Copyright 2006 by The American Physical Society

(Continued)



1050-2947(20060200)73:2:A;1-P

Femtosecond nuclear motion of HCl probed by resonant x-ray Raman scattering in the Cl 1s region (4 pages)	020706(R)
M. Simon, L. Journal, R. Guillemin, W. C. Stolte, I. Minkov, F. Gel'mukhanov, P. Satek, H. Ågren, S. Carniato, R. Taïeb, A. C. Hudson, and D. W. Lindle	
Experimental and theoretical studies of the photoionization cross section of Fe ⁴⁺ (4 pages)	020707(R)
J. M. Bizau, C. Blancard, D. Cubaynes, F. Folkmann, D. Kilbane, G. Faussurier, H. Luna, J. L. Lemaire, J. Blicke, and F. J. Wuilleumier	
Angular correlation in the two-electron continuum (4 pages)	020708(R)
A. S. Kheifets and I. Bray	
Photon, electron, atom, and molecule interactions with solids and surfaces	
Measurements of polyatomic molecule formation on an icy grain analog using fast atoms (4 pages)	020901(R)
S. Madzunkov, B. J. Shortt, J. A. MacAskill, M. R. Darrach, and A. Chutjian	
Clusters (including fullerenes)	
Two-photon excitation of low-lying electronic quadrupole states in atomic clusters (4 pages)	021201(R)
V. O. Nesterenko, P.-G. Reinhard, T. Halfmann, and L. I. Pavlov	
Verification of long-lived molecular hydrogen anions (H _n ⁻ , D _n ⁻ , n=2,3) by secondary-ion mass spectrometry (4 pages)	021202(R)
Hubert Gnaser and Robin Golser	
Atomic and molecular processes in external fields	
Generation of microscale current loops, atom rings, and cubic clusters using twisted optical molasses (4 pages)	021401(R)
A. R. Carter, M. Babiker, M. Al-Amri, and D. L. Andrews	
Controlling vibrational wave packets with intense, few-cycle laser pulses (4 pages)	021402(R)
Hiromichi Niikura, D. M. Villeneuve, and P. B. Corkum	
Observation of blue satellite bands and photoassociation at ultracold temperatures (4 pages)	021403(R)
Marin Pichler, Jianbing Qi, William C. Stwalley, Robert Beuc, and Goran Pichler	
Matter waves	
Anderson lattice description of photoassociation in an optical lattice (4 pages)	021601(R)
Takahiko Miyakawa and Pierre Meystre	
Exactly solvable case of a one-dimensional Bose-Fermi mixture (4 pages)	021602(R)
Adilet Imambekov and Eugene Demler	
Sound propagation in elongated superfluid fermionic clouds (4 pages)	021603(R)
P. Capuzzi, P. Vignolo, F. Federici, and M. P. Tosi	
Quantum optics, physics of lasers, nonlinear optics	
Compact solid-state laser source for 1S-2S spectroscopy in atomic hydrogen (4 pages)	021801(R)
N. Kolachevsky, J. Alnis, S. D. Bergeson, and T. W. Hänsch	
Scanning interferometric microscopy for the detection of ultrasmall phase shifts in condensed matter (4 pages)	021802(R)
J. Hwang, M. M. Fejer, and W. E. Moerner	

CONTENTS - Continued

PHYSICAL REVIEW A

THIRD SERIES, VOLUME 73, NUMBER 2

FEBRUARY 2006

Theory of dark-state polariton collapses and revivals (<i>4 pages</i>)	021803(R)
S. D. Jenkins, D. N. Matsukevich, T. Chanelière, A. Kuzmich, and T. A. B. Kennedy	
Interference effects in IR photon echo spectroscopy of liquid water (<i>4 pages</i>)	021804(R)
Sergey Yeremenko, Maxim S. Pshenichnikov, and Douwe A. Wiersma	
Coherent interaction of femtosecond extreme-uv light with He atoms (<i>4 pages</i>)	021805(R)
Daniel Strasser, Thomas Pfeifer, Brian J. Hom, Astrid M. Müller, Jürgen Plenge, and Stephen R. Leone	

