



A geometry-optimized protein complex calculated via a variational particle number approach within density functional theory. This approach can be used to design compounds with specific molecular properties. See article 153002.



PHYSICAL REVIEW LETTERS

Contents

Articles published 1 October–7 October 2005

VOLUME 95, NUMBER 15

7 October 2005

General Physics: Statistical and Quantum Mechanics, Quantum Information, etc.

Test of the Isotropy of the Speed of Light Using a Continuously Rotating Optical Resonator	150401
Sven Herrmann, Alexander Senger, Evgeny Kovalchuk, Holger Müller, and Achim Peters	
Spin Waves in a One-Dimensional Spinor Bose Gas	150402
J.N. Fuchs, D.M. Gangardt, T. Keilmann, and G.V. Shlyapnikov	
Matter-Wave Decoherence due to a Gas Environment in an Atom Interferometer	150403
Hermann Uys, John D. Perreault, and Alexander D. Cronin	
New High-Efficiency Source of a Three-Photon W State and its Full Characterization Using Quantum State Tomography	150404
Hideharu Mikami, Yongmin Li, Kyosuke Fukuoka, and Takayoshi Kobayashi	
Einstein-Podolsky-Rosen Correlations via Dissociation of a Molecular Bose-Einstein Condensate	150405
K.V. Kheruntsyan, M.K. Olsen, and P.D. Drummond	
Observation of Dipole-Dipole Interaction in a Degenerate Quantum Gas	150406
J. Stuhler, A. Griesmaier, T. Koch, M. Fattori, T. Pfau, S. Giovanazzi, P. Pedri, and L. Santos	
Fixed-Point Quantum Search	150501
Lov K. Grover	
Single-Qubit Optical Quantum Fingerprinting	150502
Rolf T. Horn, S.A. Babichev, Karl-Peter Marzlin, A.I. Lvovsky, and Barry C. Sanders	
Equivalence between Entanglement and the Optimal Fidelity of Continuous Variable Teleportation	150503
Gerardo Adesso and Fabrizio Illuminati	
Entanglement Detection by Local Orthogonal Observables	150504
Sixia Yu and Nai-le Liu	
Distribution of Extremes in the Fluctuations of Two-Dimensional Equilibrium Interfaces	150601
Deok-Sun Lee	

Gravitation and Astrophysics

Probing the Interior of Neutron Stars with Gravitational Waves	151101
L.K. Tsui and P.T. Leung	
Cosmological Solutions in Macroscopic Gravity	151102
A.A. Coley, N. Pelavas, and R.M. Zalaletdinov	
Polarized Cosmological Gravitational Waves from Primordial Helical Turbulence	151301
Tina Kahniashvili, Grigol Gogoberidze, and Bharat Ratra	

(Continued on Third Cover)



Contents (Continued)

Elementary Particles and Fields

Search for Neutral Supersymmetric Higgs Bosons in Multijet Events at $\sqrt{s} = 1.96$ TeV	151801
V.M. Abazov <i>et al.</i> (D0 Collaboration)	
How Magnetic is the Dirac Neutrino?	151802
Nicole F. Bell, V. Cirigliano, M.J. Ramsey-Musolf, P. Vogel, and Mark B. Wise	
Improved Measurements of CP -Violating Asymmetry Amplitudes in $B^0 \rightarrow \pi^+ \pi^-$ Decays	151803
B. Aubert <i>et al.</i> (BABAR Collaboration)	
Measurement of Time-Dependent CP Asymmetries and the CP -Odd Fraction in the Decay $B^0 \rightarrow D^* + D^{*-}$	151804
B. Aubert <i>et al.</i> (BABAR Collaboration)	
Search for Supersymmetry via Associated Production of Charginos and Neutralinos in Final States with Three Leptons	151805
V.M. Abazov <i>et al.</i> (D0 Collaboration)	
Search for Exotic Baryons in 800 GeV $pp \rightarrow p \Xi^\pm \pi^\pm X$ Reactions	152001
D.C. Christian, J. Felix, E.E. Gottschalk, G. Gutierrez, E.P. Hartouni, B.C. Knapp, M.N. Kreisler, G. Moreno, M.A. Reyes, M. Sosa, M.H. Wang, and A. Wehmann	
Magnetic Color-Flavor Locking Phase in High-Density QCD	152002
Efrain J. Ferrer, Vivian de la Incera, and Cristina Manuel	

