PHYSICAL REVIEW LETTERS

Contents

VOLUME 80, NUMBER 14 6 April 1998

CODEN: PRLTAO 80 (14), 2969–3164 (6 April 1998)

General Physics

Searching for Evolutions of Pure States into Mixed States in the Two-State System $K^0\bar{K}^0$ 2969
H.-J. Gerber

Creation of Dark Solitons and Vortices in Bose-Einstein Condensates 2972
R. Dum, J. I. Cirac, M. Lewenstein, and P. Zoller

New Algebraic Approach to Scattering Problems 2976
G. A. Kerimov

Gravitation and Astrophysics

Self-Consistent Vacuum for Misner Space and the Chronology Protection Conjecture 2980
Li-Xin Li and J. Richard Gott III

Mixmaster Behavior in Inhomogeneous Cosmological Spacetimes 2984
Marsha Weaver, James Isenberg, and Beverly K. Berger

Gravitational-Wave Bursts from Soft Gamma-Ray Repeaters: Can They Be Detected? 2988
H. J. Mosquera Cuesta, J. C. N. de Araújo, O. D. Aguiar, and J. E. Horvath

New Limits to the Infrared Background: Bounds on Radiative Neutrino Decay and on Contributions of Very Massive Objects to the Dark Matter Problem 2992
S. D. Biller, J. Buckley, A. Burdett, J. Bussons Gordo, D. A. Carter-Lewis, D. J. Fegan, J. Finley, J. A. Gaidos, A. M. Hillas, F. Krennrich, R. C. Lamb, R. Lessard, J. E. McEnery, G. Mohanty, J. Quinn, A. J. Rodgers, H. J. Rose, F. Samuelson, G. Sembroski, P. Skelton, T. C. Weekes, and J. Zweerink

Elementary Particles and Fields

Matrix Description of Calabi-Yau Compactifications 2996
Shamit Kachru, Albion Lawrence, and Eva Silverstein

Nonsupersymmetric SU(5) Resuscitated by New Quarks and Leptons 3000
P. Q. Hung

Neutrino Mass Texture with Large Mixing 3004
Masako Bando, Taichiro Kugo, and Koichi Yoshioka

A Measurement of the W Boson Mass at the Fermilab $p\overline{p}$ Collider 3008
B. Abbott *et al.* (D0 Collaboration)

A Baryon Model in Covariant Constraint Dynamics 3014
H. W. Fricke and C. C. Noack

Nuclear Physics

Prompt Proton Decay of a Well-Deformed Rotational Band in ^{58}Cu 3018
D. Rudolph, C. Baktash, J. Dobaczewski, W. Nazarewicz, W. Satuła, M. J. Brinkman, M. Devlin, H.-Q. Jin, D. R. LaFosse, L. L. Riedinger, D. G. Sarantites, and C.-H. Yu

(Continued on Third Cover)

Atomic, Molecular, and Optical Physics

Measurement of QED and Hyperfine Splitting in the $2s_{1/2}$-$2p_{3/2}$ X-Ray Transition in Li-like $^{209}Bi^{80+}$ 3022
P. Beiersdorfer, A. L. Osterheld, J. H. Scofield, J. R. Crespo López-Urrutia, and K. Widmann

New Type of Evaporative Cooling for Neutral Atoms 3026
Hubert Stoop

Classical Outlook on the Electron Translation Factor Problem 3029
Clara Illescas and A. Riera

Coherent Excitation of the $4\,^1F$ State of Helium by Electron Impact 3033
D. Cvejanović and A. Crowe

Observation of Atomic Antihydrogen 3037
G. Blanford, D. C. Christian, K. Gollwitzer, M. Mandelkern, C. T. Munger, J. Schultz, and G. Zioulas

X-Ray Emission during the Muonic Cascade in Hydrogen 3041
B. Lauss, P. Ackerbauer, W. H. Breunlich, B. Gartner, M. Jeitler, P. Kammel, J. Marton, W. Prymas, J. Zmeskal, D. Chatellard, J.-P. Egger, E. Jeannet, H. Daniel, F. J. Hartmann, A. Kosak, and C. Petitjean

Experimental Studies of a Strongly Driven Rabi Transition 3045
Andrew S. M. Windsor, Changjiang Wei, Scott A. Holmstrom, John P. D. Martin, and Neil B. Manson

Nonlinear Dynamics, Fluid Dynamics, Classical Optics, Etc.

Robust Chaos 3049
Soumitro Banerjee, James A. Yorke, and Celso Grebogi

Invariant Manifolds and Synchronization of Coupled Dynamical Systems 3053
Krešimir Josić

Scars of Invariant Manifolds in Interacting Few-Body Systems 3057
T. Papenbrock, T. H. Seligman, and H. A. Weidenmüller

Thermal Fluctuations, Subcritical Bifurcation, and Nucleation of Localized States in Electroconvection 3061
Urs Bisang and Guenter Ahlers

Fragmentation Transition for Invasion Percolation in Hydraulic Gradients 3065
Anne Vedvik, Geri Wagner, Unni Oxaal, Jens Feder, Paul Meakin, and Torstein Jøssang

Dynamics of Contact Line Pinning in Capillary Rise and Fall 3069
Erik Schäffer and Po-zen Wong

Plasma and Beam Physics

Anomalous Diffusion in Strongly Coupled Quasi-2D Dusty Plasmas 3073
Wen-Tau Juan and Lin I

Thermal Conduction in a Tangled Magnetic Field 3077
Benjamin D. G. Chandran and Steven C. Cowley

β Limit Disruptions in Tokamaks 3081
Robert G. Kleva and Parvez N. Guzdar

Condensed Matter: Structure, Etc.

