PHYSICAL REVIEW LETTERS

Contents

VOLUME 80, NUMBER 16 20 April 1998

CODEN: PRLTAO 80 (16), 3419–3671 (20 April 1998)

General Physics

Superfluidity in Sympathetic Cooling with Atomic Bose-Einstein Condensates 3419
Eddy Timmermans and Robin Côté

Generalized Bosons and Coherent States 3424
Enrico Celeghini and Mario Rasetti

Microscopic Mechanism for Mechanical Polishing of Diamond (110) Surfaces 3428
M. R. Jarvis, Ruben Pérez, F. M. van Bouwelen, and M. C. Payne

Gravitation and Astrophysics

Cosmic Censorship: As Strong As Ever 3432
Patrick R. Brady, Ian G. Moss, and Robert C. Myers

Hawking Radiation without Black Hole Entropy 3436
Matt Visser

Inflation without Slow Roll 3440
Thibault Damour and Viatcheslav F. Mukhanov

Elementary Particles and Fields

Lattice Chiral Fermions Through Gauge Fixing 3444
Wolfgang Bock, Maarten F. L. Golterman, and Yigal Shamir

Effectiveness of Nonperturbative $O(a)$ Improvement in Lattice QCD 3448
R. G. Edwards, U. M. Heller, and T. R. Klassen

Nonperturbative Approach to Effective Chiral Lagrangians and Meson Interactions 3452
J. A. Oller, E. Oset, and J. R. Peláez

Observation of Exclusive Two-Body B Decays to Kaons and Pions 3456
R. Godang *et al.* (CLEO Collaboration)

Measurement of the Differential Cross Section for Events with Large Total Transverse Energy in $p\overline{p}$ Collisions at $\sqrt{s} = 1.8$ TeV 3461
F. Abe *et al.* (CDF Collaboration)

Nuclear Physics

Equation of State of Nuclear Matter in 158A GeV Pb + Pb Collisions 3467
B. R. Schlei, D. Strottman, and N. Xu

Polarization of ${}^{5}_{\Lambda}$He Produced by the (π^+, K^+) Reaction 3471
S. Ajimura, M. Ishikawa, K. Ikeda, T. Kishimoto, A. Okusu, N. Shinkai, Y. Tanaka, H. Ejiri, T. Nakano, T. Nagae, H. Noumi, K. Manabe, M. Sekimoto, T. Shibata, O. Hashimoto, K. Maeda, T. Takahashi, T. Hasegawa, H. Bhang, H. Park, Y. Kim, M. Youn, T. Motoba, and K. Itonaga

Atomic, Molecular, and Optical Physics

Measurement of the He Ground State Lamb Shift via the Two-Photon $1\,{}^1S$-$2\,{}^1S$ Transition 3475
S. D. Bergeson, A. Balakrishnan, K. G. H. Baldwin, T. B. Lucatorto, J. P. Marangos, T. J. McIlrath, T. R. O'Brian, S. L. Rolston, C. J. Sansonetti, Jesse Wen, N. Westbrook, C. H. Cheng, and E. E. Eyler

(Continued on Third Cover)

Copyright 1998 by The American Physical Society

Contents (Continued)

Physical Reality of Light-Induced Atomic States 3479
J. C. Wells, I. Simbotin, and M. Gavrila
Entangled-Photon Virtual-State Spectroscopy 3483
Bahaa E. A. Saleh, Bradley M. Jost, Hong-Bing Fei, and Malvin C. Teich
Quantum Noise of an Atomic Spin Polarization Measurement 3487
J. L. Sørensen, J. Hald, and E. S. Polzik
How Landau-Zener Tunneling Takes Time 3491
Qian Niu and M. G. Raizen

Nonlinear Dynamics, Fluid Dynamics, Classical Optics, Etc.
Spatiotemporal Bifurcation Phenomena with Temporal Period Doubling: Patterns in Vibrated Sand 3495
Shankar C. Venkataramani and Edward Ott
Selection of Unstable Patterns and Control of Optical Turbulence by Fourier Plane Filtering 3499
A. V. Mamaev and M. Saffman
Acoustic Localization in Bubbly Liquid Media 3503
Zhen Ye and Alberto Alvarez
Large and Small Scale Structure in Rayleigh-Taylor Mixing 3507
Marilyn B. Schneider, Guy Dimonte, and Bruce Remington
Nonequilibrium Molecular Dynamics Simulation of Transport of Gas Mixtures in Nanopores 3511
Lifang Xu, Mehran G. Sedigh, Muhammad Sahimi, and Theodore T. Tsotsis
Dynamics of Dense Supercritical Neon at the Transition from Hydrodynamical to Single-Particle Regimes 3515
A. Cunsolo, G. Pratesi, G. Ruocco, M. Sampoli, F. Sette, R. Verbeni, F. Barocchi, M. Krisch, C. Masciovecchio, and M. Nardone

