

PHYSICAL REVIEW LETTERS

Contents

VOLUME 79, NUMBER 25

22 December 1997

General Physics

- Observing Local Realism Violations with a Combination of Sensitive and Insensitive Detectors 4941
 B. Yurke and D. Stoler
- Beyond the Schrödinger Equation: Quantum Motion with Traversal Time Control 4946
 D. Sokolovski
- Quantum Coherent Atomic Tunneling between Two Trapped Bose-Einstein Condensates 4950
 A. Smerzi, S. Fantoni, S. Giovanazzi, and S.R. Shenoy
- Sum Rule Identities and the Duality Relation for the Potts n -Point Boundary Correlation Function 4954
 F.Y. Wu and H.Y. Huang

Gravitation and Astrophysics

- Structure of the Black Hole's Cauchy-Horizon Singularity 4958
 Lior M. Burko

Nuclear Physics

- Effect of Flow on the Caloric Curve for Finite Nuclei 4962
 S.K. Samaddar, J.N. De, and S. Shlomo

Atomic, Molecular, and Optical Physics

- Wannier Analytic Continuation to Helium Negative Ion Resonances 4966
 A.M. Loughan and D.S.F. Crothers
- Evolution of the Post-Collision-Interaction Profile from the Resonant Auger Shakeup/Shakedown Lines at the Ionization Threshold 4970
 H. Aksela, M. Kivilompolo, E. Nömmiste, and S. Aksela
- Cavity-Induced Atom Cooling in the Strong Coupling Regime 4974
 Peter Horak, Gerald Hechenblaikner, Klaus M. Gheri, Herwig Stecher, and Helmut Ritsch
- Creating and Detecting Shaped Rydberg Wave Packets 4978
 Jeffrey L. Krause, Kenneth J. Schafer, M. Ben-Nun, and Kent R. Wilson
- Measured Correlated Motion of Three Massive Coulomb Interacting Particles 4982
 L.M. Wiese, O. Yenen, B. Thaden, and D.H. Jaecks
- Shape Phase Transitions in the Absorption Spectra of Atomic Clusters 4986
 J.M. Pacheco and W.-D. Schöne

Nonlinear Dynamics, Fluid Dynamics, Classical Optics, Etc.

- Theory of Self-Trapped Spatially Incoherent Light Beams 4990
 Matthew Mitchell, Mordechai Segev, Tamer H. Coskun, and Demetrios N. Christodoulides
- Friction Induced Segregation of a Granular Binary Mixture in a Rotating Drum 4994
 Pik-Yin Lai, L.-C. Jia, and C.K. Chan
- Evidence for a Real-Time Singularity in Hydrodynamics from Time Series Analysis 4998
 R.B. Pelz and Y. Gulak

(Continued on Third Cover)

Contents (Continued)

