PHYSICAL REVIEW LETTERS

Contents

VOLUME 86, NUMBER 24 11 June 2001

PRL 86 (24), 5407–5637 (11 June 2001)

Announcement
Electronic-First Publication and New Cover Design 5407

General Physics
Pauli Blocking of Collisions in a Quantum Degenerate Atomic Fermi Gas 5409
B. DeMarco, S. B. Papp, and D. S. Jin
Bosons in Cigar-Shaped Traps: Thomas-Fermi Regime, Tonks-Girardeau Regime, and In Between 5413
V. Dunjko, V. Lorent, and M. Olshanii
Coupled Normal Heat and Matter Transport in a Simple Model System 5417
C. Mejía-Monasterio, H. Larralde, and F. Leyvraz

Gravitation and Astrophysics
Magnetic Tension and the Geometry of the Universe 5421
Christos G. Tsagas

Elementary Particles and Fields
Measurements of the Rare Decay $K_L \to e^+e^-e^+e^-$ 5425
A. Alavi-Harati *et al.* (KTeV Collaboration)
First Measurement of the Low-x, Low-Q^2 Structure Function F_2 in Neutrino Scattering 5430
B. T. Fleming *et al.* (CCFR/NuTeV Collaboration)
Does the D^-/D^+ Production Asymmetry Decrease at Large x_F? 5434
F. Carvalho, F. O. Durães, F. S. Navarra, and M. Nielsen

Nuclear Physics
Kinetic Equation with Exact Charge Conservation 5438
C. M. Ko, V. Koch, Zi-wei Lin, K. Redlich, M. Stephanov, and Xin-Nian Wang
Photoneutron Cross Sections for Unstable Neutron-Rich Oxygen Isotopes 5442
A. Leistenschneider *et al.*
Measurement of the Elastic Magnetic Form Factor of ^{3}He at High Momentum Transfer 5446
I. Nakagawa *et al.*

Atomic, Molecular, and Optical Physics
Stability of Negatively Charged Ions Moving in a Magnetic Field 5450
Victor G. Bezchastnov, Lorenz S. Cederbaum, and Peter Schmelcher
Ab Initio Investigation of the Phase Lag in Coherent Control of H_2 5454
Amalia Apalategui, Alejandro Saenz, and P. Lambropoulos

Nonlinear Dynamics, Fluid Dynamics, Classical Optics, etc.
Attosecond Time-Scale Intra-atomic Phase Matching of High Harmonic Generation 5458
I. P. Christov, R. Bartels, H. C. Kapteyn, and M. M. Murnane

(Continued on Third Cover)

Copyright 2001 by The American Physical Society

Contents (Continued)

Nonlinear Optics with Phase-Controlled Pulses in the Sub-Two-Cycle Regime 5462
U. Morgner, R. Ell, G. Metzler, T. R. Schibli, F. X. Kärtner, J. G. Fujimoto, H. A. Haus, and E. P. Ippen

Electromagnetic Wave Chaos in Gradient Refractive Index Optical Cavities 5466
P. B. Wilkinson, T. M. Fromhold, R. P. Taylor, and A. P. Micolich

Breakup and Fusion of Self-Guided Femtosecond Light Pulses in Air 5470
S. Tzortzakis, L. Bergé, A. Couairon, M. Franco, B. Prade, and A. Mysyrowicz

Self-Trapping and Stable Localized Modes in Nonlinear Photonic Crystals 5474
Serge F. Mingaleev and Yuri S. Kivshar

Impenetrable Barriers in Phase-Space 5478
S. Wiggins, L. Wiesenfeld, C. Jaffé, and T. Uzer

Breakdown of Universality in Transitions to Spatiotemporal Chaos 5482
Tomas Bohr, Martin van Hecke, René Mikkelsen, and Mads Ipsen

Simple One-Dimensional Model of Heat Conduction which Obeys Fourier's Law 5486
P. L. Garrido, P. I. Hurtado, and B. Nadrowski