ARTICLES

Fundamental concepts

Assumptions that imply quantum dynamics is linear (<i>4 pages</i>)	022101
Thomas F. Jordan	
Non-Markovian reduced propagator, multiple-time correlation functions, and master equations with general initial conditions in the weak-coupling limit (<i>14 pages</i>)	022102
Inés de Vega and Daniel Alonso	
Phase avalanches in near-adiabatic evolutions (<i>10 pages</i>)	022103
T. Vértesi and R. Englman	
Experimenter's freedom in Bell's theorem and quantum cryptography (<i>7 pages</i>)	022104
Johannes Kofler, Tomasz Paterek, and Časlav Brukner	
Method for obtaining exact solutions of the nonlinear Schrödinger equation for a double-square-well potential (<i>7 pages</i>)	022105
P. Ziń, E. Infeld, M. Matuszewski, G. Rowlands, and Marek Trippenbach	
Geometric phases for laser-induced aligned pendular states of linear molecules (<i>5 pages</i>)	022106
Dmitriy V. Aleynikov	
Sensitivity of condensed-matter <i>P</i> - and <i>T</i> -violation experiments (<i>5 pages</i>)	022107
D. Budker, S. K. Lamoreaux, A. O. Sushkov, and O. P. Sushkov	
Two-center interferometry and decoherence effects (<i>8 pages</i>)	022108
James M. Feagin	
Tensor products of convex sets and the volume of separable states on <i>N</i> qudits (<i>10 pages</i>)	022109
Guillaume Aubrun and Stanisław J. Szarek	
Tsirelson bounds for generalized Clauser-Horne-Shimony-Holt inequalities (<i>5 pages</i>)	022110
Stephanie Wehner	
Decoherence modes of entangled qubits within neutron interferometry (<i>7 pages</i>)	022111
Reinhold A. Bertlmann, Katharina Durstberger, and Yuji Hasegawa	
Breit interaction and parity nonconservation in many-electron atoms (<i>9 pages</i>)	022112
V. A. Dzuba, V. V. Flambaum, and M. S. Safronova	
Bound states in the continuum in quantum-dot pairs (<i>4 pages</i>)	022113
Gonzalo Ordóñez, Kyungsun Na, and Sungyun Kim	
Interpretational difficulties in quantum field theory (<i>9 pages</i>)	022114
P. Krekora, Q. Su, and R. Grobe	

(Continued)

Quantum information

Qubit degradation due to cross-phase-modulation photon-number measurement (4 pages)	022301
Jeffrey H. Shapiro and Roy S. Bondurant	
Two-player quantum pseudotelepathy based on recent all-versus-nothing violations of local realism (5 pages)	022302
Adán Cabello	
Two-setting Bell inequalities for graph states (7 pages)	022303
Géza Tóth, Otfried Gühne, and Hans J. Briegel	
Decoherence-free manipulation of photonic memories for quantum computation (5 pages)	022304
N. Sangouard	
Solid-state NMR three-qubit homonuclear system for quantum-information processing: Control and characterization (10 pages)	022305
Jonathan Baugh, Osama Moussa, Colm A. Ryan, Raymond Laflamme, Chandrasekhar Ramanathan, Timothy F. Havel, and David G. Cory	
Optimal generation of single-qubit operation from an always-on interaction by algebraic decoupling (6 pages)	022306
Jun Zhang and K. Birgitta Whaley	
Simultaneous amplitude and phase damping of x - p symmetric Gaussian states and their separability (5 pages)	022307
Xiao-yu Chen	
Grover's quantum search algorithm and Diophantine approximation (4 pages)	022308
Shahar Dolev, Itamar Pitowsky, and Boaz Tamir	
Natural three-qubit interactions in one-way quantum computing (5 pages)	022309
M. S. Tame, M. Paternostro, M. S. Kim, and V. Vedral	
Graph-state preparation and quantum computation with global addressing of optical lattices (5 pages)	022310
Alastair Kay, Jiannis K. Pachos, and Charles S. Adams	
Entanglement under restricted operations: Analogy to mixed-state entanglement (9 pages)	022311
Stephen D. Bartlett, Andrew C. Doherty, Robert W. Spekkens, and H. M. Wiseman	
Enhanced dynamical entanglement transfer with multiple qubits (10 pages)	022312
A. Serafini, M. Paternostro, M. S. Kim, and S. Bose	
Complete disentanglement by partial pure dephasing (6 pages)	022313
Katarzyna Roszak and Paweł Machnikowski	
Quantitative measure of interference (9 pages)	022314
Daniel Braun and Bertrand Georgeot	
Generation of Werner states via collective decay of coherently driven atoms (5 pages)	022315
Girish S. Agarwal and Kishore T. Kapale	
Coherent-state quantum key distribution without random basis switching (9 pages)	022316
Christian Weedbrook, Andrew M. Lance, Warwick P. Bowen, Thomas Symul, Timothy C. Ralph, and Ping Koy Lam	
Wave-packet transmission of Bloch electrons manipulated by magnetic field (6 pages)	022317
S. Yang, Z. Song, and C. P. Sun	

