



Labyrinthine pattern of air fingers in a fluid-grain mixture forming as the fluid is drained through the hole in the center. See article 038001.

PHYSICAL REVIEW LETTERS

Contents

Articles published 14 July–20 July 2007

VOLUME 99, NUMBER 3

20 July 2007

General Physics: Statistical and Quantum Mechanics, Quantum Information, etc.

Vortex Proliferation in the Berezinskii-Kosterlitz-Thouless Regime on a Two-Dimensional Lattice of Bose-Einstein Condensates	030401
V. Schweikhard, S. Tung, and E. A. Cornell	
Role of Excited States in the Splitting of a Trapped Interacting Bose-Einstein Condensate by a Time-Dependent Barrier	030402
Alexej I. Streltsov, Ofir E. Alon, and Lorenz S. Cederbaum	
Variational Wave Functions and Their Overlap with the Ground State	030403
Christophe Mora and Xavier Waintal	
Quantum Information Processing with Delocalized Qubits under Global Control	030501
Joseph Fitzsimons, Li Xiao, Simon C. Benjamin, and Jonathan A. Jones	
Diffusive Motion and Recurrence on an Idealized Galton Board	030601
N. Chernov and D. Dolgopyat	
Spontaneous Chirality via Long-Range Electrostatic Forces	030602
Kevin L. Kohlstedt, Francisco J. Solis, Graziano Vernizzi, and Monica Olvera de la Cruz	
Quantum Approach to Classical Statistical Mechanics	030603
R.D. Somma, C.D. Batista, and G. Ortiz	

Gravitation and Astrophysics

Seesaw Mechanism for Scalar Fields as Possible Basis for Dark Energy	031301
Kari Enqvist, Steen Hannestad, and Martin S. Sloth	

Elementary Particles and Fields

Role of $h \rightarrow \eta\eta$ in Intermediate-Mass Higgs Boson Searches at the Large Hadron Collider	031801
Kingman Cheung, Jeonghyeon Song, and Qi-Shu Yan	
Improved Measurement of the Positive-Muon Lifetime and Determination of the Fermi Constant	032001
D.B. Chitwood, T.I. Banks, M.J. Barnes, S. Battu, R.M. Carey, S. Cheekatmalla, S.M. Clayton, J. Crnkovic, K.M. Crowe, P.T. Debevec, S. Dhamija, W. Earle, A. Gafarov, K. Giovanetti, T.P. Gorringe, F.E. Gray, M. Hance, D.W. Hertzog, M.F. Hare, P. Kammel, B. Kiburg, J. Kunkle, B. Lauss, I. Logashenko, K.R. Lynch, R. McNabb, J.P. Miller, F. Mulhauser, C.J. Onderwater, C.S. Özben, Q. Peng, C.C. Polly, S. Rath, B.L. Roberts, V. Tishchenko, G.D. Wait, J. Wasserman, D.M. Webber, P. Winter, and P.A. Żolnierczuk (MuLan Collaboration)	

(Continued Inside)

By suggesting a few manuscripts each week, we hope to promote reading across fields. Please see our Announcement Phys. Rev. Lett. 98, 010001 (2007).

Copyright 2007 by The American Physical Society



0031-9007(20070720)99:3;1-#

Contents (Continued)

