

Low brilliance hard x-ray phase images of a hornet. Left: Differential phase contrast projection image. Right: 3D rendering of the hornet. Middle: 2D slice of that rendering. See article 108105.

PHYSICAL REVIEW LETTERS

Contents

Articles published 3 March–9 March 2007

VOLUME 98, NUMBER 10 9 March 2007

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

Discrete Symmetries and 1/3–Quantum Vortices in Condensates of $F = 2$ Cold Atoms 100401
Gordon W. Semenoff and Fei Zhou
Cavity-Enhanced Light Scattering in Optical Lattices to Probe Atomic Quantum Statistics 100402
Igor B. Mekhov, Christoph Maschler, and Helmut Ritsch
Young-Type Experiment Using a Single-Electron Source and an Independent Atomic-Size Two-Center Interferometer 100403
J.-Y. Chesnel, A. Hajaji, R. O. Barrachina, and F. Frémont
Quantum Polarization Spectroscopy of Ultracold Spinor Gases 100404
K. Eckert, Ł. Zawitkowski, A. Sanpera, M. Lewenstein, and E. S. Polzik
Quantum Communication without Alignment using Multiple-Qubit Single-Photon States 100501
L. Aolita and S. P. Walborn
Generalization of Quantum Error Correction via the Heisenberg Picture 100502
Cédric Bény, Achim Kempf, and David W. Kribs
Entanglement is Not Necessary for Perfect Discrimination between Unitary Operations 100503
Runyao Duan, Yuan Feng, and Mingsheng Ying
Keeping a Quantum Bit Alive by Optimized π-Pulse Sequences 100504
Götz S. Uhrig

Gravitation and Astrophysics

Is Violation of Newton's Second Law Possible? 101101
A. Yu. Ignatiev

Elementary Particles and Fields

Holographic Viscosity of Fundamental Matter 101601
David Mateos, Robert C. Myers, and Rowan M. Thomson
An Electroweak Oscillon 101801
N. Graham

Nuclear Physics

Effect of γ Softness on the Stability of Chiral Geometry: Spectroscopy of ^{106}Ag 102501
P. Joshi, M. P. Carpenter, D. B. Fossan, T. Koike, E. S. Paul, G. Rainovski, K. Starosta, C. Vaman, and R. Wadsworth
Spectroscopic Study of Neutron Shell Closures via Nucleon Transfer in the Near-Dripline Nucleus ^{23}O 102502
Z. Elekes, Zs. Dombrádi, N. Aoi, S. Bishop, Zs. Fülöp, J. Gibelin, T. Gomi, Y. Hashimoto, N. Imai, N. Iwasa, H. Iwasaki, G. Kalinka, Y. Kondo, A. A. Korsheninnikov, K. Kurita, M. Kurokawa, N. Matsui, T. Motobayashi, T. Nakamura, T. Nakao, E. Yu. Nikolskii, T. K. Ohnishi, T. Okumura, S. Ota, A. Perera, A. Saito, H. Sakurai, Y. Satou, D. Sohler, T. Sumikama, D. Suzuki, M. Suzuki, H. Takeda, S. Takeuchi, Y. Togano, and Y. Yanagisawa
Quantum Monte Carlo Calculations of Symmetric Nuclear Matter 102503
Stefano Gandolfi, Francesco Pederiva, Stefano Fantoni, and Kevin E. Schmidt

(Continued Inside)

By suggesting a few manuscripts each week, we hope to promote reading across fields. Please see our Announcement Phys. Rev. Lett. 98, 010001 (2007).

Copyright 2007 by The American Physical Society

0031-9007(20070309)98:10;1-N

Atomic, Molecular, and Optical Physics

Excited States of the Helium-Antihydrogen System 103001
Vasily Sharipov, Leonti N. Labzowsky, and Günter Plunien

Kinematic Slowing of Molecules Formed by Reactive Collisions 103002
Ning-Ning Liu and Hansjürgen Loesch

Coherent Slowing of a Supersonic Beam with an Atomic Paddle 103201
E. Narevicius, A. Libson, M. F. Riedel, C. G. Parthey, I. Chavez, U. Even, and M. G. Raizen

Three-Fermion Problems in Optical Lattices 103202
T. Luu and A. Schwenk

Gain Narrowing in Few-Atom Systems 103601
Tom Savels, Allard P. Mosk, and Ad Lagendijk

Quantum Vacuum Radiation Spectra from a Semiconductor Microcavity with a Time-Modulated Vacuum Rabi Frequency 103602
Simone De Liberato, Cristiano Ciuti, and Iacopo Carusotto

Nonlinear Dynamics, Fluid Dynamics, Classical Optics, etc.