Avalanches in One-Dimensional Piles with Different Types of Bases 5490
E. Altshuler, O. Ramos, C. Martínez, L. E. Flores, and C. Noda

Translation Drag Coefficient of a Self-Similar Assembly of Spheres Immersed in an Incompressible Fluid 5494
Chin-Yao Tseng, Heng-Kwong Tsao, and Shing Bor Chen

Plasma and Beam Physics

Experimental Characterization of the Electron Heat Transport in Low-Density ASDEX Upgrade Plasmas 5498
F. Ryter, F. Imbeaux, F. Leuterer, H.-U. Fahrbach, W. Suttrop, and ASDEX Upgrade Team

Nonlocal Power Deposition in Inductively Coupled Plasmas 5502
John D. Evans and Francis F. Chen

Condensed Matter: Structure, etc.

Acoustic Crystallization and Heterogeneous Nucleation 5506
X. Chavanne, S. Balibar, and F. Caupin

Atomic String Holography 5510
J. C. H. Spence and C. Koch

Absence of an Abrupt Phase Change from Polycrystalline to Amorphous in Silicon with Deposition Temperature 5514
P. M. Voyles, J. E. Gerbi, M. M. J. Treacy, J. M. Gibson, and J. R. Abelson

Entropically Favored Ordering: The Metallurgy of Al_2Cu Revisited 5518
C. Wolverton and V. Ozoliņš

E' Centers in Amorphous SiO_2 Revisited: A New Look at an Old Problem 5522
T. Uchino, M. Takahashi, and T. Yoko

Microscopic Theory of Heterogeneity and Nonexponential Relaxations in Supercooled Liquids 5526
Xiaoyu Xia and Peter G. Wolynes

Method for Computing the Anisotropy of the Solid-Liquid Interfacial Free Energy 5530
J. J. Hoyt, Mark Asta, and Alain Karma

Dewetting Patterns and Molecular Forces: A Reconciliation 5534
R. Seemann, S. Herminghaus, and K. Jacobs

Unstable Step Meandering with Elastic Interactions 5538
S. Paulin, F. Gillet, O. Pierre-Louis, and C. Misbah

Simulations of Atomic Level Stresses in Systems of Buried Ge/Si Islands 5542
Maxim A. Makeev and Anupam Madhukar

Condensed Matter: Electronic Properties, etc.

Nonuniqueness of the Potentials of Spin-Density-Functional Theory 5546
Klaus Capelle and G. Vignale

Bilayer Splitting in the Electronic Structure of Heavily Overdoped $Bi_2Sr_2CaCu_2O_{8+\delta}$ 5550
D. L. Feng, N. P. Armitage, D. H. Lu, A. Damascelli, J. P. Hu, P. Bogdanov, A. Lanzara, F. Ronning, K. M. Shen, H. Eisaki, C. Kim, Z.-X. Shen, J.-i. Shimoyama, and K. Kishio

(Continued on Preceding Page)

Contents (Continued)

Spin Fluctuations in a Magnetically Frustrated Metal LiV_2O_4 5554
S.-H. Lee, Y. Qiu, C. Broholm, Y. Ueda, and J. J. Rush

Mesoscopic Kondo Screening Effect in a Single-Electron Transistor Embedded in a Metallic Ring 5558
Hui Hu, Guang-Ming Zhang, and Lu Yu,

Giant Hall Effect in Nonmagnetic Granular Metal Films 5562
X. X. Zhang, Chuncheng Wan, H. Liu, Z. Q. Li, Ping Sheng, and J. J. Lin

Quantization of the Hall Conductivity Well Beyond the Adiabatic Limit in Pulsed Magnetic Fields 5566
V. T. Dolgopolov, A. A. Shashkin, J. M. Broto, H. Rakoto, and S. Askenazy

Opto-Thermionic Refrigeration in Semiconductor Heterostructures 5570
A. G. Mal'shukov and K. A. Chao