Measurement of the Muon Capture Rate in Hydrogen Gas and Determination of the Proton's Pseudoscalar Coupling g_P	032002
V. A. Andreev, T. I. Banks, T. A. Case, D. B. Chitwood, S. M. Clayton, K. M. Crowe, J. Deutsch, J. Egger, S. J. Freedman, V. A. Ganzha, T. Goringe, F. E. Gray, D. W. Hertzog, M. Hildebrandt, P. Kammel, B. Kiburg, S. Knaack, P. A. Kravtsov, A. G. Krivshich, B. Lauss, K. L. Lynch, E. M. Maev, O. E. Maev, F. Mulhauser, C. S. Özben, C. Petitjean, G. E. Petrov, R. Prieels, G. N. Schapkin, G. G. Semenchuk, M. A. Soroka, V. Tishchenko, A. A. Vasilyev, A. A. Vorobyov, M. E. Vznuzdaev, and P. Winter (MuCap Collaboration)	
Electroweak Radiative Corrections to Muon Capture	032003
Andrzej Czarnecki, William J. Marciano, and Alberto Sirlin	
Nuclear Physics	
Exact Solution of the Spin-Isospin Proton-Neutron Pairing Hamiltonian	032501
S. Lerma H., B. Errea, J. Dukelsky, and W. Satuła	
Systematics of the First 2^+ Excitation with the Gogny Interaction	032502
G. F. Bertsch, M. Girod, S. Hilaire, J.-P. Delaroche, H. Goutte, and S. Péru	
Atomic, Molecular, and Optical Physics	
Relationship between Third-Order Nonlinear Optical Properties and Magnetic Interactions in Open-Shell Systems: A New Paradigm for Nonlinear Optics	033001
Masayoshi Nakano, Ryohei Kishi, Suguru Ohta, Hideaki Takahashi, Takashi Kubo, Kenji Kamada, Koji Ohta, Edith Botek, and Benoit Champagne	
Piecewise Adiabatic Passage with a Series of Femtosecond Pulses	033002
E. A. Shapiro, V. Milner, C. Menzel-Jones, and M. Shapiro	
Atom-Molecule Rabi Oscillations in a Mott Insulator	033201
N. Syassen, D. M. Bauer, M. Lettner, D. Dietze, T. Volz, S. Dürr, and G. Rempe	
Nonlinear Dynamics, Fluid Dynamics, Classical Optics, etc.	
Boltzmann Kinetic Equation for Filtered Fluid Turbulence	034501
Sharath S. Girimaji	
Turbulence Transition and the Edge of Chaos in Pipe Flow	034502
Tobias M. Schneider, Bruno Eckhardt, and James A. Yorke	
Plasma and Beam Physics	
Ultrahigh-Intensity Optical Slow-Wave Structure	035001
B. D. Layer, A. York, T. M. Antonsen, S. Varma, Y.-H. Chen, Y. Leng, and H. M. Milchberg	
Nonlinear Gyrokinetic Simulations of Ion-Temperature-Gradient Turbulence for the Optimized Wendelstein 7-X Stellarator	035002
P. Xanthopoulos, F. Merz, T. Görler, and F. Jenko	
Condensed Matter: Structure, etc.	
Luttinger Liquid in the Core of a Screw Dislocation in Helium-4	035301
M. Boninsegni, A. B. Kuklov, L. Pollet, N. V. Prokof'ev, B. V. Svistunov, and M. Troyer	
Lattice Dynamics of Incommensurate Composite Rb-IV and a Realization of the Monatomic Linear Chain Model	035501
I. Loa, L. F. Lundegaard, M. I. McMahon, S. R. Evans, A. Bossak, and M. Krisch	
Mechanism of Elastic Softening Behavior in a Superlattice	035502
Nobutomo Nakamura, Hirotsugu Ogi, Takeshi Yasui, Makoto Fujii, and Masahiko Hirao	
Observation of the Boson Peak at the Surface of Vitreous Silica	035503
W. Steurer, A. Apfelter, M. Koch, W. E. Ernst, B. Holst, E. Søndergård, and J. R. Manson	
Relaxation of Residual Stress and Reentanglement of Polymers in Spin-Coated Films	036101
Pascal Damman, Sylvain Gabriele, Séverine Coppée, Sylvain Desprez, Didier Villers, Thomas Vilmin, Elie Raphaël, Moustafa Hamieh, Samer Al Akhrass, and Günter Reiter	
Thin Film Compressive Stresses due to Adatom Insertion into Grain Boundaries	036102
Chun-Wei Pao, Stephen M. Foiles, Edmund B. Webb III, David J. Srolovitz, and Jerrold A. Floro	

(Continued on Preceding Page)



Contents (Continued)

