NEWSPAPER 80

PHYSICAL REVIEW LETTERS

Contents

VOLUME 80, NUMBER 8 23 February 1998

General Physics

Universal Algorithm for Optimal Estimation of Quantum States from Finite Ensembles via Realizable Generalized Measurement 1571
R. Derka, V. Bužek, and A. K. Ekert

Macroscopic Quantum Tunneling of a Bose-Einstein Condensate with Attractive Interaction 1576
Masahito Ueda and Anthony J. Leggett

Gravitation and Astrophysics

Implications of the Visible and X-Ray Counterparts to GRB 970228 1580
J. I. Katz, T. Piran, and R. Sari

Cosmological Imprint of an Energy Component with General Equation of State 1582
R. R. Caldwell, Rahul Dave, and Paul J. Steinhardt

Elementary Particles and Fields

Photon-Neutrino Interactions in Magnetic Fields 1586
R. Shaisultanov

Born-Infeld String as a Boundary Conformal Field Theory 1588
Lárus Thorlacius

Search for Trilepton Signatures from Associated Gaugino Pair Production 1591
B. Abbott *et al.* (D0 Collaboration)

Nuclear Physics

Determination of the $\pi^{\pm}p \rightarrow \pi^{\pm}\pi^{+}n$ Cross Section Near Threshold 1597
J. B. Lange, F. Duncan, A. Ambardar, A. Feltham, G. Hofman, R. R. Johnson, G. Jones, M. Pavan, K. J. Raywood, D. Vetterli, J. T. Brack, D. Ottewell, G. R. Smith, and M. E. Sevior

Spectroscopy of the Unbound Nucleus ^{11}N by the ^{12}C(^{14}N, ^{15}C)^{11}N Transfer Reaction 1601
A. Lépine-Szily, J. M. Oliveira, Jr., A. N. Ostrowski, H. G. Bohlen, R. Lichtenthaler, A. Blazevic, C. Borcea, V. Guimarães, R. Kalpakchieva, V. Lapoux, M. MacCormick, F. Oliveira, W. von Oertzen, N. A. Orr, P. Roussel-Chomaz, Th. Stolla, and J. S. Winfield

Observation of a $^{4}_{\Sigma}$He Bound State in the ^{4}He(K^{-}, π^{-}) Reaction at 600 MeV/c 1605
T. Nagae, T. Miyachi, T. Fukuda, H. Outa, T. Tamagawa, J. Nakano, R. S. Hayano, H. Tamura, Y. Shimizu, K. Kubota, R. E. Chrien, R. Sutter, A. Rusek, W. J. Briscoe, R. Sawafta, E. V. Hungerford, A. Empl, W. Naing, C. Neerman, K. Johnston, and M. Planinic

Measurement of the Atomic Exchange Effect in Nuclear β Decay 1610
L. C. Angrave, N. E. Booth, R. J. Gaitskell, G. L. Salmon, and M. R. Harston

Probing Proton Halos through Pion Photoproduction 1614
S. Karataglidis and C. Bennhold

(Continued on Third Cover)

8

Contents (Continued)

Atomic, Molecular, and Optical Physics

Interference Effects between Auger and Photoelectron Studied by Subnatural Linewidth Auger-Photoelectron Coincidence Spectroscopy 1618
J. Viefhaus, G. Snell, R. Hentges, M. Wiedenhöft, F. Heiser, O. Geßner, and U. Becker

Direct Determination of Partial Wave Contributions in the σ^* Shape Resonance of CO Molecules 1622
E. Shigemasa, J. Adachi, K. Soejima, N. Watanabe, A. Yagishita, and N. A. Cherepkov

Observation of Coherent and Incoherent Dissociation Mechanisms in the Angular Distribution of Atomic Photofragment Alignment 1626
Allan S. Bracker, Eloy R. Wouters, Arthur G. Suits, Yuan T. Lee, and Oleg S. Vasyutinskii

Polarization Correlation Measurements of Electron Impact Excitation of H($2p$) at 54.4 eV 1630
R. W. O'Neill, P. J. M. van der Burgt, D. Dziczek, P. Bowe, S. Chwirot, and J. A. Slevin

Microscopic Magnetic Quadrupole Trap for Neutral Atoms with Extreme Adiabatic Compression 1634
V. Vuletic, T. Fischer, M. Praeger, T. W. Hänsch, and C. Zimmermann

Nonlinear Dynamics, Fluid Dynamics, Classical Optics, Etc.

