



Trajectory of a buoyant sensor's temperature and position in a Rayleigh-Bénard convective flow. Flow temperatures range from 27 °C (violet) to 30 °C (red) at millimeter resolution. See article 234302.

PHYSICAL REVIEW LETTERS

Contents

Articles published 1 December–7 December 2007

VOLUME 99, NUMBER 23

7 December 2007

Editorials and Announcements

Editorial: Which Wei Wang?	230001
Gene D. Sprouse	

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

Testing Born-Infeld Electrodynamics in Waveguides	230401
Rafael Ferraro	
Soluble Models of Strongly Interacting Ultracold Gas Mixtures in Tight Waveguides	230402
M.D. Girardeau and A. Minguzzi	
Superfluid-Insulator Transitions of the Fermi Gas with Near-Unitary Interactions in a Periodic Potential	230403
Eun Gook Moon, Predrag Nikolić, and Subir Sachdev	
Effects of Dissipation on a Quantum Critical Point with Disorder	230601
José A. Hoyos, Chetan Kotabage, and Thomas Vojta	
☞ Brownian Gyration: A Minimal Heat Engine on the Nanoscale	230602
Roger Filliger and Peter Reimann	
Fractional Generalization of Fick's Law: A Microscopic Approach	230603
I. Calvo, R. Sánchez, B.A. Carreras, and B.Ph. van Milligen	

Gravitation and Astrophysics

Are Neutron Stars with Crystalline Color-Superconducting Cores Relevant for the LIGO Experiment?	231101
B. Haskell, N. Andersson, D.I. Jones, and L. Samuelsson	
Detecting Axionlike Particles with Gamma Ray Telescopes	231102
Dan Hooper and Pasquale D. Serpico	
Upper Bound on the Dark Matter Total Annihilation Cross Section	231301
John F. Beacom, Nicole F. Bell, and Gregory D. Mack	
Plasma Suppression of Large Scale Structure Formation in the Universe	231302
Pisin Chen and Kwang-Chang Lai	

Elementary Particles and Fields

Two-Loop Effective Theory Analysis of $\pi(K) \rightarrow e\bar{\nu}_e[\gamma]$ Branching Ratios	231801
Vincenzo Cirigliano and Ignasi Rosell	
Measurement of $\cos 2\beta$ in $B^0 \rightarrow D^{(*)}h^0$ Decays with a Time-Dependent Dalitz Plot Analysis of $D \rightarrow K_s^0 \pi^+ \pi^-$	231802
B. Aubert <i>et al.</i> (The BABAR Collaboration)	

Nuclear Physics

Density Fluctuations in the Presence of Spinodal Instabilities	232301
C. Sasaki, B. Friman, and K. Redlich	

(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(20071207)99:23;1-E

Contents (Continued)

Shear Viscosity of Neutron Matter from Realistic Nucleon-Nucleon Interactions	232501
Omar Benhar and Marco Valli	
Atomic, Molecular, and Optical Physics	
Attosecond Control of Ionization by Wave-Packet Interference	233001
P. Johnsson, J. Mauritsson, T. Remetter, A. L'Huillier, and K.J. Schafer	
Universal Properties of a Trapped Two-Component Fermi Gas at Unitarity	233201
D. Blume, J. von Stecher, and Chris H. Greene	
Highly Charged Ions from Laser-Cluster Interactions: Local-Field-Enhanced Impact Ionization and Frustrated Electron-Ion Recombination	233401
Thomas Fennel, Lora Ramunno, and Thomas Brabec	
Nonlinear Dynamics, Fluid Dynamics, Classical Optics, etc.	
Cylindrical Invisibility Cloak with Simplified Material Parameters is Inherently Visible	233901
Min Yan, Zhichao Ruan, and Min Qiu	
Observation of Resonant Behavior in the Energy Velocity of Diffused Light	233902
R. Sapienza, P.D. García, J. Bertolotti, M.D. Martín, Á. Blanco, L. Viña, C. López, and D.S. Wiersma	
Resonant Mode Oscillations in Modulated Waveguiding Structures	233903
Yaroslav V. Kartashov, Victor A. Vysloukh, and Lluís Torner	
Fractional $\hbar$ Scaling for Quantum Kicked Rotors without Cantori	234101
J. Wang, T.S. Monteiro, S. Fishman, J.P. Keating, and R. Schubert	
Compactification of Patterns by a Singular Convection or Stress	234102
Philip Rosenau	
Plasma Characteristics of the Discharge Produced during Mechanoluminescence	234301
Nathan C. Eddingsaas and Kenneth S. Suslick	
Lagrangian Temperature, Velocity, and Local Heat Flux Measurement in Rayleigh-Bénard Convection	234302
Y. Gasteuil, W.L. Shew, M. Gibert, F. Chillá, B. Castaing, and J.-F. Pinton	
Scaling Properties of Coating Flows in Rectangular Channels	234501
A. de Lózar, A.L. Hazel, and A. Juel	
Influence of Substrate Conductivity on Circulation Reversal in Evaporating Drops	234502
W.D. Ristenpart, P.G. Kim, C. Domingues, J. Wan, and H.A. Stone	
Directed Percolation Criticality in Turbulent Liquid Crystals	234503
Kazumasa A. Takeuchi, Masafumi Kuroda, Hugues Chaté, and Masaki Sano	
Mean Velocity Profile in Confined Turbulent Convection	234504
Ronald du Puits, Christian Resagk, and André Thess	
Violation of the Porod Law in a Freely Cooling Granular Gas in One Dimension	234505
Mahendra Shinde, Dibyendu Das, and R. Rajesh	
Plasma and Beam Physics	
Direct Measurement of the Double Emittance Minimum in the Beam Dynamics of the Sparc High-Brightness Photoinjector	234801
M. Ferrario <i>et al.</i>	
Steady-State Properties of Driven Magnetic Reconnection in 2D Electron Magnetohydrodynamics	235001
L. Chacón, Andrei N. Simakov, and A. Zocco	
Charge and Current Neutralization of an Ion-Beam Pulse Propagating in a Background Plasma along a Solenoidal Magnetic Field	235002
I.D. Kaganovich, E.A. Startsev, A.B. Sefkow, and R.C. Davidson	
Magnetic Double-Gradient Instability and Flapping Waves in a Current Sheet	235003
N.V. Erkaev, V.S. Semenov, and H.K. Biernat	
Condensed Matter: Structure, etc.	
Electronic Stopping Power in LiF from First Principles	235501
J.M. Pruneda, D. Sánchez-Portal, A. Arnau, J.I. Juaristi, and Emilio Artacho	

