NEWSPAPER 82

PHYSICAL REVIEW LETTERS

Contents

VOLUME 82, NUMBER 22 31 May 1999

General Physics

Phase Diagram of Quantized Vortices in a Trapped Bose-Einstein Condensed Gas 4371
S. Stringari

Fluctuations of the Weakly Interacting Bose-Einstein Condensate 4376
Zbigniew Idziaszek, Mariusz Gajda, Patrick Navez, Martin Wilkens, and Kazimierz Rzążewski

Demonstration of the Nontrivial Boundary Dependence of the Casimir Force 4380
Anushree Roy and U. Mohideen

Gravitation and Astrophysics

Fixing Einstein's Equations 4384
Arlen Anderson and James W. York, Jr.

Late-Time Decay of Scalar Perturbations Outside Rotating Black Holes 4388
Leor Barack and Amos Ori

Elementary Particles and Fields

Nonperturbative Determination of Quark Masses in Quenched Lattice QCD with the Kogut-Susskind Fermion Action 4392
S. Aoki, M. Fukugita, S. Hashimoto, K-I. Ishikawa, N. Ishizuka, Y. Iwasaki, K. Kanaya, T. Kaneda, S. Kaya, Y. Kuramashi, M. Okawa, T. Onogi, S. Tominaga, N. Tsutsui, A. Ukawa, N. Yamada, and T. Yoshié (JLQCD Collaboration)

Hybrid Quarkonia on Asymmetric Lattices 4396
T. Manke, H. P. Shanahan, A. Ali Khan, S. Aoki, R. Burkhalter, S. Ejiri, M. Fukugita, S. Hashimoto, N. Ishizuka, Y. Iwasaki, K. Kanaya, T. Kaneko, Y. Kuramashi, K. Nagai, M. Okawa, A. Ukawa, and T. Yoshié (CP-PACS Collaboration)

Ab Initio Study of Hybrid $\overline{b}gb$ Mesons 4400
K. J. Juge, J. Kuti, and C. J. Morningstar

Nuclear Physics

Nuclear Structure Studies with the $^7\mathrm{Li}(e, e'p)$ Reaction 4404
L. Lapikás, J. Wesseling, and R. B. Wiringa

First Evidence of Magnetic Rotation in the $A = 80$ Region 4408
H. Schnare, R. Schwengner, S. Frauendorf, F. Dönau, L. Käubler, H. Prade, A. Jungclaus, K. P. Lieb, C. Lingk, S. Skoda, J. Eberth, G. de Angelis, A. Gadea, E. Farnea, D. R. Napoli, C. A. Ur, and G. Lo Bianco

Spallation Neutron Production by 0.8, 1.2, and 1.6 GeV Protons on Pb Targets 4412
X. Ledoux, F. Borne, A. Boudard, F. Brochard, S. Crespin, D. Drake, J. C. Duchazeaubeneix, D. Durand, J. M. Durand, J. Fréhaut, F. Hanappe, L. Kowalski, C. Lebrun, F. R. Lecolley, J. F. Lecolley, F. Lefebvres, R. Legrain, S. Leray, M. Louvel, E. Martinez, S. I. Meigo, S. Ménard, G. Milleret, Y. Patin, E. Petibon, F. Plouin, P. Pras, L. Stuttge, Y. Terrien, J. Thun, M. Uematsu, C. Varignon, D. M. Whittal, and W. Wlazło

(Continued on Third Cover)

22

CODEN: PRLTAO 82 (22) 4371–4567 (31 May 1999)

Copyright 1999 by The American Physical Society

Contents (Continued)

Atomic, Molecular, and Optical Physics

Exchange and Correlation Kernels at the Resonance Frequency: Implications for Excitation Energies in Density-Functional Theory 4416
X. Gonze and M. Scheffler

Omnidirectional Superfluorescence 4420
A. I. Lvovsky, S. R. Hartmann, and F. Moshary

Nonlinear Dynamics, Fluid Dynamics, Classical Optics, etc.

Noiseless Collective Motion out of Noisy Chaos 4424
Tatsuo Shibata, Tsuyoshi Chawanya, and Kunihiko Kaneko

Turbulence in Mode-Locked Lasers 4428
F. X. Kärtner, D. M. Zumbühl, and N. Matuschek

Parametric Control of Soliton Light Traffic by cw Traffic Light 4432
Q-Han Park and H. J. Shin

Plume and Finger Regimes Driven by an Exothermic Interfacial Reaction 4436
Kerstin Eckert and Alexander Grahn

Dispersive Stabilization of the Inverse Cascade for the Kolmogorov Flow 4440
B. Legras, B. Villone, and U. Frisch

Plasma and Beam Physics

Autoresonant (Nonstationary) Excitation of the Diocotron Mode in Non-neutral Plasmas 4444
J. Fajans, E. Gilson, and L. Friedland

Fast Compression of Laser Beams to Highly Overcritical Powers 4448
V. M. Malkin, G. Shvets, and N. J. Fisch

Condensed Matter: Structure, etc.