Vertical Manipulation of Individual Atoms by a Direct STM Tip-Surface Contact on Ge(111) 3085
G. Dujardin, A. Mayne, O. Robert, F. Rose, C. Joachim, and H. Tang

Fractal Aggregations at Low Driving Force with Strong Anisotropy 3089
Mu Wang, Xiao-Yong Liu, Christina S. Strom, Piet Bennema, Willem van Enckevort, and Nai-Ben Ming

Nonuniversal Critical Behavior at the Uniaxial-Biaxial Nematic Phase Transition in a Lyotropic Mixture 3093
L. T. Thieghi, S. M. Shibli, A. M. Figueiredo Neto, V. P. Dmitriev, and P. Tolédano

Clean and As-Covered Zinc-Blende GaN (001) Surfaces: Novel Surface Structures and Surfactant Behavior 3097
Jörg Neugebauer, Tosja Zywietz, Matthias Scheffler, John E. Northrup, and Chris G. Van de Walle

Manipulation and Dynamics at the Atomic Scale: A Dual Use of the Scanning Tunneling Microscopy 3101
Patrici Molinàs-Mata, Andrew J. Mayne, and Gérald Dujardin

(Continued on Preceding Page)

Condensed Matter: Electronic Properties, Etc.

LO Phonon Renormalization in Optically Excited CuCl Nanocrystals 3105
Lev Zimin, Selvakumar V. Nair, and Yasuaki Masumoto
Density-Induced Breaking of Pairs in the Attractive Hubbard Model 3109
Bumsoo Kyung, E. G. Klepfish, and P. E. Kornilovitch
Delocalization of 2D Dirac Fermions: The Role of a Broken Supersymmetry 3113
K. Ziegler
Frequency Mixing of Magnetic Oscillations: Beyond Falicov-Stachowiak Theory 3117
Jean-Yves Fortin and Timothy Ziman
Single-Particle Excitations in One-Dimensional Mott-Hubbard Insulator NaV_2O_5 3121
K. Kobayashi, T. Mizokawa, A. Fujimori, M. Isobe, and Y. Ueda
Polarization and Broken Symmetry due to Anisotropic "Triaxial" Strain States in Lattice-Mismatched Quantum Wires 3125
M. Notomi, J. Hammersberg, J. Zeman, H. Weman, M. Potemski, H. Sugiura, and T. Tamamura
Nonunitary Spin-Triplet Superconductivity in UPt_3: Evidence from ^{195}Pt Knight Shift Study 3129
H. Tou, Y. Kitaoka, K. Ishida, K. Asayama, N. Kimura, Y. Ōnuki, E. Yamamoto, Y. Haga, and K. Maezawa
Sensitivity of Reflectance Anisotropy Spectroscopy to the Orientation of Ge Dimers on Vicinal Si(001) 3133
J. R. Power, P. Weightman, S. Bose, A. I. Shkrebtii, and R. Del Sole

Cross-Disciplinary Physics

No Cloning of Orthogonal States in Composite Systems 3137
Tal Mor
How Sandcastles Fall 3141
Thomas C. Halsey and Alex J. Levine
Polymer Reptation in Disordered Media 3145
Dinko Cule and Terence Hwa
New Monte Carlo Algorithm for Protein Folding 3149
Helge Frauenkron, Ugo Bastolla, Erwin Gerstner, Peter Grassberger, and Walter Nadler
Synchronizing High-Dimensional Chaotic Optical Ring Dynamics 3153
Henry D. I. Abarbanel and Matthew B. Kennel

Comments

Comment on "Tricritical Behavior in Rupture Induced by Disorder" 3157
Ravá da Silveira
Sornette, Leung, and Andersen Reply 3158
D. Sornette, K.-T. Leung, and J. V. Andersen
Density Functional Theory for Holes in Semiconductors 3159
P. A. Bobbert, M. Kemerink, and P. M. Koenraad
Enderlein *et al.* Reply 3160
R. Enderlein, G. M. Sipahi, L. M. R. Scolfaro, and J. R. Leite
Density-Relaxation Part of the Self-Energy 3161
R. W. Godby and I. D. White
Öğüt, Chelikowsky, and Louie Reply 3162
Serdar Öğüt, James R. Chelikowsky, and Steven G. Louie

Errata

Erratum: Helical Current Flow at the Junction between Two Tilted Anisotropic Conductors [Phys. Rev. Lett. **79**, 2522 (1997)] 3163
J. R. Fletcher, P. J. King, and R. G. Ormson
Erratum: Water Temperature Dependence of Single Bubble Sonoluminescence [Phys. Rev. Lett. **80**, 1332 (1998)] 3164
Sascha Hilgenfeldt, Detlef Lohse, and William C. Moss

Cumulative Author Index i