Quantum transducers: Integrating transmission lines and nanomechanical resonators via charge qubits (6 pages)	022318
C. P. Sun, L. F. Wei, Yu-xi Liu, and Franco Nori	
Quasimultipartite entanglement measure based on quadratic functions (10 pages)	022319
Jing Zhang, Chun-Wen Li, Jian-Wu Wu, Re-Bing Wu, and Tzyh-Jong Tarn	
Trojan-horse attacks on quantum-key-distribution systems (6 pages)	022320
N. Gisin, S. Fasel, B. Kraus, H. Zbinden, and G. Ribordy	
Protocol and quantum circuits for realizing deterministic entanglement concentration (7 pages)	022321
Yong-Jian Gu, Wen-Dong Li, and Guang-Can Guo	
Sharing polarization within quantum subspaces (5 pages)	022322
M. S. Anwar, J. A. Jones, and S. B. Duckett	
Incoherent control and entanglement for two-dimensional coupled systems (8 pages)	022323
Raffaele Romano and Domenico D'Alessandro	
Quantum uncertainty of mixed states based on skew information (4 pages)	022324
Shunlong Luo	
Global entanglement for multipartite quantum states (5 pages)	022325
Chang-shui Yu and He-shan Song	
Geometric quantum computation using fictitious spin- $\frac{1}{2}$ subspaces of strongly dipolar coupled nuclear spins (12 pages)	022326
T. Gopinath and Anil Kumar	
Robust gates for holonomic quantum computation (11 pages)	022327
Giuseppe Florio, Paolo Facchi, Rosario Fazio, Vittorio Giovannetti, and Saverio Pascazio	
Simulating lattice gauge theories on a quantum computer (16 pages)	022328
Tim Byrnes and Yoshihisa Yamamoto	
Exponential complexity of an adiabatic algorithm for an NP-complete problem (5 pages)	022329
Marko Žnidarič and Martin Horvat	
Experimental construction of optical multiqubit cluster states from Bell states (4 pages)	022330
An-Ning Zhang, Chao-Yang Lu, Xiao-Qi Zhou, Yu-Ao Chen, Zhi Zhao, Tao Yang, and Jian-Wei Pan	
Single-passage readout of atomic quantum memory (8 pages)	022331
J. Fiurášek, J. Sherson, T. Opatrný, and E. S. Polzik	
High-fidelity one-qubit operations under random telegraph noise (9 pages)	022332
Mikko Möttönen, Rogerio de Sousa, Jun Zhang, and K. Birgitta Whaley	
All possible bipartite positive-operator-value measurements of two-photon polarization states (5 pages)	022333
S. E. Ahnert and M. C. Payne	
Fast simulation of stabilizer circuits using a graph-state representation (9 pages)	022334
Simon Anders and Hans J. Briegel	
Regulating entanglement production in multitrap Bose-Einstein condensates (10 pages)	022335
V. I. Yukalov and E. P. Yukalova	
Fidelity of holonomic quantum computations in the case of random errors in the values of control parameters (6 pages)	022336
P. V. Buividovich and V. I. Kuvshinov	

Two-reservoir model of quantum error correction (<i>10 pages</i>)	022337
James P. Clemens and Julio Gea-Banacloche	
Secure direct communication based on secret transmitting order of particles (<i>4 pages</i>)	022338
Ai-Dong Zhu, Yan Xia, Qiu-Bo Fan, and Shou Zhang	
Entanglement evolution of one-dimensional spin systems in external magnetic fields (<i>7 pages</i>)	022339
Zhen Huang and Sabre Kais	
Remote preparation of a qudit using maximally entangled states of qubits (<i>5 pages</i>)	022340
Chang-shui Yu, He-shan Song, and Ya-hong Wang	
Relative states, quantum axes, and quantum references (<i>6 pages</i>)	022341
E. Bagan, S. Iblisdir, and R. Muñoz-Tapia	
Noncommutative optimal control and quantum networks (<i>10 pages</i>)	022342
Masahiro Yanagisawa	
Geometric continuous dynamical decoupling with bounded controls (<i>9 pages</i>)	022343
Pochung Chen	
Simulation of many-qubit quantum computation with matrix product states (<i>6 pages</i>)	022344
M. C. Bañuls, R. Orús, J. I. Latorre, A. Pérez, and P. Ruiz-Femenía	
Approximate programmable quantum processors (<i>7 pages</i>)	022345
Mark Hillery, Mário Ziman, and Vladimír Bužek	
Nonlocality without inequality for almost all two-qubit entangled states based on Cabello's nonlocality argument (<i>6 pages</i>)	022346
Samir Kunkri, Sujit K. Choudhary, Ali Ahanj, and Pramod Joag	
Global entanglement in XXZ chains (<i>8 pages</i>)	022347
N. Canosa and R. Rossignoli	
Atomic and molecular structure and dynamics	
Relativistic four-component static-exchange approximation for core-excitation processes in molecules (<i>9 pages</i>)	022501
Ulf Ekström, Patrick Norman, and Vincenzo Carravetta	
Adiabatic <i>ab initio</i> time-dependent density-functional theory employing optimized-effective-potential many-body perturbation theory potentials (<i>18 pages</i>)	022502
Denis Bokhan and Rodney J. Bartlett	
Ground-state wave function and energy of the lithium atom (<i>7 pages</i>)	022503
Mariusz Puchalski and Krzysztof Pachucki	
Binding energy and structure of e^+Li and e^-Li using a parametric model potential (<i>4 pages</i>)	022504
J. Shertzer and S. J. Ward	
Frequency-dependent polarizabilities of alkali-metal atoms from ultraviolet through infrared spectral regions (<i>5 pages</i>)	022505
M. S. Safronova, Bindiya Arora, and Charles W. Clark	
Determinations of $EF\ ^1\Sigma_g^+ \leftarrow X\ ^1\Sigma_g^+$ transition frequencies in H_2 , D_2 , and HD (<i>8 pages</i>)	022506
A. Yiannopoulou, N. Melikechi, S. Gangopadhyay, J. C. Meiners, C. H. Cheng, and E. E. Eyler	
Evolution of $Au\ L\beta_2$ visible satellites around thresholds (<i>5 pages</i>)	022507
H. Ohashi, Y. Ito, T. Tochio, A. M. Vlaicu, and T. Mukoyama	

