PHYSICAL REVIEW LETTERS

Contents

VOLUME 78, NUMBER 6 10 February 1997

General Physics

Bose-Einstein Condensation of Lithium: Observation of Limited Condensate Number 985
C. C. Bradley, C. A. Sackett, and R. G. Hulet

Adiabatically Changing the Phase-Space Density of a Trapped Bose Gas 990
P. W. H. Pinkse, A. Mosk, M. Weidemüller, M. W. Reynolds, T. W. Hijmans, and J. T. M. Walraven

Reentrance Phenomena in a Bistable Kinetic Model Driven by Correlated Noise 994
Ya Jia and Jia-rong Li

Gravitation and Astrophysics

The Mixmaster Universe is Chaotic 998
Neil J. Cornish and Janna J. Levin

Elementary Particles and Fields

Gauge and Yukawa Coupling Unification in Models with Gauge-Mediated Supersymmetry Breaking 1002
Jonathan A. Bagger, Konstantin T. Matchev, Damien M. Pierce, and Ren-Jie Zhang

Nuclear Physics

Charmonium Suppression by Comover Scattering in Pb + Pb Collisions 1006
Sean Gavin and Ramona Vogt

Meson Masses in Nuclear Matter 1010
V. L. Eletsky and B. L. Ioffe

Exclusive Measurement of Proton Quasifree Scattering and Density Dependence of the Nucleon-Nucleon Interaction ... 1014
K. Hatanaka, M. Kawabata, N. Matsuoka, Y. Mizuno, S. Morinobu, M. Nakamura, T. Noro, A. Okihana, K. Sagara, K. Takahisa, H. Takeda, K. Tamura, M. Tanaka, S. Toyama, H. Yamazaki, and Y. Yuasa

Angular Correlations for the $^{12}C(e, e'n)^{11}C$ Reaction in the Giant Resonance Region 1018
T. Saito, S. Suzuki, K. Takahisa, C. Takakuwa, M. Oikawa, T. Tohei, T. Nakagawa, and K. Abe

Isospin Dependence of Collective Transverse Flow in Nuclear Collisions 1022
R. Pak, W. Benenson, O. Bjarki, J. A. Brown, S. A. Hannuschke, R. A. Lacey, Bao-An Li, A. Nadasen, E. Norbeck, P. Pogodin, D. E. Russ, M. Steiner, N. T. B. Stone, A. M. Vander Molen, G. D. Westfall, L. B. Yang, and S. J. Yennello

Isospin Dependence of the Balance Energy 1026
R. Pak, Bao-An Li, W. Benenson, O. Bjarki, J. A. Brown, S. A. Hannuschke, R. A. Lacey, D. J. Magestro, A. Nadasen, E. Norbeck, D. E. Russ, M. Steiner, N. T. B. Stone, A. M. Vander Molen, G. D. Westfall, L. B. Yang, and S. J. Yennello

Atomic, Molecular, and Optical Physics

Laser Cooling of a Solid by 16 K Starting from Room Temperature 1030
C. E. Mungan, M. I. Buchwald, B. C. Edwards, R. I. Epstein, and T. R. Gosnell

Universal Shapes of Small Fermion Clusters 1034
H. Häkkinen, J. Kolehmainen, M. Koskinen, P. O. Lipas, and M. Manninen

(Continued on Third Cover)

CODEN: PRLTAO 78 (6), 985–1198 (10 February 1997)

Atoms in the Lowest Motional Band of a Three-Dimensional Optical Lattice 1038
T. Müller-Seydlitz, M. Hartl, B. Brezger, H. Hänsel, C. Keller, A. Schnetz, R. J. C. Spreeuw, T. Pfau, and J. Mlynek

Nonlinear Dynamics, Fluid Dynamics, Classical Optics, Etc.

Phase Locking in Nonlinear Optical Patterns 1042
E. Pampaloni, S. Residori, S. Soria, and F. T. Arecchi

Direct Transition to Spatiotemporal Chaos in Low Prandtl Number Fluids 1046
Hao-wen Xi, Xiao-jun Li, and J. D. Gunton

Condensed Matter: Structure, Etc.