Towards a Two-Fluid Picture of Intermittency in Shell Models of Turbulence	5002
Jean-Louis Gilson and Thierry Dombre	
Turbulent Thermal Convection with an Obstructed Sidewall	5006
Ke-Qing Xia and Siu-Lung Lui	
Effect of Depth on the Pattern Formation of Faraday Waves	5010
Doug Binks, Mark-Tiele Westra, and Willem van de Water	
Plasma and Beam Physics	
Observations of Quasiperiodic Transition to Frequency Locking in Electron Cyclotron Resonance Plasma	5014
X. Z. Yao and D. Y. Jiang	
Transport in the Sawtooth Collapse	5018
J. A. Wesson, B. Alper, A. W. Edwards, and R. D. Gill	
Condensed Matter: Structure, Etc.	
Photothermal Characterization of Electrochemical Etching Processed <i>n</i> -Type Porous Silicon	5022
A. Calderón, J. J. Alvarado-Gil, Yu. G. Gurevich, A. Cruz-Orea, I. Delgadillo, H. Vargas, and L. C. M. Miranda	
Bond-Length Distortions in Strained Semiconductor Alloys	5026
J. C. Woicik, J. G. Pellegrino, B. Steiner, K. E. Miyano, S. G. Bompadre, L. B. Sorensen, T.-L. Lee, and S. Khalid	
Measuring the Spring Constant of a Single Polymer Chain	5030
H. Jensenius and G. Zocchi	
Mesosized Crystal-like Structure of Hexagonally Packed Hollow Hoops by Solution Self-Assembly of Diblock Copolymers	5034
Lifeng Zhang, Carl Bartels, Yisong Yu, Hongwei Shen, and Adi Eisenberg	
Low Temperature Sound Velocity of Thin SiO ₂ Films	5038
E. Gaganidze, R. König, P. Esquinazi, K. Zimmer, and A. Burin	
Kink Asymmetry and Multiplicity in Dislocation Cores	5042
Vasily V. Bulatov, João F. Justo, Wei Cai, and Sidney Yip	
High Pressure Collapse of Magnetism in Fe _{0.94} O: Mössbauer Spectroscopy Beyond 100 GPa	5046
M. P. Pasternak, R. D. Taylor, R. Jeanloz, X. Li, J. H. Nguyen, and C. A. McCammon	
Raman Scattering by Bulk Phonons in Microcrystalline Silver and Copper via Electronic Surface Excitations	5050
W. Akemann, A. Otto, and H. R. Schober	
Quantum Nucleation of Phase Slips in a 1D Model of a Superfluid	5054
José A. Freire, Daniel P. Arovas, and Herbert Levine	
Critical Velocity of Vortex Nucleation in Rotating Superfluid 3He-A	5058
V. M. H. Ruutu, J. Kopu, M. Krusius, Ü. Parts, B. Plaçais, E. V. Thuneberg, and W. Xu	
Extraordinary Adhesion of Niobium on Sapphire Substrates	5062
G. Song, A. Remhof, K. Theis-Bröhl, and H. Zabel	
Frictional Force between a Sharp Asperity and a Surface Step	5066
T. Müller, M. Lohrmann, T. Kässer, O. Marti, J. Mlynek, and G. Krausch	
Unlocking of an Elastic String from a Periodic Substrate	5070
C. Cattuto and F. Marchesoni	
Crystal Growth of the Lennard-Jones (100) Surface by Means of Equilibrium and Nonequilibrium Molecular Dynamics	5074
W. J. Briels and H. L. Tepper	
Theory of Adsorption and Desorption of H ₂ Molecules on the Si(111)-(7 × 7) surface	5078
Kyeongjae Cho, Efthimios Kaxiras, and J. D. Joannopoulos	
Condensed Matter: Electronic Properties, Etc.	
Effective Low-Energy Theory for Correlated Carbon Nanotubes	5082
Reinhold Egger and Alexander O. Gogolin	
Coulomb Interactions and Mesoscopic Effects in Carbon Nanotubes	5086
Charles Kane, Leon Balents, and Matthew P. A. Fisher	

(Continued on Preceding Page)

Contents (Continued)

