PHYSICAL REVIEW LETTERS

Contents

VOLUME 78, NUMBER 2 13 January 1997

General Physics

Duality of x and ψ and a Statistical Interpretation of Space in Quantum Mechanics 163
Alon E. Faraggi and Marco Matone

Nonequilibrium Steady State in a Quantum System: One-Dimensional Transverse Ising Model with Energy Current ... 167
Tibor Antal, Zoltán Rácz, and László Sasvári

Gravitation and Astrophysics

Are Standard Solar Models Reliable? 171
John N. Bahcall, M. H. Pinsonneault, Sarbani Basu, and J. Christensen-Dalsgaard

Galactic Age Estimates from O-rich Stardust in Meteorites 175
L. R. Nittler and R. Cowsik

Elementary Particles and Fields

Scaling of Chiral Order Parameter in Two-Flavor QCD 179
Y. Iwasaki, K. Kanaya, S. Kaya, and T. Yoshié

Dominance of Pion Exchange in R-Parity-Violating Supersymmetric Contributions to Neutrinoless Double Beta Decay 183
Amand Faessler, Sergey Kovalenko, Fedor Simkovic, and Joerg Schwieger

Nuclear Physics

Spontaneous Fission: A Kinetic Approach 187
Aldo Bonasera and Akira Iwamoto

Atomic, Molecular, and Optical Physics

Multielectron Dissociative Ionization of Molecules by Intense Laser Radiation 191
Mirosław Brewczyk, Kazimierz Rzążewski, and Charles W. Clark

Photorecombination Spectra of Highly Charged Ions 195
Hong Lin Zhang and Anil K. Pradhan

Long-Lived States of Positronium in Crossed Electric and Magnetic Fields 199
J. Ackermann, J. Shertzer, and P. Schmelcher

Nonlinear Dynamics, Fluid Dynamics, Classical Optics, Etc.

Mechanism of Time-Delayed Feedback Control 203
Wolfram Just, Thomas Bernard, Matthias Ostheimer, Ekkehard Reibold, and Hartmut Benner

Lyapunov Spectrum and the Conjugate Pairing Rule for a Thermostatted Random Lorentz Gas: Kinetic Theory 207
A. Latz, H. van Beijeren, and J. R. Dorfman

Lyapunov Spectrum and the Conjugate Pairing Rule for a Thermostatted Random Lorentz Gas: Numerical Simulations 211
Ch. Dellago and H. A. Posch

Statistics of Wave Functions in Disordered and in Classically Chaotic Systems 215
K. Müller, B. Mehlig, F. Milde, and M. Schreiber

Observation of a Fast Rotating Wave in Rings of Coupled Chaotic Oscillators 219
M. A. Matías, V. Pérez-Muñuzuri, M. N. Lorenzo, I. P. Mariño, and V. Pérez-Villar

(Continued on Third Cover)

CODEN: PRLTAO 78 (2), 163–399 (13 January 1997)

Contents (Continued)

Dark Shock Waves in the Nonlinear Schrödinger System with Internal Losses 223
David Cai, A. R. Bishop, Niels Grønbech-Jensen, and Boris A. Malomed
The Role of Surface Tension in Stable Single-Bubble Sonoluminescence 227
I. Akhatov, N. Gumerov, C. D. Ohl, U. Parlitz, and W. Lauterborn
Static Avalanches and Giant Stress Fluctuations in Silos 231
Philippe Claudin and Jean-Philippe Bouchaud
Bistability of Slow and Fast Traveling Waves in Fluid Mixtures 235
St. Hollinger, P. Büchel, and M. Lücke
Scaling of the Mean Velocity Profile for Turbulent Pipe Flow 239
M. V. Zagarola and A. J. Smits
Approximate Solution of the Enskog Equation Far from Equilibrium 243
James F. Lutsko

Plasma and Beam Physics
Photon Landau Damping 247
R. Bingham, J. T. Mendonça, and J. M. Dawson
Measurements of Rayleigh-Taylor Growth Rate of Planar Targets Irradiated Directly by Partially Coherent Light 250
K. Shigemori, H. Azechi, M. Nakai, M. Honda, K. Meguro, N. Miyanaga, H. Takabe, and K. Mima
Saturation Mechanisms for the Generated Magnetic Field in Nonuniform Laser-Matter Irradiation 254
M. G. Haines

Condensed Matter: Structure, Etc.
Roughening and Preroughening of Diamond-Cubic {111} Surfaces 258
Donald L. Woodraska and John A. Jaszczak
Formation of Quasicrystalline AlCuFe by Physical Vapor Deposition: Phase Selection via Nanocluster Nucleation 262
T. Eisenhammer and A. Trampert
The Peierls Stress of Dislocations: An Analytic Formula 266
B. Joós and M. S. Duesbery
Origin of the Modulated Phase in Copper-Gold Alloys 270
Anthony T. Paxton and Hariton M. Polatoglou
Systems with Multiplicative Noise: Critical Behavior from KPZ Equation and Numerics 274
Yuhai Tu, G. Grinstein, and M. A. Muñoz
Surface Electromigration as a Moving Boundary Value Problem 278
M. Schimschak and J. Krug
Adatom Densities on GaAs: Evidence for Near-Equilibrium Growth 282
J. Tersoff, M. D. Johnson, and B. G. Orr
Role of Rotational Motion in the Dissociative Adsorption and Associative Desorption Dynamics of $D_2/Cu(111)$ 286
Wilson Agerico Diño, Hideaki Kasai, and Ayao Okiji