Nuclear Physics

Distributions of Charged Hadrons Associated with High Transverse Momentum Particles in pp and Au + Au Collisions at $\sqrt{s_{NN}} = 200$ GeV	152301
J. Adams <i>et al.</i> (STAR Collaboration)	

Atomic, Molecular, and Optical Physics

Two-Photon Detachment of Inner-Shell Electrons from Li^-	153001
Hugo W. van der Hart	
Variational Particle Number Approach for Rational Compound Design	153002
O. Anatole von Lilienfeld, Roberto D. Lins, and Ursula Rothlisberger	
Beyond the Bragg Peak: Hyperthermal Heavy Ion Damage to DNA Components	153201
Zongwu Deng, Ilko Bald, Eugen Illenberger, and Michael A. Huels	

Nonlinear Dynamics, Fluid Dynamics, Classical Optics, etc.

Three-Dimensional Subwavelength Imaging by a Photonic-Crystal Flat Lens Using Negative Refraction at Microwave Frequencies	153901
Zhaolin Lu, Janusz A. Murakowski, Christopher A. Schuetz, Shouyuan Shi, Garrett J. Schneider, and Dennis W. Prather	
Controlling Two-Center Interference in Molecular High Harmonic Generation	153902
C. Vozzi, F. Calegari, E. Benedetti, J.-P. Caumes, G. Sansone, S. Stagira, M. Nisoli, R. Torres, E. Heesel, N. Kajumba, J.P. Marangos, C. Altucci, and R. Velotta	
Controllable Soliton Emission from a Bose-Einstein Condensate	153903
María I. Rodas-Verde, Humberto Michinel, and Víctor M. Pérez-García	
Controlling the Resonance of a Photonic Crystal Microcavity by a Near-Field Probe	153904
A. Femius Koenderink, Maria Kafesaki, Ben C. Buchler, and Vahid Sandoghdar	
Confinement-Induced Ordering of Alkanes between an Elastomer and a Solid Surface	154301
Kumar Nanjundiah and Ali Dhinojwala	
Refraction of Water Waves by Periodic Cylinder Arrays	154501
Xinhua Hu and C.T. Chan	

Plasma and Beam Physics

Effects of Extreme Magnetic Quadrupole Fields on Penning Traps and the Consequences for Antihydrogen Trapping	155001
J. Fajans, W. Bertsche, K. Burke, S.F. Chapman, and D.P. van der Werf	
Constrained Resonance in Magnetic Self-Organization	155002
X.Z. Tang and A.H. Boozer	

(Continued on Preceding Page)

Contents (Continued)