Plasma and Beam Physics
Influence of Recycling on the Density Limit in TEXTOR-94 3519
P. C. de Vries, J. Rapp, F. C. Schüller, and M. Z. Tokar' (Partners in the Trilateral Euregio Cluster)
Fine-Scale Cavitation of Ionospheric Plasma Caused by Inertial Alfvén Wave Ponderomotive Force 3523
P. M. Bellan and K. Stasiewicz

Condensed Matter: Structure, Etc.
Nonperturbative Renormalization of the Kardar-Parisi-Zhang Growth Dynamics 3527
C. Castellano, M. Marsili, and L. Pietronero
Condensation of Ordered Nanocrystal Thin Films 3531
Brian A. Korgel and Donald Fitzmaurice
Heisenberg Spin Fluid in an External Magnetic Field 3535
F. Lado and E. Lomba
Random Walks, Reaction-Diffusion, and Nonequilibrium Dynamics of Spin Chains in One-Dimensional Random Environments 3539
Daniel S. Fisher, Pierre Le Doussal, and Cecile Monthus
Glass Transition in Liquids: Two versus Three-Dimensional Confinement 3543
G. Barut, P. Pissis, R. Pelster, and G. Nimtz
Attractive Forces in a Granular Cocktail 3547
Jacques Duran and Rémi Jullien
Structure and Lattice Thermal Conductivity of Fractionally Filled Skutterudites: Solid Solutions of Fully Filled and Unfilled End Members 3551
G. P. Meisner, D. T. Morelli, S. Hu, J. Yang, and C. Uher
Gravitational Dependence of Contact Angle Hysteresis for a Solid Defect Pinning a Liquid-Vapor Interface 3555
Jørgen Vitting Andersen and Henrik Jeldtoft Jensen

Condensed Matter: Electronic Properties, Etc.
Band Dispersions in Photoluminescent Porous Si 3559
Yoshiyuki Suda, Koji Obata, and Nobuyoshi Koshida

(Continued on Preceding Page)

Contents (Continued)

Kosterlitz-Thouless-Type Metal-Insulator Transition of a 2D Electron Gas in a Random Magnetic Field 3563
X. C. Xie, X. R. Wang, and D. Z. Liu

Polariton Motional Narrowing in Semiconductor Multiple Quantum Wells 3567
J. J. Baumberg, A. P. Heberle, A. V. Kavokin, M. R. Vladimirova, and K. Köhler

Surface Screening Charge and Effective Charge 3571
S. Clarke, J. E. Inglesfield, M. Nekovee, and P. K. de Boer

Ultrafast Dephasing of Coherent Intersubband Polarizations in a Quasi-Two-Dimensional Electron Plasma 3575
Robert A. Kaindl, Stephan Lutgen, Michael Woerner, Thomas Elsaesser, Bernd Nottelmann, Vollrath Martin Axt, Tilmann Kuhn, Andreas Hase, and Harald Künzel

Quantum Wires Formed from Coupled InAs/GaAs Strained Quantum Dots 3579
Craig Pryor

Oscillatory Nonmetal-Metal Transitions of Ultrathin Sb Overlayers on a GaAs(110) Substrate 3582
Jun-Hyung Cho, Qian Niu, and Zhenyu Zhang

Microscopic Electron Models with Exact SO(5) Symmetry 3586
Silvio Rabello, Hiroshi Kohno, Eugene Demler, and Shou-Cheng Zhang

Exact Realization of SO(5) Symmetry in Extended Hubbard Models 3590
Christopher L. Henley

Hall Anomaly in the Superconducting State of High-T_c Cuprates: Universality in Doping Dependence 3594
Tatsuji Nagaoka, Yuji Matsuda, Haruhiko Obara, Akihito Sawa, Takahito Terashima, Iksu Chong, Mikio Takano, and Minoru Suzuki

Low-Temperature Anomaly in the Penetration Depth of $YBa_2Cu_3O_7$ Films: Evidence for Andreev Bound States at Surfaces 3598
H. Walter, W. Prusseit, R. Semerad, H. Kinder, W. Assmann, H. Huber, H. Burkhardt, D. Rainer, and J. A. Sauls