Role of the Absorbing Area in Chaotic Synchronization 1638
Yu. L. Maistrenko, V. L. Maistrenko, A. Popovich, and E. Mosekilde

Transition to Phase Synchronization of Chaos 1642
Epaminondas Rosa, Jr., Edward Ott, and Mark H. Hess

Correlations in Chaotic Eigenfunctions at Large Separation 1646
Sanjay Hortikar and Mark Srednicki

Universal Algebraic Relaxation of Fronts Propagating into an Unstable State and Implications for Moving Boundary Approximations 1650
Ute Ebert and Wim van Saarloos

Study of Nonlinear Evolution of Single-Mode and Two-Bubble Interaction under Richtmyer-Meshkov Instability 1654
O. Sadot, L. Erez, U. Alon, D. Oron, L. A. Levin, G. Erez, G. Ben-Dor, and D. Shvarts

Plasma and Beam Physics

Dynamics of Subpicosecond Relativistic Laser Pulse Self-Channeling in an Underdense Preformed Plasma 1658
J. Fuchs, G. Malka, J. C. Adam, F. Amiranoff, S. D. Baton, N. Blanchot, A. Héron, G. Laval, J. L. Miquel, P. Mora, H. Pépin, and C. Rousseaux

Condensed Matter: Structure, Etc.

Relaxation of Critical Fluctuations after Cessation of Simple Shear Flow 1662
Igor Bodnár, Henk Verduin, and Jan K. G. Dhont

Frustration Effects and Microscopic Growth Mechanisms for BN Nanotubes 1666
X. Blase, A. De Vita, J.-C. Charlier, and R. Car

Finite-Size Scaling Study of the Surface and Bulk Critical Behavior in the Random-Bond Eight-State Potts Model 1670
Christophe Chatelain and Bertrand Berche

Electromigration-Induced Breakup of Two-Dimensional Voids 1674
M. Schimschak and J. Krug

Determination and Refinement of the Ag/Si(111)-(3 $\times$ 1) Surface Structure 1678
C. Collazo-Davila, D. Grozea, and L. D. Marks

Surface-Induced Chirality in a Self-Assembled Monolayer of Discotic Liquid Crystal 1682
Fabrice Charra and Jacques Cousty

2D Ising Critical Behavior at an Isomorphous Structural Phase Transition in C_2F_6 Monolayers Physisorbed on Graphite 1686
D. Arndt, St. Faßbender, M. Enderle, and K. Knorr

Superconductivity-Dependent Sliding Friction 1690
A. Dayo, W. Alnasrallah, and J. Krim

(Continued on Preceding Page)

Contents (Continued)

Condensed Matter: Electronic Properties, Etc.

Conductance of a Mott Quantum Wire 1694
Oleg A. Starykh and Dmitrii L. Maslov

Generalization of a Fermi Liquid to a Liquid with Fractional Exclusion Statistics in Arbitrary Dimensions: Theory of a Haldane Liquid 1698
Kazumoto Iguchi

Systematic Vertex Corrections through Iterative Solution of Hedin's Equations Beyond the *GW* Approximation 1702
Arno Schindlmayr and R. W. Godby

Electron Concentration Dependence of the Coulomb Gap in AlGaAs:Si 1706
H. S. Moreira, J. F. Sampaio, E. S. Alves, and A. G. de Oliveira

Strength of Topologically Induced Magnetic Moments in a Quantum Device 1710
P. Exner, P. Šeba, A. F. Sadreev, P. Středa, and P. Feher

Coulomb Drag in the Extreme Quantum Limit 1714
M. P. Lilly, J. P. Eisenstein, L. N. Pfeiffer, and K. W. West

Effect of Electron and Phonon Anisotropy on the Phonon-Drag Thermopower of a Classical Two-Dimensional Electron Gas in a Magnetic Field 1718
P. N. Butcher and M. Tsaousidou

Calorimetric Transitions on the Melting Line of the Vortex System as a Function of Oxygen Deficiency in High-Purity $YBa_2Cu_3O_x$ 1722
Marlyse Roulin, Alain Junod, Andreas Erb, and Eric Walker