Peculiar Covalent Bonds in α-Rhombohedral Boron 4452
M. Fujimori, T. Nakata, T. Nakayama, E. Nishibori, K. Kimura, M. Takata, and M. Sakata

Collapse of Stiff Polyelectrolytes due to Counterion Fluctuations 4456
Ramin Golestanian, Mehran Kardar, and Tanniemola B. Liverpool

Energetics of Self-Interstitial Clusters in Si 4460
N. E. B. Cowern, G. Mannino, P. A. Stolk, F. Roozeboom, H. G. A. Huizing, J. G. M. van Berkum, F. Cristiano, A. Claverie, and M. Jaraíz

Electrically Active and Inactive B Lattice Sites in Ultrahighly B Doped Si(001): An X-Ray Near-Edge Absorption Fine-Structure and High-Resolution Diffraction Study 4464
A. Vailionis, G. Glass, P. Desjardins, David G. Cahill, and J. E. Greene

Role of Crack Blunting in Ductile Versus Brittle Response of Crystalline Materials 4468
Glenn E. Beltz, Don M. Lipkin, and Lisa L. Fischer

Phase Stability and Electronic Structure of K-Ag Intermetallics at High Pressure 4472
J. S. Tse, G. Frapper, A. Ker, R. Rousseau, and D. D. Klug

q Dependence of Low-Frequency Raman Scattering in Silica Glass 4476
N. V. Surovtsev, J. Wiedersich, V. N. Novikov, E. Rössler, and E. Duval

Stark Spectroscopy of Polar Molecules Solvated in Liquid Helium Droplets 4480
K. Nauta and R. E. Miller

Persistent Coherent Spin Precession in Superfluid ^{3}He-*B* Driven by Off-Resonant Excitation 4484
D. J. Cousins, S. N. Fisher, A. I. Gregory, G. R. Pickett, and N. S. Shaw

Dislocation Structures of Submonolayer Films near the Commensurate-Incommensurate Phase Transition: Ag on Pt(111) 4488
J. C. Hamilton, R. Stumpf, Karsten Bromann, Marcella Giovannini, Klaus Kern, and Harald Brune

Anomalous Reconstructions of the (001) Surfaces of AgBr and NaCl 4492
Alexei L. Glebov, J. Peter Toennies, and Franziska Traeger

(Continued on Preceding Page)

Contents (Continued)

Crossover Scaling in Dendritic Evolution at Low Undercooling 4496
Nikolas Provatas, Nigel Goldenfeld, Jonathan Dantzig, Jeffrey C. LaCombe, Afina Lupulescu, Matthew B. Koss, Martin E. Glicksman, and Robert Almgren

Observation of the First-Order Raman Scattering in $SrTiO_3$ Thin Films 4500
A. A. Sirenko, I. A. Akimov, J. R. Fox, A. M. Clark, Hong-Cheng Li, Weidong Si, and X. X. Xi

Condensed Matter: Electronic Properties, etc.

Charge-Density-Wave Mechanism in $2H$-$NbSe_2$: Photoemission Results 4504
Th. Straub, Th. Finteis, R. Claessen, P. Steiner, S. Hüfner, P. Blaha, C. S. Oglesby, and E. Bucher

Intergrain Magnetoresistance via Second-Order Tunneling in Perovskite Manganites 4508
S. Lee, H. Y. Hwang, Boris I. Shraiman, W. D. Ratcliff II, and S-W. Cheong

Persistent Currents on Networks 4512
M. Pascaud and G. Montambaux

Probing Hot-Electron Dynamics at Surfaces with a Cold Scanning Tunneling Microscope 4516
L. Bürgi, O. Jeandupeux, H. Brune, and K. Kern

Experimental Observation of Localized Optical Excitations in Random Metal-Dielectric Films 4520
S. Grésillon, L. Aigouy, A. C. Boccara, J. C. Rivoal, X. Quelin, C. Desmarest, P. Gadenne, V. A. Shubin, A. K. Sarychev, and V. M. Shalaev

Exact Exponents for the Spin Quantum Hall Transition 4524
Ilya A. Gruzberg, Andreas W. W. Ludwig, and N. Read

Superconductivity of Compacted Platinum Powder at Very Low Temperatures 4528
R. König, A. Schindler, and T. Herrmannsdörfer

Thermodynamics of the Superconducting Phase Transition in $Ba_{0.6}K_{0.4}BiO_3$ 4532
P. Kumar, Donavan Hall, and R. G. Goodrich

Instability of Antiferromagnetic Magnons in Strong Fields 4536
M. E. Zhitomirsky and A. L. Chernyshev

Strong-Coupling Resistivity in the Kondo Model 4540
F. Lesage and H. Saleur

Spin Density Waves in Thin Chromium Films 4544
A. M. N. Niklasson, Börje Johansson, and Lars Nordström

Solitary Magnetic Excitations in the Low-Carrier Density, One-Dimensional $S = \frac{1}{2}$ Antiferromagnet Yb_4As_3 4548
M. Köppen, M. Lang, R. Helfrich, F. Steglich, P. Thalmeier, B. Schmidt, B. Wand, D. Pankert, H. Benner, H. Aoki, and A. Ochiai

Interaction Time Dependence of Electron Tunneling Processes between an Atom and a Surface 4552
L. Guillemot and V. A. Esaulov

Interdisciplinary Physics: Biological Physics, Quantum Information, etc.

Concatenating Decoherence-Free Subspaces with Quantum Error Correcting Codes 4556
D. A. Lidar, D. Bacon, and K. B. Whaley

Bending and Base-Stacking Interactions in Double-Stranded DNA 4560
Zhou Haijun, Zhang Yang, and Ou-Yang Zhong-can

Comments

Comment on "Identification of the Si $2p$ Surface Core Level Shifts on the Sb/Si(001)-(2×1) Interface" 4564
Jun-Hyung Cho and S. B. Zhang

De Padova *et al.* Reply 4565
P. De Padova, R. Larciprete, C. Quaresima, C. Ottaviani, B. Ressel, and P. Perfetti

Comment on "Rapid Granular Flows as Mesoscopic Systems" 4566
James W. Dufty and J. Javier Brey

Tan and Goldhirsch Reply 4567
M-L. Tan and I. Goldhirsch