Structure and Stability of the Twofold Surface of Icosahedral Al-Pd-Mn by Low-Energy Electron Diffraction and X-Ray Photoemission Spectroscopy 1050
Z. Shen, C. J. Jenks, J. Anderegg, D. W. Delaney, T. A. Lograsso, P. A. Thiel, and A. I. Goldman

Implications of a Pressure Induced Phase Transition in the Search for Cubic Ti_3Al 1054
P. Ch. Sahu, N. V. Chandra Shekar, Mohammad Yousuf, and K. Govinda Rajan

Evidence for Significant Short-Range Order Effects on Surface Segregation in Ni-Al Solid Solution 1058
M. Polak, J. Deng, and L. Rubinovich

Pinning and Depinning of Crack Fronts in Heterogeneous Materials 1062
P. Daguier, B. Nghiem, E. Bouchaud, and F. Creuzet

Quantum and Classical Orientational Ordering in Solid Hydrogen 1066
I. I. Mazin, Russell J. Hemley, A. F. Goncharov, Michael Hanfland, and Ho-kwang Mao

Floppy Modes in Crystalline and Amorphous Silicates 1070
Martin T. Dove, Mark J. Harris, Alex C. Hannon, John M. Parker, Ian P. Swainson, and Manoj Gambhir

Diminished Medium-Range Order Observed in Annealed Amorphous Germanium 1074
J. M. Gibson and M. M. J. Treacy

Low-Energy Vibration Excess in Silica Xerogels 1078
A. Fontana, F. Rossi, G. Carini, G. D'Angelo, G. Tripodo, and A. Bartolotta

On Critical Exponents and the Renormalization of the Coupling Constant in Growth Models with Surface Diffusion ... 1082
H. K. Janssen

Role of Lattice Vibrations in Adatom Diffusion 1086
Ulrike Kürpick, Abdelkader Kara, and Talat. S. Rahman

Surface Critical Behavior of Binary Alloys and Antiferromagnets: Dependence of the Universality Class on Surface Orientation 1090
Anja Drewitz, Reinhard Leidl, Theodore W. Burkhardt, and H. W. Diehl

Condensed Matter: Electronic Properties, Etc.

Incorporation of Potassium at the Pt(111) Surface 1094
J. B. Hannon, M. Giesen, C. Klünker, G. Schulze Icking-Konert, D. Stapel, H. Ibach, and J. E. Müller

Strong-Pinning Effects in Low-Temperature Creep: Charge-Density Waves in TaS_3 1098
S. V. Zaitsev-Zotov, G. Remenyi, and P. Monceau

Evidence for the Improved Defect-Pool Model for Gap States in Amorphous Silicon from Charge DLTS Experiments on Undoped *a*-Si:H 1102
V. Nádaždy, R. Durný, and E. Pinčik

Nature of Conduction in Doped Silicon 1106
Tae-In Jeon and D. Grischkowsky

Random Telegraph Signal in the Photoluminescence Intensity of a Single Quantum Dot 1110
Al. L. Efros and M. Rosen

Thermal Conductivity and Lorenz Number for One-Dimensional Ballistic Transport 1114
Andreas Greiner, Lino Reggiani, Tilmann Kuhn, and Luca Varani

Nonequilibrium Vortex Melting in $Bi_2Sr_2CaCu_2O_{8+\delta}$ Crystals 1118
C. D. Keener, M. L. Trawick, S. M. Ammirata, S. E. Hebboul, and J. C. Garland

(Continued on Preceding Page)

Contents (Continued)

Interplay of Nuclear Magnetism and Superconductivity in $AuIn_2$ 1122
S. Rehmann, T. Herrmannsdörfer, and F. Pobell

Spin-Resolved Photoemission on *Anti*-Ferromagnets: Direct Observation of Zhang-Rice Singlets in CuO 1126
L. H. Tjeng, B. Sinkovic, N. B. Brookes, J. B. Goedkoop, R. Hesper, E. Pellegrin, F. M. F. de Groot, S. Altieri, S. L. Hulbert, E. Shekel, and G. A. Sawatzky

Anomalous Field Effect in Ultrathin Films of Metals near the Superconductor-Insulator Transition 1130
G. Martinez-Arizala, D. E. Grupp, C. Christiansen, A. M. Mack, N. Markovic, Y. Seguchi, and A. M. Goldman

