

Optical control of magnetization with 40 fs laser pulses shone through a circular polarizer. By changing the polarization, one can reverse the magnetic orientation at the 20 micron diameter laser spot. See article 047601 and *Physics News Update* http://www.aip.org/pnu/2007/830.html.

PHYSICAL REVIEW LETTERS

Contents

Articles published 21 July–27 July 2007

VOLUME 99, NUMBER 4 27 July 2007

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

Josephson Effect throughout the BCS-BEC Crossover 040401
A. Spuntarelli, P. Pieri, and G. C. Strinati

Critical Point of an Interacting Two-Dimensional Atomic Bose Gas 040402
Peter Krüger, Zoran Hadzibabic, and Jean Dalibard

Noise Robustness of the Nonlocality of Entangled Quantum States 040403
Mafalda L. Almeida, Stefano Pironio, Jonathan Barrett, Géza Tóth, and Antonio Acín

Signatures for a Classical to Quantum Transition of a Driven Nonlinear Nanomechanical Resonator 040404
Itamar Katz, Alex Retzker, Raphael Straub, and Ron Lifshitz

Quantum Computers Based on Electron Spins Controlled by Ultrafast Off-Resonant Single Optical Pulses 040501
Susan M. Clark, Kai-Mei C. Fu, Thaddeus D. Ladd, and Yoshihisa Yamamoto

Nonequilibrium Tricritical Point in a System with Long-Range Interactions 040601
Andrea Antoniazzi, Duccio Fanelli, Stefano Ruffo, and Yoshiyuki Y. Yamaguchi

Gravitation and Astrophysics

Waves in Interplanetary Shocks: A Wind/WAVES Study 041101
L. B. Wilson III, C. Cattell, P. J. Kellogg, K. Goetz, K. Kersten, L. Hanson, R. MacGregor, and J. C. Kasper

Recoil Velocities from Equal-Mass Binary-Black-Hole Mergers 041102
Michael Koppitz, Denis Pollney, Christian Reisswig, Luciano Rezzolla, Jonathan Thornburg, Peter Diener, and Erik Schnetter

Observable Signatures of a Black Hole Ejected by Gravitational-Radiation Recoil in a Galaxy Merger 041103
Abraham Loeb

Significant Gamma Lines from Inert Higgs Dark Matter 041301
Michael Gustafsson, Erik Lundström, Lars Bergström, and Joakim Edsjö

Elementary Particles and Fields

Nondecoupling of Maximal Supergravity from the Superstring 041601
Michael B. Green, Hirosi Ooguri, and John H. Schwarz

Field Theory in Two-Time Physics with $N = 1$ Supersymmetry 041801
Itzhak Bars and Yueh-Cheng Kuo

Study of Exclusive Charmless Semileptonic B Decays and $|V_{ub}|$ 041802
N. E. Adam *et al.* (CLEO Collaboration)

Small Neutrino Mass from Large Compactification Volumes 041803
Joseph P. Conlon and Daniel Cremades

Nuclear Physics

Longitudinal Broadening of Quenched Jets in Turbulent Color Fields 042301
A. Majumder, B. Müller, and S. A. Bass

(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(20070727)99:4;1-E

Structure of $A = 10$–13 Nuclei with Two- Plus Three-Nucleon Interactions from Chiral Effective Field Theory 042501
P. Navrátil, V. G. Gueorguiev, J. P. Vary, W. E. Ormand, and A. Nogga
Identification of a Shape Isomer in ^{235}U 042502
A. Oberstedt, S. Oberstedt, M. Gawrys, and N. Kornilov
Shape and Structure of $N = Z$ ^{64}Ge: Electromagnetic Transition Rates from the Application of the Recoil Distance Method to a Knockout Reaction 042503
K. Starosta, A. Dewald, A. Dunomes, P. Adrich, A. M. Amthor, T. Baumann, D. Bazin, M. Bowen, B. A. Brown, A. Chester, A. Gade, D. Galaviz, T. Glasmacher, T. Ginter, M. Hausmann, M. Horoi, J. Jolie, B. Melon, D. Miller, V. Moeller, R. P. Norris, T. Pissulla, M. Portillo, W. Rother, Y. Shimbara, A. Stolz, C. Vaman, P. Voss, D. Weisshaar, and V. Zelevinsky
First Experiment on Fission Transients in Highly Fissile Spherical Nuclei Produced by Fragmentation of Radioactive Beams 042701
C. Schmitt, P. N. Nadtochy, A. Heinz, B. Jurado, A. Kelić, and K.-H. Schmidt