Poloidal Rotation Dynamics, Radial Electric Field, and Neoclassical Theory in the Jet Internal-Transport-Barrier Region	155003
K. Crombé, Y. Andrew, M. Brix, C. Giroud, S. Hacquin, N.C. Hawkes, A. Murari, M.F. Nave, J. Ongena, V. Parail, G. Van Oost, I. Voitsekhovitch, and K.-D. Zastrow	
Condensed Matter: Structure, etc.	
Amorphouslike Diffraction Pattern in Solid Metallic Titanium	155501
Y. Wang, Y.Z. Fang, T. Kikegawa, C. Lathe, K. Saksl, H. Franz, J.R. Schneider, L. Gerward, F.M. Wu, J.F. Liu, and J.Z. Jiang	
What Is Moving in Silica at 1 K? A Computer Study of the Low-Temperature Anomalies	155502
J. Reinisch and A. Heuer	
Systematic Prediction of Kinetically Limited Crystal Growth Morphologies	155503
Danxu Du, David J. Srolovitz, Michael E. Coltrin, and Christine C. Mitchell	
Quantum Size Effects in Metal Thin Films Grown on Quasicrystalline Substrates	155504
V. Fournée, H.R. Sharma, M. Shimoda, A.P. Tsai, B. Unal, A.R. Ross, T.A. Lograsso, and P.A. Thiel	
Negative Differential Conductance and Hot Phonons in Suspended Nanotube Molecular Wires	155505
Eric Pop, David Mann, Jien Cao, Qian Wang, Kenneth Goodson, and Hongjie Dai	
Finite-Size Scaling and Particle-Size Cutoff Effects in Phase-Separating Polydisperse Fluids	155701
Nigel B. Wilding, Peter Sollich, and Moreno Fasolo	
Phenomenological Evidence for the Phonon Hall Effect	155901
C. Strohm, G.L. Rikken, and P. Wyder	
Direct Observation of Sn Adatoms Dynamical Fluctuations at the Sn/Ge(111) Surface	156101
Fabio Ronci, Stefano Colonna, Stephen D. Thorpe, Antonio Cricenti, and Guy Le Lay	
Si/Cu Interface Structure and Adhesion	156102
Xiao-Gang Wang and John R. Smith	
Condensed Matter: Electronic Properties, etc.	
Self-Trapped Excitons in Silicon Dioxide: Mechanism and Properties	156401
Sohrab Ismail-Beigi and Steven G. Louie	
Spectroscopy of Stripe Order in $\text{La}_{1.8}\text{Sr}_{0.2}\text{NiO}_4$ Using Resonant Soft X-Ray Diffraction	156402
C. Schüßler-Langeheine, J. Schlappa, A. Tanaka, Z. Hu, C.F. Chang, E. Schierle, M. Benomar, H. Ott, E. Weschke, G. Kaindl, O. Friedt, G.A. Sawatzky, H.-J. Lin, C.T. Chen, M. Braden, and L.H. Tjeng	
Sign Changes of Intrinsic Spin Hall Effect in Semiconductors and Simple Metals: First-Principles Calculations	156601
Y. Yao and Z. Fang	
Zero-Magnetic-Field Hall Effect in Broken-Mirror-Symmetry Conductors under Illumination	156602
Victor M. Edelstein	
Ballistic Magnon Transport and Phonon Scattering in the Antiferromagnet Nd_2CuO_4	156603
S.Y. Li, Louis Taillefer, C.H. Wang, and X.H. Chen	
Coulomb Blockade and Hopping Conduction in PbSe Quantum Dots	156801
Hugo E. Romero and Marija Drndic	
Coherence Network in the Quantum Hall Bilayer	156802
H.A. Fertig and Ganpathy Murthy	
Conductance of an Ensemble of Molecular Wires: A Statistical Analysis	156803
Yibin Hu, Yu Zhu, Hongjun Gao, and Hong Guo	
Particle-Hole Symmetric Luttinger Liquids in a Quantum Hall Circuit	156804
Stefano Roddaro, Vittorio Pellegrini, Fabio Beltram, Loren N. Pfeiffer, and Ken W. West	
Muon Spin Relaxation Studies of Magnetic-Field-Induced Effects in High- T_c Superconductors	157001
A.T. Savici, A. Fukaya, I.M. Gat-Malureanu, T. Ito, P.L. Russo, Y.J. Uemura, C.R. Wiebe, P.P. Kyriakou, G.J. MacDougall, M.T. Rovers, G.M. Luke, K.M. Kojima, M. Goto, S. Uchida, R. Kadono, K. Yamada, S. Tajima, T. Masui, H. Eisaki, N. Kaneko, M. Greven, and G.D. Gu	
Collapse of Thermal Activation in Moderately Damped Josephson Junctions	157002
V.M. Krasnov, T. Bauch, S. Intiso, E. Hürfeld, T. Akazaki, H. Takayanagi, and P. Delsing	

(Continued on Preceding Page)

Contents (Continued)