Time-resolved soft-x-ray spectroscopy of a magnetic octupole transition in nickel-like xenon, cesium, and barium ions (8 pages)	022508
E. Träbert, P. Beiersdorfer, G. V. Brown, K. Boyce, R. L. Kelley, C. A. Kilbourne, F. S. Porter, and A. Szymkowiak	
Hyperfine structure of metastable states in $^3\text{He}^+\bar{p}$ atom (4 pages)	022509
Vladimir I. Korobov	
Quadrupole moments and hyperfine constants of metastable states of Ca^+ , Sr^+ , Ba^+ , Yb^+ , Hg^+ , and Au (11 pages)	022510
Wayne M. Itano	
Stark-induced magnetic anapole moment in the ground state of the relativistic hydrogenlike atom: Application of the Sturmian expansion of the generalized Dirac-Coulomb Green function (11 pages)	022511
Krzysztof Mielewczyk and Radosław Szmytkowski	
Atomic and molecular collisions and interactions	
Dissociative electron attachment and vibrational excitation of H_2 by low-energy electrons: Calculations based on an improved nonlocal resonance model. II. Vibrational excitation (10 pages)	022701
J. Horáček, M. Čížek, K. Houfek, P. Kolorenč, and W. Domcke	
Retardation, multipole, and relativistic kinematics effects for x- and γ -ray Compton scattering from K -shell electrons (16 pages)	022702
A. Costescu and S. Spanulescu	
Quantum scattering of $\text{OH}(X^2\Pi)$ with $\text{He}(^1S)$: Propensity features in rotational relaxation at ultralow energies (8 pages)	022703
L. González-Sánchez, E. Bodo, and F. A. Gianturco	
Turn-up effects at low momentum for the highest occupied molecular orbital of oxygen at various impact energies by electron momentum spectroscopy (3 pages)	022704
C. G. Ning, X. G. Ren, J. K. Deng, G. L. Su, S. F. Zhang, and G. Q. Li	
Positron binding to alkali-metal hydrides: The role of molecular vibrations (9 pages)	022705
Franco A. Gianturco, Jan Franz, Robert J. Buenker, Heinz-Peter Liebermann, Lukáš Pichl, Jan-Michael Rost, Masanori Tachikawa, and Mineo Kimura	
Charge-transfer processes in collisions of He^{2+} ions with H_2 , N_2 , O_2 , CO , and CO_2 molecules below 4 keV/u (9 pages)	022706
Toshio Kusakabe, Yoshiharu Miyamoto, Mineo Kimura, and Hiroyuki Tawara	
Suppression of inelastic collisions of polar $^1\Sigma$ state molecules in an electrostatic field (7 pages)	022707
Alexander V. Avdeenkov, Masatoshi Kajita, and John L. Bohn	
Double K -shell photoionization of silver (11 pages)	022708
E. P. Kanter, I. Ahmad, R. W. Dunford, D. S. Gemmell, B. Krässig, S. H. Southworth, and L. Young	
Population of individual $\text{Ne } 1s^{-1}np$ Rydberg states measured across the $1s$ ionization threshold and the evolution of shake-up into shake-down (4 pages)	022709
U. Hergenhahn, A. De Fanis, G. Prümper, A. K. Kazansky, N. M. Kabachnik, and K. Ueda	
Long-range interactions between a $\text{He}(2^3S)$ atom and a $\text{He}(2^3P)$ atom for like isotopes (5 pages)	022710
J.-Y. Zhang, Z.-C. Yan, D. Vranceanu, J. F. Babb, and H. R. Sadeghpour	
Electron-impact dissociative ionization of ethylene (7 pages)	022711
S. Popović, S. Williams, and L. Vušković	