Theory of ac Josephson Effect in Superconducting Constrictions 3602
A. V. Zaitsev and D. V. Averin

Observation of the Low Temperature Pseudogap in the Vortex Cores of $Bi_2Sr_2CaCu_2O_{8+\delta}$ 3606
Ch. Renner, B. Revaz, K. Kadowaki, I. Maggio-Aprile, and Ø. Fischer

Direct Observation of Melting of the Vortex Solid in $Bi_2Sr_2CaCu_2O_{8+\delta}$ Single Crystals 3610
A. Oral, J. C. Barnard, S. J. Bending, I. I. Kaya, S. Ooi, T. Tamegai, and M. Henini

Asymmetric Flux Pinning in a Regular Array of Magnetic Dipoles 3614
David J. Morgan and J. B. Ketterson

Sign Reversals of the Quantum Hall Effect and Helicoidal Magnetic-Field-Induced Spin-Density Waves in Quasi-One-Dimensional Organic Conductors 3618
N. Dupuis and Victor M. Yakovenko

Fully Unconstrained Approach to Noncollinear Magnetism: Application to Small Fe Clusters 3622
Tatsuki Oda, Alfredo Pasquarello, and Roberto Car

Spontaneous Magnetization and Antiferromagnetic Correlations of the CuO_2 Chains in $Sr_{0.73}CuO_2$ 3626
A. Shengelaya, G. I. Meijer, J. Karpinski, Guo-meng Zhao, H. Schwer, E. M. Kopnin, C. Rossel, and H. Keller

Experimental Measurement of the Staggered Magnetization Curve for a Haldane Spin Chain 3630
A. Zheludev, E. Ressouche, S. Maslov, T. Yokoo, S. Raymond, and J. Akimitsu

Spin-Phonon Coupling in $CuGeO_3$ 3634
M. Braden, B. Hennion, W. Reichardt, G. Dhalenne, and A. Revcolevschi

Experimental Evidence for a Large Collinear Electric Field Gradient of Ir in hcp-Co 3638
G. Seewald, B. Hinfurtner, E. Hagn, E. Zech, D. Forkel-Wirth, R. Eder, and ISOLDE Collaboration

Positive Ion and Electron Emission from Cleaved Si and Ge 3642
C. J. Kaalund and D. Haneman

Cross-Disciplinary Physics

Adsorbed Monomer Analog of a Common Polyelectrolyte 3646
Svetlana A. Sukhishvili and Steve Granick

CO Oxidation on Pt(111): An *Ab Initio* Density Functional Theory Study 3650
Ali Alavi, Peijun Hu, Thierry Deutsch, Pier Luigi Silvestrelli, and Jürg Hutter

(Continued on Preceding Page)

Master Equation Approach to Protein Folding and Kinetic Traps 3654
Marek Cieplak, Malte Henkel, Jan Karbowski, and Jayanth R. Banavar
An Uncontrolled Walking Toy That Cannot Stand Still 3658
Michael J. Coleman and Andy Ruina

Comments

Comment on ''Using Ni Substitution and ^{17}O NMR to Probe the Susceptibility $\chi'(q)$ in Cuprates'' 3662
D. K. Morr, J. Schmalian, R. Stern, and C. P. Slichter
Bobroff *et al.* Reply 3663
J. Bobroff, H. Alloul, Y. Yoshinari, A. Keren, P. Mendels, N. Blanchard, G. Collin, and J. F. Marucco
Interpretation of the Femtosecond Optical Response of $YBa_2Cu_3O_{7-\delta}$ 3664
I. I. Mazin
Stevens *et al.* Reply 3665
C. J. Stevens, D. C. Smith, J. F. Ryan, B. Podobnik, and D. Mihailovic
Comment on ''Bubble Shape Oscillations and the Onset of Sonoluminescence'' 3666
Seth J. Putterman and Paul H. Roberts
Brenner *et al.* Reply 3668
M. P. Brenner, T. F. Dupont, S. Hilgenfeldt, and D. Lohse

Errata

Erratum: Achievement of High Fusion Performance in JT-60U Reversed Shear Discharges [Phys. Rev. Lett. **79**, 3917 (1997)] 3670
S. Ishida *et al.*
Erratum: Combinatorial Entropy and the Statistical Mechanics of Polydispersity [Phys. Rev. Lett. **80**, 1369 (1998)] ... 3671
Patrick B. Warren