Atomic, Molecular, and Optical Physics

Lowest Excitation Energy of ^{9}Be 043001
Monika Stanke, Dariusz Kędziera, Sergiy Bubin, and Ludwik Adamowicz
Rectified Momentum Transport for a Kicked Bose-Einstein Condensate 043002
Mark Sadgrove, Munekazu Horikoshi, Tetsuo Sekimura, and Ken'ichi Nakagawa
Photoassociation in Cold Atoms via Ladder Excitation 043003
M. L. Trachy, G. Veshapidze, M. H. Shah, H. U. Jang, and B. D. DePaola
Enhancement of Double Auger Decay Probability in Xenon Clusters Irradiated with a Soft-X-Ray Laser Pulse 043004
S. Namba, N. Hasegawa, M. Nishikino, T. Kawachi, M. Kishimoto, K. Sukegawa, M. Tanaka, Y. Ochi, K. Takiyama, and K. Nagashima
Time-Dependent Density Functional Calculation of e-H Scattering 043005
Meta van Faassen, Adam Wasserman, Eberhard Engel, Fan Zhang, and Kieron Burke
Effect of Mutual Configuration between Molecular Orientation and Atomic Orientation in the Oriented Ar $(^3P_2)$ + Oriented CF_3H Reaction 043201
D. Watanabe, H. Ohoyama, T. Matsumura, and T. Kasai
Stimulated Emission as a Result of Multiphoton Interference 043601
F. W. Sun, B. H. Liu, Y. X. Gong, Y. F. Huang, Z. Y. Ou, and G. C. Guo

Nonlinear Dynamics, Fluid Dynamics, Classical Optics, etc.

Nonlinear Cross-Phase Modulation with Intense Single-Cycle Terahertz Pulses 043901
Y. Shen, T. Watanabe, D. A. Arena, C.-C. Kao, J. B. Murphy, T. Y. Tsang, X. J. Wang, and G. L. Carr
Giant Optical Transmission of a Subwavelength Slit Optimized Using the Magnetic Field Phase 043902
O. T. Janssen, H. P. Urbach, and G. W. 't Hooft
Shocks in Nonlocal Media 043903
Neda Ghofraniha, Claudio Conti, Giancarlo Ruocco, and Stefano Trillo
Surface Resonant-States-Enhanced Acoustic Wave Tunneling in Two-Dimensional Phononic Crystals 044301
Manzhu Ke, Zhaojian He, Shasha Peng, Zhengyou Liu, Jing Shi, Weijia Wen, and Ping Sheng
Concentration Polarization and Nonlinear Electrokinetic Flow near a Nanofluidic Channel 044501
Sung Jae Kim, Ying-Chih Wang, Jeong Hoon Lee, Hongchul Jang, and Jongyoon Han
Nonlinear Stage of the Benjamin-Feir Instability: Three-Dimensional Coherent Structures and Rogue Waves 044502
V. P. Ruban
Stokes Instability in Inhomogeneous Membranes: Application to Lipoprotein Suction of Cholesterol-Enriched Domains 044503
M. Ben Amar, J.-M. Allain, N. Puff, and M. I. Angelova

Condensed Matter: Structure, etc.

First-Order Transition from Superfluid to Bose-Metal State in Systems with Resonant Pairing 045301
T. Stauber and J. Ranninger
Carbon Nanostructures as an Electromechanical Bicontinuum 045501
Cristiano Nisoli, Paul E. Lammert, Eric Mockensturm, and Vincent H. Crespi

(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).