CONTENTS - Continued

PHYSICAL REVIEW A

THIRD SERIES, VOLUME 73, NUMBER 2

FEBRUARY 2006

Dissociative recombination of small carbon cluster cations (6 pages)	022712
O. Heber, K. Seiersen, H. Bluhme, A. Svendsen, L. H. Andersen, and L. Maunoury	
Nonadiabatic transmission: Exact quantum-mechanical solution for a special case of the two-state exponential model (8 pages)	022713
V. I. Osherov and V. G. Ushakov	
Low-energy photodetachment of O^- (7 pages)	022714
Oleg Zatsarinny and Klaus Bartschat	
Optical analog of Rabi oscillation suppression due to atomic motion (8 pages)	022715
J. G. Muga and B. Navarro	
Nondipole effects in the angular distribution of photoelectrons from the C K shell of the CO molecule (8 pages)	022716
K. Hosaka, J. Adachi, A. V. Golovin, M. Takahashi, T. Teramoto, N. Watanabe, T. Jahnke, Th. Weber, M. Schöffler, L. Schmidt, T. Osipov, O. Jagutzki, A. L. Landers, M. H. Prior, H. Schmidt-Böcking, R. Dörner, A. Yagishita, S. K. Semenov, and N. A. Cherepkov	
Quantum dynamics of localized excitations in a symmetric trimer molecule (7 pages)	022717
R. A. Pinto and S. Flach	
Absolute photoionization cross sections along the Xe isonuclear sequence: Xe^{3+} to Xe^{6+} (15 pages)	022718
J. M. Bizau, C. Blancard, D. Cubaynes, F. Folkmann, J. P. Champeaux, J. L. Lemaire, and F. J. Wuilleumier	
Excitation of atoms and molecules by highly relativistic ions (8 pages)	022719
M. Bär, B. Jakob, P. -G. Reinhard, and C. Toepffer	
Laser excitation combined with 2p photoionization and Auger decay of potassium (8 pages)	022720
K. Jänkälä, R. Sankari, J. Schulz, M. Huttula, A. Caló, S. Heinäsmäki, S. Fritzsche, T. Rander, S. Svensson, S. Aksela, and H. Aksela	
Nuclear relaxation of ^3He in the presence of NO (8 pages)	022721
G. Archibald, E. Brief, C. Lei, T. Pausak, and M. E. Hayden	
Electronic structure and angular momentum coupling as reflected in electron excitation out of rare-gas metastable levels: Excitation cross sections of krypton (14 pages)	022722
R. O. Jung, Tom E. Stone, John B. Boffard, L. W. Anderson, and Chun C. Lin	
X-ray emission cross sections following charge exchange by multiply charged ions of astrophysical interest (9 pages)	022723
S. Otranto, R. E. Olson, and P. Beiersdorfer	
Dynamics of the helium atom close to the full fragmentation threshold: Double ionization (11 pages)	022724
C. Bouri, P. Selles, L. Malegat, and M. G. Kwato Njock	

PART B

Clusters (including fullerenes)

Absolute cross sections for the dissociation of hydrogen cluster ions in high-energy collisions with helium atoms (6 pages)	023201
S. Eden, J. Tabet, K. Samraoui, S. Louc, B. Farizon, M. Farizon, S. Ouaskit, and T. D. Märk	
Potential energy landscapes of elemental and heterogeneous chalcogen clusters (8 pages)	023202
John C. Mauro, Roger J. Loucks, Jitendra Balakrishnan, and Arun K. Varshneya	

(Continued)

Atomic and molecular processes in external fields

Transverse stability in a Stark decelerator (13 pages)	023401
Sebastiaan Y. T. van de Meerakker, Nicolas Vanhaecke, Hendrick L. Bethlem, and Gerard Meijer	
Angular distribution in two-photon double ionization of helium by intense attosecond soft-x-ray pulses (7 pages)	023402
Imre F. Barna, Jianyi Wang, and Joachim Burgdörfer	
Effect of electron correlation on high-order-harmonic generation of helium atoms in intense laser fields: Time-dependent generalized pseudospectral approach in hyperspherical coordinates (9 pages)	023403
Xiaoxu Guan, Xiao-Min Tong, and Shih-I Chu	
Coherent control through near-resonant Raman transitions (5 pages)	023404
Xingcan Dai, Eliza-Beth W. Lerch, and Stephen R. Leone	
Strong-field ionization of molecules in circularly polarized few-cycle pulses (5 pages)	023405
S. X. Hu and L. A. Collins	
Trap loss in a dual-species Rb-Ar* magneto-optical trap (5 pages)	023406
H. C. Busch, M. K. Shaffer, E. M. Ahmed, and C. I. Sukenik	
Wave-packet squeezing by iterative pump-dump control in diatomic molecules (5 pages)	023407
Bo Y. Chang, Sungyul Lee, Ignacio R. Sola, and Jesús Santamaría	
Cooling of Sr to high phase-space density by laser and sympathetic cooling in isotopic mixtures (4 pages)	023408
G. Ferrari, R. E. Drullinger, N. Poli, F. Sorrentino, and G. M. Tino	
Phase-sensitive wave-packet dynamics caused by a breakdown of the rotating-wave approximation (6 pages)	023409
V. Kimberg, F. F. Guimarães, V. C. Felicíssimo, and F. Gel'mukhanov	
Strong-field approximation for harmonic generation in diatomic molecules (10 pages)	023410
C. C. Chirilă and M. Lein	
Quantum mechanics of the dynamic Kingdon trap (5 pages)	023411
R. Blümel and I. Garrick-Bethell	
Double resonance spectroscopy of the $B''\bar{B}^1\Sigma_u^+$ state of H_2 (5 pages)	023412
R. C. Ekey, Jr., A. Marks, and E. F. McCormack	
Precision lifetime measurements of a single trapped ion with ultrafast laser pulses (4 pages)	023413
D. L. Moehring, B. B. Blinov, D. W. Gidley, R. N. Kohn, Jr., M. J. Madsen, T. D. Sanderson, R. S. Vallery, and C. Monroe	
Coherent control with shaped femtosecond laser pulses applied to ultracold molecules (5 pages)	023414
Wenzel Salzmann, Ulrich Poschinger, Roland Wester, Matthias Weidemüller, Andrea Merli, Stefan M. Weber, Franziska Sauer, Mateusz Plewicky, Fabian Weise, Aldo Mirabal Esparza, Ludger Wöste, and Albrecht Lindinger	
Product-state control in barium (12 pages)	023415
Rekishu Yamazaki and D. S. Elliott	
Complete population transfer by a zero-area pulse (6 pages)	023416
G. S. Vasilev and N. V. Vitanov	