Critical Current Suppression in a Superconductor by Injection of Spin-Polarized Carriers from a Ferromagnet 1134
V. A. Vas'ko, V. A. Larkin, P. A. Kraus, K. R. Nikolaev, D. E. Grupp, C. A. Nordman, and A. M. Goldman

Pressure Induced Semiconductor to Metal Transition in TmTe 1138
T. Matsumura, T. Kosaka, J. Tang, T. Matsumoto, H. Takahashi, N. Môri, and T. Suzuki

Large Magnetic Entropy Change in Perovskite-Type Manganese Oxides 1142
Z. B. Guo, Y. W. Du, J. S. Zhu, H. Huang, W. P. Ding, and D. Feng

Observation of a Bulklike Fermi Surface for a Monolayer of Ni on Cu(001) 1146
G. J. Mankey, K. Subramanian, R. L. Stockbauer, and R. L. Kurtz

Continuous and Reversible Change of the Magnetic Coupling in an Fe/Nb Multilayer Induced by Hydrogen Charging 1150
F. Klose, Ch. Rehm, D. Nagengast, H. Maletta, and A. Weidinger

k-Space Origin of the Long-Period Oscillation in Fe/Cr Multilayers: A Photoemission Study of Epitaxial Cr Grown on an Fe(100) Whisker 1154
Dongqi Li, J. Pearson, S. D. Bader, E. Vescovo, D.-J. Huang, P. D. Johnson, and B. Heinrich

Micromagnetism of Epitaxial Fe(001) Elements on the Mesoscale 1158
E. Gu, E. Ahmad, S. J. Gray, C. Daboo, J. A. C. Bland, L. M. Brown, M. Rührig, A. J. McGibbon, and J. N. Chapman

Branching Ratios of the Circular Dichroism at Rare Earth L_{23} Edges 1162
Michel van Veenendaal, J. B. Goedkoop, and B. T. Thole

Cross-Disciplinary Physics

The Dynamics of Curved Fronts: Beyond Geometry 1166
Aric Hagberg and Ehud Meron

Bidirectional Transport of Polyelectrolytes Using Self-Modulating Entropic Ratchets 1170
Gary W. Slater, Hong L. Guo, and Grant I. Nixon

Isotope and Quantum Effects in Vibrational State Distributions of Photodesorbed Ammonia 1174
K-H. Bornscheuer, W. Nessler, M. Binetti, E. Hasselbrink, and P. Saalfrank

Nonthermally Accessible Phase for CO on the Si(100) Surface 1178
Deqing Hu, Wilson Ho, Xiaojie Chen, Song Wang, and William A. Goddard III

Rheology of "Wet" Polymer Brushes via Brownian Dynamics Simulation: Steady vs Oscillatory Shear 1182
Patrick S. Doyle, Eric S. G. Shaqfeh, and Alice P. Gast

Visual Perception of Stochastic Resonance 1186
Enrico Simonotto, Massimo Riani, Charles Seife, Mark Roberts, Jennifer Twitty, and Frank Moss

Chemical Kinetics is Turing Universal 1190
Marcelo O. Magnasco

Comments

Comment on "Nature of Quantum Localization in Atomic Momentum Transfer Experiments" 1194
M. G. Raizen, Bala Sundaram, and Qian Niu

Comment on "Nature of Quantum Localization in Atomic Momentum Transfer Experiments" 1195
S. Meneghini, P. J. Bardroff, E. Mayr, and W. P. Schleich

Latka and West Reply 1196
Miroslaw Latka and Bruce J. West

(Continued on Preceding Page)

Contents (Continued)

Errata

Long-Range Order versus Random-Singlet Phases in Antiferromagnetic Systems with Quenched Disorder [Phys. Rev. Lett. **76**, 2571 (1996)] 1197
T. R. Kirkpatrick and D. Belitz

Dynamic Properties of Semidilute Solutions at the Theta Point [Phys. Rev. Lett. **77**, 3673 (1996)] 1197
M. Adam, D. Lairez, E. Raspaud, and B. Farago

ab-Plane Anisotropy of Transport Properties in Unidirectionally Twinned $YBa_2Cu_3O_{7-\delta}$ Films [Phys. Rev. Lett. **77**, 3913 (1996)] 1198
C. Villard, G. Koren, D. Cohen, E. Polturak, B. Thrane, and D. Chateignier