Ice Crystallization Induced by Optical Breakdown 045701
B. Lindinger, R. Mettin, R. Chow, and W. Lauterborn
Nanotube Phonon Waveguide 045901
C. W. Chang, D. Okawa, H. Garcia, A. Majumdar, and A. Zettl
Plastic Folding of Buckling Structures 046101
Jérôme Colin, Christophe Coupeau, and Jean Grilhé
Higher Harmonic Atomic Force Microscopy: Imaging of Biological Membranes in Liquid 046102
Johannes Preiner, Jilin Tang, Vasilli Pastushenko, and Peter Hinterdorfer
Femtosecond Field Ion Emission by Surface Optical Rectification 046103
A. Vella, B. Deconihout, L. Marrucci, and E. Santamato

Condensed Matter: Electronic Properties, etc.

STM Studies of $TbTe_3$: Evidence for a Fully Incommensurate Charge Density Wave 046401
A. Fang, N. Ru, I. R. Fisher, and A. Kapitulnik
Nanoscale Dynamical Mean-Field Theory for Molecules and Mesoscopic Devices in the Strong-Correlation Regime 046402
Serge Florens
Anomalous Quasiparticle Renormalization in $Na_{0.73}CoO_2$: Role of Interorbital Interactions and Magnetic Correlations 046403
J. Geck, S. V. Borisenko, H. Berger, H. Eschrig, J. Fink, M. Knupfer, K. Koepernik, A. Koitzsch, A. A. Kordyuk, V. B. Zabolotnyy, and B. Büchner
Hidden Charge $2e$ Boson in Doped Mott Insulators 046404
Robert G. Leigh, Philip Phillips, and Ting-Pong Choy
Nonequilibrium Relaxations and Aging Effects in a Two-Dimensional Coulomb Glass 046405
J. Jaroszyński and Dragana Popović
Observation of Strong Electron Dephasing in Highly Disordered $Cu_{93}Ge_4Au_3$ Thin Films 046601
S. M. Huang, T. C. Lee, H. Akimoto, K. Kono, and J. J. Lin
Effect of Polarized Current on the Magnetic State of an Antiferromagnet 046602
Sergei Urazhdin and Nicholas Anthony
Electromagnetically Induced Exciton Mobility in a Photonic Band Gap 046801
Sajeev John and Shengjun Yang
Mixing of Electronic States in Pentacene Adsorption on Copper 046802
Andrea Ferretti, Chiara Baldacchini, Arrigo Calzolari, Rosa Di Felice, Alice Ruini, Elisa Molinari, and Maria Grazia Betti
Defect-Controlled Transport Properties of Metallic Atoms along Carbon Nanotube Surfaces 046803
Alexei Barinov, Hande Üstünel, Stefano Fabris, Luca Gregoratti, Lucia Aballe, Pavel Dudin, Stefano Baroni, and Maya Kiskinova
Weak-Localization Correction to the Anomalous Hall Effect in Polycrystalline Fe Films 046804
P. Mitra, R. Misra, A. F. Hebard, K. A. Muttalib, and P. Wölfle
Peak Effect in Polycrystalline Vortex Matter 047001
I. K. Dimitrov, N. D. Daniilidis, C. Elbaum, J. W. Lynn, and X. S. Ling
Anomalous Scaling and Gapless Fermions of d-Wave Superconductors in a Magnetic Field 047002
Oskar Vafek
High-Field Hall Resistivity and Magnetoresistance of Electron-Doped $Pr_{2-x}Ce_xCuO_{4-\delta}$ 047003
Pengcheng Li, F. F. Balakirev, and R. L. Greene
Electron and Phonon Cooling in a Superconductor–Normal-Metal–Superconductor Tunnel Junction 047004
Sukumar Rajauria, P. S. Luo, T. Fournier, F. W. Hekking, H. Courtois, and B. Pannetier
Magnetic Resonance in the Spin Excitation Spectrum of Electron-Doped Cuprate Superconductors 047005
J.-P. Ismer, Ilya Eremin, Enrico Rossi, and Dirk K. Morr
Rabi Spin Oscillations Generated by Ultrasound in Solids 047201
C. Calero and E. M. Chudnovsky
Valence Bond Solid Phases in a Cubic Antiferromagnet 047202
K. S. Beach and Anders W. Sandvik
Direct Measurement of the Low-Temperature Spin-State Transition in $LaCoO_3$ 047203
R. F. Klie, J. C. Zheng, Y. Zhu, M. Varela, J. Wu, and C. Leighton