Ionization rates for He, Ne, and Ar subjected to laser light with wavelengths between 248.6 and 390 nm (9 pages)	023417
Hugo W. van der Hart	
Observation of enhanced excitation of I_2^{2+} by strong laser fields (6 pages)	023418
G. N. Gibson, R. N. Coffee, and L. Fang	
Algebraic solution for a two-level atom in radiation fields and the Freeman resonances (14 pages)	023419
Dong -Sheng Guo, Yong -Shi Wu, and Linn Van Woerkom	
Coherent pulsed excitation of degenerate multistate systems: Exact analytic solutions (11 pages)	023420
E. S. Kyoseva and N. V. Vitanov	
Low-frequency-high-intensity limit of the Keldysh-Faisal-Reiss theory (9 pages)	023421
Jarosław Bauer	
Application of electromagnetically induced transparency for cold-atom velocimetry (4 pages)	023422
F. B. M. dos Santos and J. W. R. Tabosa	
Kinetic-energy-angle differential distribution of photofragments in multiphoton above-threshold dissociation of D_2^+ by linearly polarized 400-nm intense laser fields: Effects of highly excited electronic states (9 pages)	023423
Basir Ahamed Khan, Samir Saha, and S. S. Bhattacharyya	
Multiple reflections and diffuse scattering in Bragg scattering at optical lattices (9 pages)	023424
S. Slama, C. von Cube, M. Kohler, C. Zimmermann, and Ph. W. Courteille	
Matter waves	
Number-of-particle fluctuations and stability of Bose-Einstein-condensed systems (8 pages)	023601
C.-H. Zhang	
Magnetization, squeezing, and entanglement in dipolar spin-1 condensates (6 pages)	023602
S. Yi and H. Pu	
Criterion for Bose-Einstein condensation in a harmonic trap in the case with attractive interactions (5 pages)	023603
Mariusz Gajda	
Finite-temperature treatment of ultracold atoms in a one-dimensional optical lattice (6 pages)	023604
B. G. Wild, P. B. Blakie, and D. A. W. Hutchinson	
Interplay of density and phase fluctuations in ultracold one-dimensional Bose gases (5 pages)	023605
N. P. Proukakis	
Creation, detection, and decoherence of macroscopic quantum superposition states in double-well Bose-Einstein condensates (20 pages)	023606
Y. P. Huang and M. G. Moore	
Two-component gap solitons in two- and one-dimensional Bose-Einstein condensates (15 pages)	023607
A. Gubeskys, B. A. Malomed, and I. M. Merhasin	
The role of interactions, tunneling, and harmonic confinement on the adiabatic loading of bosons in an optical lattice (9 pages)	023608
Ana Maria Rey, Guido Pupillo, and J. V. Porto	
Classical and quantum dynamics of a model for atomic-molecular Bose-Einstein condensates (7 pages)	023609
G. Santos, A. Tonel, A. Foerster, and J. Links	