Conical Diffraction and Gap Solitons in Honeycomb Photonic Lattices 103901
Or Peleg, Guy Bartal, Barak Freedman, Ofer Manela, Mordechai Segev, and Demetrios N. Christodoulides

Transition to the Relativistic Regime in High Order Harmonic Generation 103902
Alexander Tarasevitch, Konstantin Lobov, Clemens Wünsche, and Dietrich von der Linde

Localized Excitations in Arrays of Synchronized Laser Oscillators 104101
Fabien Rogister and Rajarshi Roy

Robust Transport Barriers Resulting from Strong Kolmogorov-Arnold-Moser Stability 104102
I. I. Rypina, M. G. Brown, F. J. Beron-Vera, H. Koçak, M. J. Olascoaga, and I. A. Udovydchenkov

Chaotic Scattering and the n-Bounce Resonance in Solitary-Wave Interactions 104103
Roy H. Goodman and Richard Haberman

Interaction Dynamics of Elastic Waves with a Complex Nonlinear Scatterer through the Use of a Time Reversal Mirror 104301
T. J. Ulrich, Paul A. Johnson, and Robert A. Guyer

Magnetically Induced Thermal Rectification 104302
Giulio Casati, Carlos Mejía-Monasterio, and Tomaž Prosen

Numerical Simulation of a Turbulent Magnetic Dynamo 104501
S. Kenjereš and K. Hanjalić

Plasma and Beam Physics

Plasma Modulation of Harmonic Emission Spectra from Laser-Plasma Interactions 105001
T. J. Boyd and R. Ondarza-Rovira

Microstructural Evolution and Irreversibility in the Viscoelastic Response of Mesoscopic Dusty-Plasma Liquids 105002
Chia-Ling Chan and Lin I

Condensed Matter: Structure, etc.

$SrTiO_3$ Displacive Transition Revisited via Coherent X-Ray Diffraction 105501
S. Ravy, D. Le Bolloc'h, R. Currat, A. Fluerasu, C. Mocuta, and B. Dkhil

Structure of Alkali Borate Glasses at High Pressure: B and Li K-Edge Inelastic X-Ray Scattering Study 105502
Sung Keun Lee, Peter J. Eng, Ho-kwang Mao, Yue Meng, and Jinfu Shu

"Ideal" Engineering Alloys 105503
Tianshu Li, J. W. Morris, Jr., N. Nagasako, S. Kuramoto, and D. C. Chrzan

Low-Temperature Structural Transitions: Circumventing the Broken-Ergodicity Problem 105701
Vladimir A. Sharapov, Dario Meluzzi, and Vladimir A. Mandelshtam

Direct Imaging of Lipid-Ion Network Formation under Physiological Conditions by Frequency Modulation Atomic Force Microscopy 106101
Takeshi Fukuma, Michael J. Higgins, and Suzanne P. Jarvis

(Continued on Preceding Page)

By suggesting a few manuscripts each week, we hope to promote reading across fields. Please see our Announcement Phys. Rev. Lett. 98, 010001 (2007).

Sculpting Semiconductor Heteroepitaxial Islands: From Dots to Rods 106102
J. T. Robinson, D. A. Walko, D. A. Arms, D. S. Tinberg, P. G. Evans, Y. Cao, J. A. Liddle, A. Rastelli, O. G. Schmidt, and O. D. Dubon

Mechanism of Inhibition of Nanoparticle Growth and Phase Transformation by Surface Impurities 106103
Bin Chen, Hengzhong Zhang, Benjamin Gilbert, and Jillian F. Banfield

Mechanism for Room-Temperature Single-Atom Lateral Manipulations on Semiconductors using Dynamic Force Microscopy 106104
Yoshiaki Sugimoto, Pavel Jelinek, Pablo Pou, Masayuki Abe, Seizo Morita, Ruben Perez, and Oscar Custance

Condensed Matter: Electronic Properties, etc.