A New Disorder-Driven Roughening Transition of Charge-Density Waves and Flux-Line Lattices	5090
Thorsten Emig and Thomas Nattermann	
Reflective Probing of the Electrical Conductivity of Hot Aluminum in the Solid, Liquid, and Plasma Phases	5094
Andrew N. Mostovych and Yung Chan	
Exact Two-Point Length Correlator of Quasi-One-Dimensional Disordered Metals	5098
A. M. S. Macêdo	
Coherent Acoustic Phonons in a Semiconductor Quantum Dot	5102
Todd D. Krauss and Frank W. Wise	
Wave Function Spectroscopy in Quantum Wells with Tunable Electron Density	5106
G. Salis, B. Graf, K. Ensslin, K. Campman, K. Maranowski, and A. C. Gossard	
Resistivity due to Domain Wall Scattering	5110
Peter M. Levy and Shufeng Zhang	
Hall Photovoltage Imaging of the Edge of a Quantum Hall Device	5114
A. A. Shashkin, A. J. Kent, J. R. Owers-Bradley, A. J. Cross, P. Hawker, and M. Henini	
Is “Rb ₃ C ₆₀ ” Really Rb ₃ C ₆₀ ? The NMR T , T' Problem	5118
K. Gorny, C. Hahn, J. A. Martindale, S. Yu, C. H. Pennington, D. R. Buffinger, and R. P. Ziebarth	
Relationship between the Out-Of-Plane Resistance and the Subgap Resistance of Intrinsic Josephson Junctions in Bi ₂ Sr ₂ CaCu ₂ O _{8+δ}	5122
A. Yurgens, D. Winkler, N. V. Zavaritsky, and T. Claeson	
Magnetization Curves of Antiferromagnetic Heisenberg Spin- $\frac{1}{2}$ Ladders	5126
D. C. Cabra, A. Honecker, and P. Pujol	
Revisiting the Theory of Finite Size Scaling in Disordered Systems: ν Can Be Less than $2/d$	5130
Ferenc Pázmándi, Richard T. Scalettar, and Gergely T. Zimányi	
Low-Temperature Anomalies and Ferromagnetism of EuB ₆	5134
L. Degiorgi, E. Felder, H. R. Ott, J. L. Sarrao, and Z. Fisk	
Observation of Three-Magnon Light Scattering in CuGeO ₃	5138
G. Els, P. H. M. van Loosdrecht, P. Lemmens, H. Vonberg, G. Güntherodt, G. S. Uhrig, O. Fujita, J. Akimitsu, G. Dhalenne, and A. Revcolevschi	
Determination of the Universality Class of Gadolinium	5142
E. Frey, F. Schwabl, S. Henneberger, O. Hartmann, R. Wäppling, A. Kratzer, and G. M. Kalvius	
Ultrafast Spin Dynamics of Ferromagnetic Thin Films Observed by fs Spin-Resolved Two-Photon Photoemission	5146
A. Scholl, L. Baumgarten, R. Jacquemin, and W. Eberhardt	
Tunneling Evidence of Half-Metallic Ferromagnetism in La _{0.7} Ca _{0.3} MnO ₃	5150
J. Y. T. Wei, N.-C. Yeh, and R. P. Vasquez	
Dynamics of an Interacting Particle System: Evidence of Critical Slowing Down	5154
C. Djurberg, P. Svedlindh, P. Nordblad, M. F. Hansen, F. Bødker, and S. Mørup	
Ultrafast Spin-Dependent Electron Dynamics in fcc Co	5158
M. Aeschlimann, M. Bauer, S. Pawlik, W. Weber, R. Burgermeister, D. Oberli, and H. C. Siegmann	
Origin of the Anomalous Magnetic Behavior in Single Crystal Fe ₃ O ₄ Films	5162
D. T. Margulies, F. T. Parker, M. L. Rudee, F. E. Spada, J. N. Chapman, P. R. Aitchison, and A. E. Berkowitz	
Magnetic Instability of Ultrathin fcc Fe _{x} Ni _{1-x} Films	5166
F. O. Schumann, R. F. Willis, K. G. Goodman, and J. G. Tobin	
Quantum Theory of Nonlinear Semiconductor Microcavity Luminescence Explaining “Boser” Experiments	5170
M. Kira, F. Jahnke, S. W. Koch, J. D. Berger, D. V. Wick, T. R. Nelson, Jr., G. Khitrova, and H. M. Gibbs	
Nitrogen Incorporation at Si(100)-SiO ₂ Interfaces: Relation between N 1s Core-Level Shifts and Microscopic Structure	5174
G.-M. Rignanese, Alfredo Pasquarello, J.-C. Charlier, X. Gonze, and Roberto Car	
Cross-Disciplinary Physics	
Purifying Two-Bit Quantum Gates and Joint Measurements in Cavity QED	5178
S. J. van Enk, J. I. Cirac, and P. Zoller	
Distribution of Base Pair Repeats in Coding and Noncoding DNA Sequences	5182
Nikolay V. Dokholyan, Sergey V. Buldyrev, Shlomo Havlin, and H. Eugene Stanley	

(Continued on Preceding Page)

Contents (Continued)

Comments

Comment on “Measurement of the Neutron Magnetic Form Factor”	5186
J. Jourdan, I. Sick, and J. Zhao	
Bruins <i>et al.</i> Reply	5187
E.E.W. Bruins, H. Reike, Th.S. Bauer, B. Schoch, H. Arenhövel, H.W. den Bok, C.P. Duif, D. Durek, F. Frommberger, R. Gothe, W.C. van Hoek, D. Jakob, E. Jans, J. Konijn, G. Kranefeld, C. Kunz, D.J.J. de Lange, N. Leiendecker, A. Misiejuk, Z. Papandreou, G. Pfeiffer, H. Putsch, T. Reichelt, E.P. Sichtermann, J.A. Tjon, E. Voutier, R. de Vries, D. Wacker, D. Wehrmeister, M. Wilhelm, H.W. Willering, and D.M. Yeomans	

Errata

Phonon Instabilities in fcc and bcc Tungsten [Phys. Rev. Lett. 79 , 2073 (1997)]	5188
K. Einarsdotter, B. Sadigh, G. Grimvall, and V. Ozoliņš	