Achieving Epitaxy between Incommensurate Materials by Quasicrystalline Interlayers	036103
K.J. Franke, P. Gille, K.-H. Rieder, and W. Theis	
Condensed Matter: Electronic Properties, etc.	
Smearing of the Two-Dimensional Kohn Anomaly in a Nonquantizing Magnetic Field: Implications for Interaction Effects	036401
T.A. Sedraky, E.G. Mishchenko, and M.E. Raikh	
Orbital-Occupancy versus Charge Ordering and the Strength of Electron Correlations in Electron-Doped CaMnO_3	036402
Weidong Luo, Alberto Franceschetti, Maria Varela, Jing Tao, Stephen J. Pennycook, and Sokrates T. Pantelides	
High Precision Quantum Control of Single Donor Spins in Silicon	036403
Rajib Rahman, Cameron J. Wellard, Forrest R. Bradbury, Marta Prada, Jared H. Cole, Gerhard Klimeck, and Lloyd C. Hollenberg	
Nonlocal Coulomb Correlations in Metals Close to a Charge Order Insulator Transition	036404
Jaime Merino	
Perfectly Conducting Channel and Universality Crossover in Disordered Graphene Nanoribbons	036601
Katsunori Wakabayashi, Yositake Takane, and Manfred Sigrist	
Self-Polarization and Dynamical Cooling of Nuclear Spins in Double Quantum Dots	036602
M.S. Rudner and L.S. Levitov	
Noise Correlations in a Coulomb-Blockaded Quantum Dot	036603
Yiming Zhang, L. DiCarlo, D.T. McClure, M. Yamamoto, S. Tarucha, C.M. Marcus, M.P. Hanson, and A.C. Gossard	
Nonequilibrium Nuclear-Electron Spin Dynamics in Semiconductor Quantum Dots	036604
D.H. Feng, I.A. Akimov, and F. Henneberger	
Suppression of Spin Relaxation in an InAs Nanowire Double Quantum Dot	036801
A. Pfund, I. Shorubalko, K. Ensslin, and R. Leturcq	
Tomonaga-Luttinger Liquid Features in Ballistic Single-Walled Carbon Nanotubes: Conductance and Shot Noise	036802
Na Young Kim, Patrik Recher, William D. Oliver, Yoshihisa Yamamoto, Jing Kong, and Hongjie Dai	
Anomalous Resistance Ridges along Filling Factor $\nu = 4i$	036803
K. Takashina, M. Brun, T. Ota, D.K. Maude, A. Fujiwara, Y. Ono, Y. Takahashi, and Y. Hirayama	
Interplay of Ehrenfest and Dephasing Times in Ballistic Conductors	036804
Alexander Altland, Piet W. Brouwer, and Chushun Tian	
Non-Abelian States with Negative Flux: A New Series of Quantum Hall States	036805
Th. Jolicoeur	
Coherent Control of Interacting Electrons in Quantum Dots via Navigation in the Energy Spectrum	036806
G.E. Murgida, D.A. Wisniacki, and P.I. Tamborenea	
Transconductance of a Double Quantum Dot System in the Kondo Regime	036807
V. Koerting, P. Wölfle, and J. Paaske	
Index Theorem for the Zero Modes of Majorana Fermion Vortices in Chiral p -Wave Superconductors	037001
Sumanta Tewari, S. Das Sarma, and Dung-Hai Lee	
Observation of Macroscopic Quantum Tunneling in a Single $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$ Surface Intrinsic Josephson Junction.	037002
Shao-Xiong Li, Wei Qiu, Siyuan Han, Y.F. Wei, X.B. Zhu, C.Z. Gu, S.P. Zhao, and H.B. Wang	
Anomalous Lattice Response at the Mott Transition in a Quasi-2D Organic Conductor	037003
M. de Souza, A. Brühl, Ch. Strack, B. Wolf, D. Schweitzer, and M. Lang	
Macroscopic Quantum Tunneling in “Small” Josephson Junctions in a Magnetic Field	037004
Yu.N. Ovchinnikov, A. Barone, and A.A. Varlamov	
Anomalous Josephson Effect between Even- and Odd-Frequency Superconductors	037005
Yukio Tanaka, Alexander A. Golubov, Satoshi Kashiwaya, and Masahito Ueda	
Spin Fluctuations and Superconductivity in Mo_3Sb_7	037006
C. Candolfi, B. Lenoir, A. Dauscher, C. Bellouard, J. Hejtmánek, E. Šantavá, and J. Tobola	
Classical Antiferromagnet on a Hyperkagome Lattice	037201
John M. Hopkinson, Sergei V. Isakov, Hae-Young Kee, and Yong Baek Kim	
Damping of Antiferromagnetic Spin Waves by Valence Fluctuations in the Double Layer Perovskite YBaFe_2O_5	037202
S. Chang, P. Karen, M.P. Hehlen, F.R. Trouw, and R.J. McQueeney	

(Continued on Preceding Page)



Contents (Continued)