Electron Paramagnetic Resonance Shift in $\text{II}_{1-x}\text{Mn}_x\text{VI}$ Diluted Magnetic Semiconductors in the Presence of Strong Exchange Coupling	157201
A.D. McCarty, A.K. Hassan, L.-C. Brunel, K. Dziatkowski, and J.K. Furdyna	
Reversing the Training Effect in Exchange Biased CoO/Co Bilayers	157202
Steven Brems, Dieter Buntinx, Kristiaan Temst, Chris Van Haesendonck, Florin Radu, and Hartmut Zabel	
Geometric Phases and Criticality in Spin-Chain Systems	157203
Angelo C. Carollo and Jiannis K. Pachos	
Uniform Magnetic Properties for an Ultrahigh-Density Lattice of Noninteracting Co Nanostructures	157204
N. Weiss, T. Cren, M. Epple, S. Rusponi, G. Baudot, S. Rohart, A. Tejada, V. Repain, S. Rousset, P. Ohresser, F. Scheurer, P. Bencok, and H. Brune	
Correlation-Induced Double-Plasmon Excitation in Simple Metals Studied by Inelastic X-Ray Scattering	157401
C. Sternemann, S. Huotari, G. Vankó, M. Volmer, G. Monaco, A. Gusarov, H. Lustfeld, K. Sturm, and W. Schülke	
Infrared-Active Vibrational Modes of Single-Walled Carbon Nanotubes	157402
U.J. Kim, X.M. Liu, C.A. Furtado, G. Chen, R. Saito, J. Jiang, M.S. Dresselhaus, and P.C. Eklund	
Ultrafast Relaxation in Quasi-One-Dimensional Organic Molecular Crystals	157403
E. Engel, M. Koschorreck, K. Leo, and M. Hoffmann	
Evolution of Midgap States and Residual Three Dimensionality in $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$	157601
S. Sahrakorpi, M. Lindroos, R.S. Markiewicz, and A. Bansil	
Soft Matter, Biological, and Interdisciplinary Physics	
Elasticity-Mediated Self-Organization and Colloidal Interactions of Solid Spheres with Tangential Anchoring in a Nematic Liquid Crystal	157801
I.I. Smalyukh, O.D. Lavrentovich, A.N. Kuzmin, A.V. Kachynski, and P.N. Prasad	
Energy Landscape of a Simple Model for Strong Liquids	157802
A.J. Moreno, S.V. Buldyrev, E. La Nave, I. Saika-Voivod, F. Sciortino, P. Tartaglia, and E. Zaccarelli	
Dynamics and Spatial Organization of Endosomes in Mammalian Cells	158101
Chinmay Pangarkar, Anh Tuan Dinh, and Samir Mitragotri	
Mapping the Phase Diagram of Single DNA Molecule Force-Induced Melting in the Presence of Ethidium	158102
Ioana D. Vladescu, Micah J. McCauley, Ioulia Rouzina, and Mark C. Williams	
Harmonic Response of Cellular Membrane Pumps to Low Frequency Electric Fields	158103
D. Nawarathna, J.H. Miller, Jr., J.R. Claycomb, G. Cardenas, and D. Warmflash	
Picosecond-Time-Scale Fluctuations of Proteins in Glassy Matrices: The Role of Viscosity	158104
Elena Cornicchi, Giuseppe Onori, and Alessandro Paciaroni	
Scaling Exponents and Probability Distributions of DNA End-to-End Distance	158105
Francesco Valle, Mélanie Favre, Paolo De Los Rios, Angelo Rosa, and Giovanni Dietler	
Influence of Hydrodynamic Coupling on Pair Diffusion in a Quasi-One-Dimensional Colloid System	158301
Xinliang Xu, Stuart A. Rice, Binhua Lin, and Haim Diamant	
Logic Backbone of a Transcription Network	158701
M. Cosentino Lagomarsino, P. Jona, and B. Bassetti	
Anomalous Wave Reflection at the Interface of Two Strongly Nonlinear Granular Media	158702
V.F. Nesterenko, C. Daraio, E.B. Herbold, and S. Jin	
Comments	
Comment on “Do Earthquakes Exhibit Self-Organized Criticality?”	159801
Álvaro Corral	
Yang <i>et al.</i> Reply	159802
Xiaosong Yang, Shuming Du, and Jin Ma	
Errata	
Erratum: Symmetry Driven Irreversibilities at Ferromagnetic-Antiferromagnetic Interfaces [Phys. Rev. Lett. 93 , 097203 (2004)]	159901
Axel Hoffmann	

(Continued on Preceding Page)

Contents (Continued)

Erratum: Pulsar Kicks via Spin-1 Color Superconductivity [Phys. Rev. Lett. 94 , 211101 (2005)]	159902
Andreas Schmitt, Igor A. Shovkovy, and Qun Wang	