Four Wave Mixing Oscillation in a Semiconductor Microcavity: Generation of Two Correlated Polariton Populations 106401
M. Romanelli, C. Leyder, J. Ph. Karr, E. Giacobino, and A. Bramati

Influence of Interactions on Flux and Back-Gate Period of Quantum Hall Interferometers 106801
B. Rosenow and B. I. Halperin

Single-Layer Model of the Hexagonal Boron Nitride Nanomesh on the Rh(111) Surface 106802
Robert Laskowski, Peter Blaha, Thomas Gallauner, and Karlheinz Schwarz

Topological Insulators in Three Dimensions 106803
Liang Fu, C. L. Kane, and E. J. Mele

Resistance Oscillations in Two-Dimensional Electron Systems Induced by Both ac and dc Fields 106804
W. Zhang, M. A. Zudov, L. N. Pfeiffer, and K. W. West

Single-Electron Transport in Electrically Tunable Nanomagnets 106805
J. Fernández-Rossier and Ramón Aguado

Dynamic Order-to-Metastable-Disorder Vortex Matter Transition in $Bi_2Sr_2CaCu_2O_{8+\delta}$ 107001
B. Kalisky, Y. Myasoedov, A. Shaulov, T. Tamegai, E. Zeldov, and Y. Yeshurun

Josephson Effect due to Odd-Frequency Pairs in Diffusive Half Metals 107002
Yasuhiro Asano, Yukio Tanaka, and Alexander A. Golubov

Magnetothermal Transport in the Spin-$\frac{1}{2}$ Chains of Copper Pyrazine Dinitrate 107201
A. V. Sologubenko, K. Berggold, T. Lorenz, A. Rosch, E. Shimshoni, M. D. Phillips, and M. M. Turnbull

Kondo Effect in Magnetic Tunnel Junctions 107202
K. I. Lee, S. J. Joo, J. H. Lee, K. Rhie, Tae-Suk Kim, W. Y. Lee, K. H. Shin, B. C. Lee, P. LeClair, J.-S. Lee, and J.-H. Park

Mapping the Surface Spin Structure of Large Unit Cells: Reconstructed Mn Films on Fe(001) 107203
C. L. Gao, U. Schlickum, W. Wulfhekel, and J. Kirschner

Spin Dynamics of the Spin-1/2 Kagome Lattice Antiferromagnet $ZnCu_3(OH)_6Cl_2$ 107204
J. S. Helton, K. Matan, M. P. Shores, E. A. Nytko, B. M. Bartlett, Y. Yoshida, Y. Takano, A. Suslov, Y. Qiu, J.-H. Chung, D. G. Nocera, and Y. S. Lee

Subsecond Spin Relaxation Times in Quantum Dots at Zero Applied Magnetic Field Due to a Strong Electron-Nuclear Interaction 107401
R. Oulton, A. Greilich, S. Yu. Verbin, R. V. Cherbunin, T. Auer, D. R. Yakovlev, M. Bayer, I. A. Merkulov, V. Stavarache, D. Reuter, and A. D. Wieck

Spectral Degeneracy Breaking of the Plasmon Resonance of Single Metal Nanoparticles by Nanoscale Near-Field Photopolymerization 107402
H. Ibn El Ahrach, R. Bachelot, A. Vial, G. Lérondel, J. Plain, P. Royer, and O. Soppera

Structure and Polarization in the High T_c Ferroelectric $Bi(Zn, Ti)O_3$-$PbTiO_3$ Solid Solutions 107601
Ilya Grinberg, Matthew R. Suchomel, Wojtek Dmowski, Sara E. Mason, Hui Wu, Peter K. Davies, and Andrew M. Rappe

Realization of a Room-Temperature Spin Dynamo: The Spin Rectification Effect 107602
Y. S. Gui, N. Mecking, X. Zhou, Gwyn Williams, and C.-M. Hu

Soft Matter, Biological, and Interdisciplinary Physics

Network Mechanism for Burst Generation 108101
Mikhail V. Ivanchenko, Grigory V. Osipov, Vladimir D. Shalfeev, and Jürgen Kurths

(Continued on Preceding Page)

By suggesting a few manuscripts each week, we hope to promote reading across fields. Please see our Announcement Phys. Rev. Lett. 98, 010001 (2007).