Bose-Einstein-condensate superfluid–Mott-insulator transition in an optical lattice (<i>18 pages</i>)	023610
Esteban Calzetta, B. L. Hu, and Ana Maria Rey	
Tkachenko modes and structural phase transitions of the vortex lattice of a two-component Bose-Einstein condensate (<i>17 pages</i>)	023611
M. Keçeli and M. Ö. Oktel	
Polarizability and dynamic structure factor of the one-dimensional Bose gas near the Tonks-Girardeau limit at finite temperatures (<i>12 pages</i>)	023612
Alexander Yu. Cherny and Joachim Brand	
Quantum carpets and correlated dynamics of several fermions (<i>6 pages</i>)	023613
Mathias Nest	
Anyonic excitations in fast rotating Bose gases (<i>5 pages</i>)	023614
A. Lakhoua, M. Lassaut, T. Masson, and J. C. Wallet	
Vortex lattices in Bose-Einstein condensates: From the Thomas-Fermi regime to the lowest-Landau-level regime (<i>4 pages</i>)	023615
M. Cozzini, S. Stringari, and C. Tozzo	
Condensation temperature of interacting Bose gases with and without disorder (<i>7 pages</i>)	023616
O. Zobay	
Temperature of a trapped unitary Fermi gas at finite entropy (<i>5 pages</i>)	023617
Hui Hu, Xia-Ji Liu, and Peter D. Drummond	
Self-consistent theory for molecular instabilities in a normal degenerate Fermi gas in the BEC-BCS crossover (<i>14 pages</i>)	023618
R. Combescot, X. Leyronas, and M. Yu. Kagan	
Complex-scaling approach to the decay of Bose-Einstein condensates (<i>9 pages</i>)	023619
Peter Schlagheck and Tobias Paul	
Quantum optics, physics of lasers, nonlinear optics	
Squeezed-state source using radiation-pressure-induced rigidity (<i>14 pages</i>)	023801
Thomas Corbitt, Yanbei Chen, Farid Khalili, David Ottaway, Sergey Vyatchanin, Stan Whitcomb, and Nergis Mavalvala	
Approximate Fokker-Planck equation for a single-mode laser driven by quadratic pump noise and quantum noise with cross-correlation between real and imaginary parts of noise (<i>6 pages</i>)	023802
Li Cao and Da-jin Wu	
Sub-Planck phase-space structures and Heisenberg-limited measurements (<i>7 pages</i>)	023803
F. Toscano, D. A. R. Dalvit, L. Davidovich, and W. H. Zurek	
Geometry-dependent dynamics of two Λ -type atoms via vacuum-induced coherences (<i>7 pages</i>)	023804
Jörg Evers, Martin Kiffner, Mihai Macovei, and Christoph H. Keitel	
Spectral broadband dynamics of semiconductor lasers with resonant short cavities (<i>13 pages</i>)	023805
Michael Peil, Ingo Fischer, and Wolfgang Elsässer	
Effect of atomic noise on optical squeezing via polarization self-rotation in a thermal vapor cell (<i>9 pages</i>)	023806
M. T. L. Hsu, G. Hétet, A. Peng, C. C. Harb, H.-A. Bachor, M. T. Johnsson, J. J. Hope, P. K. Lam, A. Dantan, J. Cviklinski, A. Bramati, and M. Pinard	

Entanglement, fidelity, and quantum-classical correlations with an atom moving in a quantized cavity field (10 pages)	023807
S. V. Prants, M. Yu. Uleysky, and V. Yu. Argonov	
Projection measurement of the maximally entangled N -photon state for a demonstration of the N -photon de Broglie wavelength (8 pages)	023808
F. W. Sun, Z. Y. Ou, and G. C. Guo	
Mechanisms for the control of two-mode transient stimulated Raman scattering in liquids (11 pages)	023809
Michael Spanner and Paul Brumer	
Two-pulse control of Raman scattering in liquid methanol: The dominance of classical nonlinear optical effects (8 pages)	023810
Michael Spanner and Paul Brumer	
Route to polarization switching induced by optical injection in vertical-cavity surface-emitting lasers (17 pages)	023811
M. Sciamanna and K. Panajotov	
Simulations of a grazing-incidence pumped x-ray laser at 14.7 nm (5 pages)	023812
F. Yan, J. Zhang, Q. L. Dong, X. Lu, and Y. J. Li	
Subwavelength atom localization via amplitude and phase control of the absorption spectrum. II (11 pages)	023813
Kishore T. Kapale and M. Suhail Zubairy	
Experimental demonstration of a method to realize weak measurement of the arrival time of a single photon (5 pages)	023814
Qin Wang, Fang-Wen Sun, Yong-Sheng Zhang, Jian-Li, Yun-Feng Huang, and Guang-Can Guo	
Dephasing due to intermode coupling in superconducting stripline resonators (9 pages)	023815
Eyal Buks and Bernard Yurke	
Ray-wave correspondence in an unstable quasistadium laser resonator (4 pages)	023816
Takehiro Fukushima, Takahisa Harayama, and Jan Wiersig	
Pump-probe nonlinear magneto-optical rotation with frequency-modulated light (11 pages)	023817
S. Pustelny, D. F. Jackson Kimball, S. M. Rochester, V. V. Yashchuk, W. Gawlik, and D. Budker	
Absorptive and dispersive properties in the phase-sensitive optical parametric amplification inside a cavity (5 pages)	023818
Chenguang Ye and Jing Zhang	
Experimental study of optical second-harmonic scattering from spherical nanoparticles (4 pages)	023819
J. Shan, J. I. Dadap, I. Stiopkin, G. A. Reider, and T. F. Heinz	
Spatial two-photon interference in a Hong-Ou-Mandel interferometer (4 pages)	023820
Heonoh Kim, Osung Kwon, Wonsik Kim, and Taesoo Kim	

BRIEF REPORTS

Fundamental concepts

Determination of the border between “shallow” and “deep” tunneling regions for the Herman-Kluk method by the asymptotic approach (4 pages)	024101
Atushi Tanaka	