Condensed Matter: Electronic Properties, Etc.
Disorder-Driven Non-Fermi-Liquid Behavior in Kondo Alloys 290
E. Miranda, V. Dobrosavljević, and G. Kotliar
Density-Functional Theory of Polar Insulators 294
X. Gonze, Ph. Ghosez, and R. W. Godby
Landau Level Mixing and Levitation of Extended States in Two Dimensions 298
F. D. M. Haldane and Kun Yang
Spin Echo at the Rabi Frequency in Solids 302
Scott A. Holmstrom, Changjiang Wei, Andrew S. M. Windsor, Neil B. Manson, John P. D. Martin, and Max Glasbeek
Observation of Coherently Controlled Photocurrent in Unbiased, Bulk GaAs 306
A. Haché, Y. Kostoulas, R. Atanasov, J. L. P. Hughes, J. E. Sipe, and H. M. van Driel
Collapse of Spin Excitations in Quantum Hall States of Coupled Electron Double Layers 310
Vittorio Pellegrini, Aron Pinczuk, Brian S. Dennis, Annette S. Plaut, Loren N. Pfeiffer, and Ken W. West

(Continued on Preceding Page)

Contents (Continued)

Quasiparticle Behavior of Composite Fermions in the Half-Filled Landau Level 314
Peter Kopietz and Guillermo E. Castilla

Disappearance of Integer Quantum Hall Effect 318
D. N. Sheng and Z. Y. Weng

Surface Phonon Scattering in the Electrical Resistivity on Co/Ni Superlattices 322
Sihong Kim, Harry Suhl, and Ivan K. Schuller

Critical Percolation and Transport in Nearly One Dimension 326
A. N. Samukhin, V. N. Prigodin, and L. Jastrabík

Spontaneous Vortex Phase Discovered? 330
T. K. Ng and C. M. Varma

Complex Resistivity Spectra and the Shear Modulus of the Vortex Solid in Untwinned $YBa_2Cu_3O_7$ 334
Hui Wu, N. P. Ong, R. Gagnon, and L. Taillefer

Coexistence of, and Competition between, Superconductivity and Charge-Stripe Order in $La_{1.6-x}Nd_{0.4}Sr_xCuO_4$ 338
J. M. Tranquada, J. D. Axe, N. Ichikawa, A. R. Moodenbaugh, Y. Nakamura, and S. Uchida

New Approach for Range Measurements of Induced Magnetic Interactions in Pd 342
H. H. Bertschat, H. Granzer, H. Haas, R. Kowallik, S. Seeger, and W.-D. Zeitz

Random Fields and Random Anisotropies in the Mixed Ising-*XY* Magnet $Fe_xCo_{1-x}TiO_3$ 346
Q. J. Harris, Q. Feng, Y. S. Lee, R. J. Birgeneau, and A. Ito

Glassy behaviour in disordered systems with nonrelaxational dynamics 350
Leticia F. Cugliandolo, Jorge Kurchan, Pierre Le Doussal, and Luca Peliti

Spin Glass Behavior in URh_2Ge_2 354
S. Süllow, G. J. Nieuwenhuys, A. A. Menovsky, J. A. Mydosh, S. A. M. Mentink, T. E. Mason, and W. J. L. Buyers

Amplitude and Phase of the Oscillatory Exchange Coupling between Fe-Co-Ni Alloy Layers across a Cu Spacer Layer 358
J. Kudrnovský, V. Drchal, R. Coehoorn, M. Šob, and P. Weinberger

Oscillation of the Fe and Co Magnetic Moments near the Sharp $(1\ -1\ 0)$ Fe/Co Interface 362
B. Swinnen, J. Meersschaut, J. Dekoster, G. Langouche, S. Cottenier, S. Demuynck, and M. Rots

Chemical Environment Selectivity in Mössbauer Diffraction from $^{57}Fe_3Al$ 366
T. A. Stephens and B. Fultz

Novel Dielectric Relaxation in Li^+ doped KCl 370
C. Enss, M. Gaukler, M. Nullmeier, R. Weis, and A. Würger

Dynamics of Local Modes during Nonradiative Relaxation 374
Dana M. Calistru, S. G. Demos, and R. R. Alfano

Size Dependence of Confined Optical Modes in Photonic Quantum Dots 378
J. P. Reithmaier, M. Röhner, H. Zull, F. Schäfer, A. Forchel, P. A. Knipp, and T. L. Reinecke

Cross-Disciplinary Physics

Interaction of Reaction-Diffusion Fronts and Marangoni Flow on the Interface of a Deep Fluid 382
L. M. Pismen

Spontaneous Expulsion of Giant Lipid Vesicles Induced by Laser Tweezers 386
J. David Moroz, Philip Nelson, Roy Bar-Ziv, and Elisha Moses

Complete Characterization of a Quantum Process: The Two-Bit Quantum Gate 390
J. F. Poyatos, J. I. Cirac, and P. Zoller

Comments

Comment on "Onsager Reciprocity Relations without Microscopic Reversibility" 394
J. L. Lebowitz and H. Spohn

Gabrielli, Jona-Lasinio, and Landim Reply 395
D. Gabrielli, G. Jona-Lasinio, and C. Landim

Comment on "Aggregation, Fragmentation, and the Nonlinear Dynamics of Electrorheological Fluids in Oscillatory Shear" 396
Liang Fu and Lorenzo Resca

(Continued on Preceding Page)

Contents (Continued)

Martin and Odinek Reply 397
James E. Martin and Judy Odinek
Comment on "One-Stage Continuous Melting Transition in Two Dimensions" 398
Henning Weber and Dominik Marx
Fernández, Alonso, and Stankiewicz Reply 399
Julio F. Fernández, Juan J. Alonso, and Jolanta Stankiewicz