Characterization of Synchrony with Applications to Epileptic Brain Signals 108102
Ying-Cheng Lai, Mark G. Frei, Ivan Osorio, and Liang Huang
Dynamical Organization of Cooperation in Complex Topologies 108103
J. Gómez-Gardeñes, M. Campillo, L. M. Floría, and Y. Moreno
Symmetry-Breaking Model for X-Chromosome Inactivation 108104
Mario Nicodemi and Antonella Prisco
Hard X-Ray Phase Tomography with Low-Brilliance Sources 108105
F. Pfeiffer, C. Kottler, O. Bunk, and C. David
Breaking the Symmetry between Interaction and Replacement in Evolutionary Dynamics on Graphs 108106
Hisashi Ohtsuki, Martin A. Nowak, and Jorge M. Pacheco
Optimal Finite-Time Processes In Stochastic Thermodynamics 108301
Tim Schmiedl and Udo Seifert
Fluctuation-Dissipation Theorem in an Aging Colloidal Glass 108302
Sara Jabbari-Farouji, Daisuke Mizuno, Maryam Atakhorrami, Fred C. MacKintosh, Christoph F. Schmidt, Erika Eiser, Gerard H. Wegdam, and Daniel Bonn
Depletion-Induced Percolation in Networks of Nanorods 108303
T. Schilling, S. Jungblut, and Mark A. Miller
Error Growth Patterns in Systems with Spatial Chaos: From Coupled Map Lattices to Global Weather Models 108501
C. Primo, I. G. Szendro, M. A. Rodríguez, and J. M. Gutiérrez

Comments

Comment on "Classical and Quantum Interaction of the Dipole" 108901
Tomislav Ivezić
Comment on "Partial Photoionization Cross Sections and Angular Distributions for Double Excitation of Helium up to the $N = 13$ Threshold" 109301
L. Malegat
Czasch *et al.* Reply 109302
A. Czasch, M. Schöffler, M. Hattass, S. Schössler, T. Jahnke, Th. Weber, A. Staudte, J. Titze, C. Wimmer, S. Kammer, M. Weckenbrock, S. Voss, R. E. Grisenti, O. Jagutzki, L. Ph. Schmidt, H. Schmidt-Böcking, R. Dörner, J.-M. Rost, T. Schneider, Chien-Nan Liu, I. Bray, A. S. Kheifets, and K. Bartschat
Comment on "Hardness of Covalent and Ionic Crystals: First-Principle Calculations" 109601
Z. Y. Liu, Xiaoju Guo, Julong He, Dongli Yu, and Yongjun Tian
Šimůnek and Vackář Reply 109602
Antonín Šimůnek and Jiří Vackář
Comment on "Quantum Nature of the Sign Preference in Ion-Induced Nucleation" 109603
Shawn M. Kathmann, Gregory K. Schenter, and Bruce C. Garrett
Nadykto *et al.* Reply 109604
A. B. Nadykto, A. Al Natsheh, K. V. Mikkelsen, F. Yu, and J. Ruuskanen

Errata

Erratum: Large Cross-Phase Modulation between Slow Copropagating Weak Pulses in ^{87}Rb [Phys. Rev. Lett. **97**, 063901 (2006)] 109901
Zeng-Bin Wang, Karl-Peter Marzlin, and Barry C. Sanders
Erratum: Freezing of Fluids Confined in a Disordered Nanoporous Structure [Phys. Rev. Lett. **97**, 105702 (2006)] 109902
B. Coasne, S. K. Jain, and K. E. Gubbins
Erratum: Atom Counting Statistics in Ensembles of Interacting Rydberg Atoms [Phys. Rev. Lett. **95**, 253002 (2005)] 109903
T. Cubel Liebisch, A. Reinhard, P. R. Berman, and G. Raithel
Erratum: Stress Tensor of a Dilute Suspension of Spheres in a Viscoelastic Liquid [Phys. Rev. Lett. **95**, 246001 (2005)] 109904
F. Greco, G. D'Avino, and P. L. Maffettone

By suggesting a few manuscripts each week, we hope to promote reading across fields. Please see our Announcement Phys. Rev. Lett. 98, 010001 (2007).