(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).

YCo_2: Intrinsic Magnetic Surface of a Paramagnetic Bulk Material 047204
Yu. S. Dedkov, C. Laubschat, S. Khmelevskyi, J. Redinger, P. Mohn, and M. Weinert
Mott Glass in Site-Diluted $S = 1$ Antiferromagnets with Single-Ion Anisotropy 047205
Tommaso Roscilde and Stephan Haas
Dynamic Spin-Polarized Resonant Tunneling in Magnetic Tunnel Junctions 047206
Casey W. Miller, Zhi-Pan Li, Ivan K. Schuller, R. W. Dave, J. M. Slaughter, and Johan Åkerman
Optical Control of Topological Quantum Transport in Semiconductors 047401
Wang Yao, A. H. MacDonald, and Qian Niu
Phonon-Assisted Decoherence in the Production of Polarization-Entangled Photons in a Single Semiconductor Quantum Dot 047402
Ulrich Hohenester, Gernot Pfanner, and Marek Seliger
Anharmonic Phonon Lifetimes in Carbon Nanotubes: Evidence for a One-Dimensional Phonon Decay Bottleneck ... 047403
Rahul Rao, José Menendez, Christian D. Poweleit, and Apparao M. Rao
All-Optical Magnetic Recording with Circularly Polarized Light 047601
C. D. Stanciu, F. Hansteen, A. V. Kimel, A. Kirilyuk, A. Tsukamoto, A. Itoh, and Th. Rasing
Long-Range Exciton Transport by Dynamic Strain Fields in a GaAs Quantum Well 047602
J. Rudolph, R. Hey, and P. V. Santos

Soft Matter, Biological, and Interdisciplinary Physics

Phase Equilibria in High Energy Density PVDF-Based Polymers 047801
V. Ranjan, L. Yu, Marco Buongiorno Nardelli, and J. Bernholc
Granular Rayleigh-Taylor Instability: Experiments and Simulations 048001
Jan Ludvig Vinningland, Øistein Johnsen, Eirik G. Flekkøy, Renaud Toussaint, and Knut Jørgen Måløy
Statistical Mechanics of Semiflexible Bundles of Wormlike Polymer Chains 048101
Claus Heussinger, Mark Bathe, and Erwin Frey
Self-Motile Colloidal Particles: From Directed Propulsion to Random Walk 048102
Jonathan R. Howse, Richard A. Jones, Anthony J. Ryan, Tim Gough, Reza Vafabakhsh, and Ramin Golestanian
Molecular Synchronization Waves in Arrays of Allosterically Regulated Enzymes 048301
Vanessa Casagrande, Yuichi Togashi, and Alexander S. Mikhailov
Stress Distributions in Diblock Copolymers 048302
P. Maniadis, T. Lookman, E. M. Kober, and K. Ø. Rasmussen
Global Warming Is Driven by Anthropogenic Emissions: A Time Series Analysis Approach 048501
Pablo F. Verdes

Errata

Erratum: Quantum Temporal Correlations and Entanglement via Adiabatic Control of Vector Solitons [Phys. Rev. Lett. **97**, 023902 (2006)] 049901
Mankei Tsang

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

Physical Review Focus

Brief explanations of selected papers from this and other APS journals appear regularly at the *Phys. Rev. Focus* web site (http://focus.aps.org). Readers can also sign up for weekly e-mail summaries of *Focus* stories.