From Favorable Atomic Configurations to Supershell Structures: A New Interpretation of Conductance Histograms ... 5574
A. Hasmy, E. Medina, and P. A. Serena

Dual Nature of the Electronic Structure of $(La_{2-x-y}Nd_ySr_x)CuO_4$ and $La_{1.85}Sr_{0.15}CuO_4$ 5578
X. J. Zhou, T. Yoshida, S. A. Kellar, P. V. Bogdanov, E. D. Lu, A. Lanzara, M. Nakamura, T. Noda, T. Kakeshita, H. Eisaki, S. Uchida, A. Fujimori, Z. Hussain, and Z.-X. Shen

Tunneling Spectroscopy in Small Grains of Superconducting MgB_2 5582
G. Rubio-Bollinger, H. Suderow, and S. Vieira

Determination of the Spin Polarization of Half-Metallic CrO_2 by Point Contact Andreev Reflection 5585
Y. Ji, G. J. Strijkers, F. Y. Yang, C. L. Chien, J. M. Byers, A. Anguelouch, Gang Xiao, and A. Gupta

Study of the e_g Orbitals in the Bilayer Manganite $La_{2-2x}Sr_{1+2x}Mn_2O_7$ by Using Magnetic Compton-Profile Measurement 5589
Akihisa Koizumi, Satoru Miyaki, Yukinobu Kakutani, Hiroyasu Koizumi, Nozomu Hiraoka, Kenji Makoshi, Nobuhiko Sakai, Kazuma Hirota, and Yoichi Murakami

Ferromagnetism in Magnetically Doped III-V Semiconductors 5593
V. I. Litvinov and V. K. Dugaev

Perpendicular Spin Orientation in Ultrasmall Fe Islands on W(110) 5597
R. Röhlsberger, J. Bansmann, V. Senz, K. L. Jonas, A. Bettac, O. Leupold, R. Rüffer, E. Burkel, and K. H. Meiwes-Broer

Optical Resonance in a Narrow Slit in a Thick Metallic Screen 5601
Y. Takakura

Control of Coherent Acoustic Phonons in Semiconductor Quantum Wells 5604
Ümit Özgür, Chang-Won Lee, and Henry O. Everitt

Stimulated Scattering of Indirect Excitons in Coupled Quantum Wells: Signature of a Degenerate Bose-Gas of Excitons 5608
L. V. Butov, A. L. Ivanov, A. Imamoglu, P. B. Littlewood, A. A. Shashkin, V. T. Dolgopolov, K. L. Campman, and A. C. Gossard

Doppler Broadening of In-Flight Positron Annihilation Radiation due to Electron Momentum 5612
A. W. Hunt, D. B. Cassidy, P. A. Sterne, T. E. Cowan, R. H. Howell, K. G. Lynn, and J. A. Golevchenko

Energy Transport Induced by an External Alternating Field in Strongly Disordered Media 5616
Alexander L. Burin, Yuri Kagan, and Il'ya Ya. Polishchuk

Interdisciplinary Physics: Biological Physics, Quantum Information, etc.

New High-Efficiency Source of Photon Pairs for Engineering Quantum Entanglement 5620
Kaoru Sanaka, Karin Kawahara, and Takahiro Kuga

Facilitated Substrate Transport through Membrane Proteins 5624
C. Hilty and M. Winterhalter

Photonic-Band-Gap Resonator Gyrotron 5628
J. R. Sirigiri, K. E. Kreischer, J. Machuzak, I. Mastovsky, M. A. Shapiro, and R. J. Temkin

Bose-Einstein Condensation in Complex Networks 5632
Ginestra Bianconi and Albert-László Barabási

Comments

Comment on "Theory of Diluted Magnetic Semiconductor Ferromagnetism" 5636
Min-Fong Yang, Shih-Jye Sun, and Ming-Che Chang

König, Lin, and MacDonald Reply 5637
J. König, H. H. Lin, and A. H. MacDonald