Geometric origin of dynamically induced freezing of quantum evolution (<i>4 pages</i>)	024102
A. Matos-Abiague and J. Berakdar	
Quantum information	
Entanglement measurement based on two-particle interference (<i>4 pages</i>)	024301
Jian-Ming Cai, Zheng-Wei Zhou, and Guang-Can Guo	
R function related to entanglement of formation (<i>2 pages</i>)	024302
Shao-Ming Fei and Xianqing Li-Jost	
Elementary proof of the bound on the speed of quantum evolution (<i>2 pages</i>)	024303
Piotr Kosiński and Magdalena Zych	
Quantum computation using controllable exchange interactions and a global magnetic field (<i>3 pages</i>)	024304
Ming-Yong Ye, Yong-Sheng Zhang, and Guang-Can Guo	
Subcarrier multiplexing optical quantum key distribution (<i>4 pages</i>)	024305
A. Ortigosa-Blanch and J. Capmany	
Atomic and molecular structure and dynamics	
Calculation of metastable states associated with $dt\mu_{J\nu}$ ion using the variational method (<i>4 pages</i>)	024501
M. R. Eskandari and R. Gheisari	
Bethe logarithm for the hydrogen molecular ion H_2^+ (<i>2 pages</i>)	024502
Vladimir I. Korobov	
Atomic and molecular collisions and interactions	
Optical model for the positronium formation in positron-Mg collision (<i>4 pages</i>)	024701
C. Cheng and Y. Zhou	
Photon, electron, atom, and molecule interactions with solids and surfaces	
Stopping power for swift dressed ions (<i>4 pages</i>)	024901
C. C. Montanari and J. E. Miraglia	
Matter waves	
Collective modes of a Fermi superfluid containing vortices along the BEC-BCS crossover (<i>4 pages</i>)	025601
Tarun Kanti Ghosh and Kazushige Machida	
Light-induced effective magnetic fields for ultracold atoms in planar geometries (<i>4 pages</i>)	025602
G. Juzeliūnas, J. Ruseckas, P. Öhberg, and M. Fleischhauer	
Quantum optics, physics of lasers, nonlinear optics	
Atom localization via interference of dark resonances (<i>4 pages</i>)	025801
Chengpu Liu, Shangqing Gong, Dongchao Cheng, Xijun Fan, and Zhizhan Xu	
Schemes for realizing frequency up- and down-conversions in two-mode cavity QED (<i>4 pages</i>)	025802
Xubo Zou, Yuli Dong, and Guangcan Guo	
Temporal shape manipulation of intense light pulses by coherent population trapping (<i>4 pages</i>)	025803
V. G. Arkhipkin and I. V. Timofeev	

COMMENTS

Comment on “Zero-range potentials for Dirac particles: Scattering and related continuum problems” (2 pages)	026701
F. A. B. Coutinho and Y. Nogami	
Reply to “Comment on ‘Zero-range potentials for Dirac particles: Scattering and related continuum problems’ ” (5 pages)	026702
Radosław Szmytkowski	

ERRATA

Erratum: Elastic resonant and nonresonant differential scattering of quasifree electrons from $B^{4+}(1s)$ and $B^{3+}(1s^2)$ ions [Phys. Rev. A 69 , 052718 (2004)] (2 pages)	029901(E)
E. P. Benis, T. J. M. Zouros, T. W. Gorczyca, A. D. González, and P. Richard	
Publisher’s Note: Non-Markovian dynamics of a qubit [Phys. Rev. A 73 , 012111 (2006)] (1 page)	029902(E)
Sabrina Maniscalco and Francesco Petruccione	
Erratum: Prospect of optical frequency standard based on a $^{43}\text{Ca}^+$ ion [Phys. Rev. A 72 , 043404 (2005)] (1 page)	029903(E)
Masatoshi Kajita, Ying Li, Kensuke Matsubara, Kazuhiro Hayasaka, and Mizuhiko Hosokawa	
Erratum: “Higher-order resonances in a Stark decelerator” [Phys. Rev. A 71 , 053409 (2005)] (1 page)	029904(E)
Sebastiaan Y. T. van de Meerakker, Nicolas Vanhaecke, Hendrick L. Bethlem, and Gerard Meijer	
Publisher’s Note: Entanglement from thermal blackbody radiation [Phys. Rev. A 72 , 062324 (2005)] (1 page)	029905(E)
Daniel Braun	
Publisher’s Note: Complete disentanglement by partial pure dephasing [Phys. Rev. A 73 , 022313 (2006)] (1 page)	029906(E)
Katarzyna Roszak and Pawel Machnikowski	
Erratum: Generation of entangled states in cavity QED [Phys. Rev. A 72 , 034304 (2005)] (1 page)	029907(E)
Liu Ye, Long-Bao Yu, and Guang-Can Guo	
Publisher’s Note: Trap loss in a dual-species Rb-Ar^* magneto-optical trap [Phys. Rev. A 73 , 023406 (2006)] (1 page)	029908(E)
H. C. Busch, M. K. Shaffer, E. M. Ahmed, and C. I. Sukenik	