High-Field Vortex Dynamics in $YBa_2Cu_3O_7$ from ^{17}O Nuclear Magnetic Resonance 1726
H. N. Bachman, A. P. Reyes, V. F. Mitrovic, W. P. Halperin, A. Kleinhammes, P. Kuhns, and W. G. Moulton

Upper Critical Field Peculiarities of Superconducting YNi_2B_2C and $LuNi_2B_2C$ 1730
S. V. Shulga, S.-L. Drechsler, G. Fuchs, K.-H. Müller, K. Winzer, M. Heinecke, and K. Krug

Josephson Glass and Decoupling of Flux Lattices in Layered Superconductors 1734
Baruch Horovitz and T. Ruth Goldin

Incommensurate Magnetic Fluctuations in $YBa_2Cu_3O_{6.6}$ 1738
Pengcheng Dai, H. A. Mook, and F. Doğan

Square-Lattice Heisenberg Antiferromagnet at Very Large Correlation Lengths 1742
B. B. Beard, R. J. Birgeneau, M. Greven, and U.-J. Wiese

Anomalous Finite Size Spectrum in the $S = 1/2$ Two Dimensional Heisenberg Model 1746
Catia Lavalle, Sandro Sorella, and Alberto Parola

Spin Engineering in Ultrathin Cu/Co/Cu(110) 1750
S. Hope, E. Gu, B. Choi, and J. A. C. Bland

Observation of the Quantum Well Interference in Magnetic Nanostructures by Photoemission 1754
R. K. Kawakami, E. Rotenberg, Ernesto J. Escorcia-Aparicio, Hyuk J. Choi, T. R. Cummins, J. G. Tobin, N. V. Smith, and Z. Q. Qiu

Effect of Coulomb Blockade on Magnetoresistance in Ferromagnetic Tunnel Junctions 1758
S. Takahashi and S. Maekawa

Electronic *c*-axis Response of $Y_{1-x}Ca_xBa_2Cu_3O_{7-\delta}$ Crystals Studied by Far-Infrared Ellipsometry 1762
C. Bernhard, R. Henn, A. Wittlin, M. Kläser, Th. Wolf, G. Müller-Vogt, C. T. Lin, and M. Cardona

Observation of Photoemission Line Widths Narrower than the Inverse Lifetime 1766
E. D. Hansen, T. Miller, and T.-C. Chiang

Cross-Disciplinary Physics

Ginzburg-Landau Theory of Spiral Surface Growth 1770
I. S. Aranson, A. R. Bishop, I. Daruka, and V. M. Vinokur

Ultrafast Charge Transfer Times of Chemisorbed Species from Auger Resonant Raman Studies 1774
C. Keller, M. Stichler, G. Comelli, F. Esch, S. Lizzit, W. Wurth, and D. Menzel

(Continued on Preceding Page)

Contents (Continued)

Polymer-Induced Repulsive Forces: Exponential Scaling 1778
O. Mondain-Monval, A. Espert, P. Omarjee, J. Bibette, F. Leal-Calderon, J. Philip, and J.-F. Joanny
Aerogelation in a Flame Soot Aerosol 1782
C. M. Sorensen, W. B. Hageman, T. J. Rush, H. Huang, and C. Oh
Shape Changes of Self-Assembled Actin Bilayer Composite Membranes 1786
W. Häckl, M. Bärmann, and E. Sackmann

Comments

Comment on "Optimal Periodic Orbits of Chaotic Systems" 1790
Scott M. Zoldi and Henry S. Greenside
Hunt and Ott Reply 1791
Brian R. Hunt and Edward Ott
Comment on "Jellium Model of Metallic Nanocohesion" 1792
C. Höppler and W. Zwerger
Comment on "Magnetic Dynamics in Underdoped $YBa_2Cu_3O_{7-x}$: Direct Observation of a Superconducting Gap" 1793
P. Bourges and L. P. Regnault
Dai *et al.* Reply 1794
P. Dai, M. Yethiraj, H. A. Mook, T. B. Lindemer, and F. Doğan

Errata

Erratum: Generation of Coherent Soft X Rays at 2.7 nm Using High Harmonics [Phys. Rev. Lett. **79**, 2967 (1997)] 1795
Zenghu Chang, Andy Rundquist, Haiwen Wang, Margaret M. Murnane, and Henry C. Kapteyn