Unusual Superexchange Pathways in an NiS_2 Triangular Lattice with Negative Charge-Transfer Energy	037203
K. Takubo, T. Mizokawa, J.-Y. Son, Y. Nambu, S. Nakatsuji, and Y. Maeno	
Perpendicular Antiferromagnetic Ordering of Mn and Exchange Anisotropy in Fe/Mn Multilayers	037204
S.J. Lee, J.P. Goff, G.J. McIntyre, R.C. Ward, S. Langridge, T. Charlton, R. Dalglish, and D. Mannix	
Thermalization of a Parametrically Driven Magnon Gas Leading to Bose-Einstein Condensation	037205
V.E. Demidov, O. Dzyapko, S.O. Demokritov, G.A. Melkov, and A.N. Slavin	
Stabilization of the Electron-Nuclear Spin Orientation in Quantum Dots by the Nuclear Quadrupole Interaction	037401
R.I. Dzhioev and V.L. Korenev	
Neutralization of Charged Fullerenes during Grazing Scattering from a Metal Surface	037601
S. Wethekam, H. Winter, H. Cederquist, and H. Zettergren	
Nanoscale Disorder in $\text{CaCu}_3\text{Ti}_4\text{O}_{12}$: A New Route to the Enhanced Dielectric Response	037602
Y. Zhu, J.C. Zheng, L. Wu, A.I. Frenkel, J. Hanson, P. Northrup, and W. Ku	
Soft Matter, Biological, and Interdisciplinary Physics	
Labyrinth Patterns in Confined Granular-Fluid Systems	038001
B. Sandnes, H.A. Knudsen, K.J. Måløy, and E.G. Flekkøy	
Entropy and Temperature of a Static Granular Assembly: An <i>Ab Initio</i> Approach	038002
Silke Henkes, Corey S. O'Hern, and Bulbul Chakraborty	
Gas-Mediated Impact Dynamics in Fine-Grained Granular Materials	038003
John R. Royer, Eric I. Corwin, Peter J. Eng, and Heinrich M. Jaeger	
Effective Medium Theory of Semiflexible Filamentous Networks	038101
Moumita Das, F.C. MacKintosh, and Alex J. Levine	
Controlling Vibrational Excitation with Shaped Mid-IR Pulses	038102
David B. Strasfeld, Sang-Hee Shim, and Martin T. Zanni	
Rate Determining Factors in Protein Model Structures	038103
Pierpaolo Bruscolini, Alessandro Pelizzola, and Marco Zamparo	
Inter-DNA Attraction Mediated by Divalent Counterions	038104
Xiangyun Qiu, Kurt Andresen, Lisa W. Kwok, Jessica S. Lamb, Hye Yoon Park, and Lois Pollack	
Reversible Photomechanical Switching of Individual Engineered Molecules at a Metallic Surface	038301
Matthew J. Comstock, Niv Levy, Armen Kirakosian, Jongweon Cho, Frank Lauterwasser, Jessica H. Harvey, David A. Strubbe, Jean M. Fréchet, Dirk Trauner, Steven G. Louie, and Michael F. Crommie	
Switching and Nonswitching Phases of Photomechanical Molecules in Dissipative Environments	038302
Chang-Qin Wu, Jian-Xin Li, and Dung-Hai Lee	
☞ Localized and Delocalized Motion of Colloidal Particles on a Magnetic Bubble Lattice	038303
Pietro Tierno, Tom H. Johansen, and Thomas M. Fischer	
Spectral Coarse Graining of Complex Networks	038701
David Gfeller and Paolo De Los Rios	
Errata	
Erratum: Magneto-Optical Kerr Effects of Yttrium-Iron Garnet Thin Films Incorporating Gold Nanoparticles [Phys. Rev. Lett. 96 , 167402 (2006)]	039901
Satoshi Tomita, Takeshi Kato, Shigeru Tsunashima, Satoshi Iwata, Minoru Fujii, and Shinji Hayashi	
Erratum: New Determination of the Fine Structure Constant from the Electron g Value and QED [Phys. Rev. Lett. 97 , 030802 (2006)]	039902
G. Gabrielse, D. Hanneke, T. Kinoshita, M. Nio, and B. Odom	

☞ By suggesting a few manuscripts each week, we hope to promote reading across fields. Please see our Announcement Phys. Rev. Lett. 98, 010001 (2007).

Physical Review
Focus

Brief explanations of selected papers from this and other APS journals appear regularly at the *Phys. Rev. Focus* web site (<http://focus.aps.org>). Readers can also sign up for weekly e-mail summaries of *Focus* stories.