(Continued on Preceding Page)

Contents (Continued)

Ultralow-Density Nanocage-Based Metal-Oxide Polymorphs	235502
Javier Carrasco, Francesc Illas, and Stefan T. Bromley	
How do Quasicrystals Grow?	235503
Aaron S. Keys and Sharon C. Glotzer	
Electrically Benign Behavior of Grain Boundaries in Polycrystalline CuInSe ₂ Films	235504
Yanfa Yan, C.-S. Jiang, R. Noufi, Su-Huai Wei, H.R. Moutinho, and M.M. Al-Jassim	
Critical Shape and Size for Dislocation Nucleation in Si _{1-x} Ge _x Islands on Si(001)	235505
A. Marzegalli, V.A. Zinovyev, F. Montalenti, A. Rastelli, M. Stoffel, T. Merdzhanova, O.G. Schmidt, and Leo Miglio	
Hard Disks on the Hyperbolic Plane	235701
Carl D. Modes and Randall D. Kamien	
Phase Coexistence of Cluster Crystals: Beyond the Gibbs Phase Rule	235702
Bianca M. Mladek, Patrick Charbonneau, and Daan Frenkel	
Condensed Matter: Electronic Properties, etc.	
Partial Field-Induced Magnetic Order in the Spin-Liquid Kagomé Nd ₃ Ga ₅ SiO ₁₄	236401
H.D. Zhou, B.W. Vogt, J.A. Janik, Y.-J. Jo, L. Balicas, Y. Qiu, J.R. Copley, J.S. Gardner, and C.R. Wiebe	
Transport and Percolation in a Low-Density High-Mobility Two-Dimensional Hole System	236402
M.J. Manfra, E.H. Hwang, S. Das Sarma, L.N. Pfeiffer, K.W. West, and A.M. Sergent	
Disorder Induced Transition into a One-Dimensional Wigner Glass	236403
Shimul Akhanjee and Joseph Rudnick	
Quantum Phase Transition in the Two-Band Hubbard Model	236404
T.A. Costi and A. Liebsch	
<i>Ab initio</i> Method for Calculating Electron-Phonon Scattering Times in Semiconductors: Application to GaAs and GaP	236405
Jelena Sjakste, Nathalie Vast, and Valeriy Tyuterev	
Vacuum Polarization and Screening of Supercritical Impurities in Graphene	236801
A.V. Shytov, M.I. Katsnelson, and L.S. Levitov	
Phonon-Induced Many-Body Renormalization of the Electronic Properties of Graphene	236802
Wang-Kong Tse and S. Das Sarma	
Experimental Test of the High-Frequency Quantum Shot Noise Theory in a Quantum Point Contact	236803
E. Zakka-Bajjani, J. Ségala, F. Portier, P. Roche, D.C. Glatli, A. Cavanna, and Y. Jin	
Intrinsic Spin-Hall Effect: Topological Transitions in Two-Dimensional Systems	236804
O.E. Raichev	
Polar Discontinuity Doping of the LaVO ₃ /SrTiO ₃ Interface	236805
Y. Hotta, T. Susaki, and H.Y. Hwang	
Particle-Hole Symmetry and the Pfaffian State	236806
Michael Levin, Bertrand I. Halperin, and Bernd Rosenow	
Particle-Hole Symmetry and the $\nu = \frac{5}{2}$ Quantum Hall State	236807
Sung-Sik Lee, Shinsei Ryu, Chetan Nayak, and Matthew P. Fisher	
Imaginary-Time Formulation of Steady-State Nonequilibrium: Application to Strongly Correlated Transport	236808
J.E. Han and R.J. Heary	
 Valley-Contrasting Physics in Graphene: Magnetic Moment and Topological Transport	236809
Di Xiao, Wang Yao, and Qian Niu	
High-Energy Kink in the Single-Particle Spectra of the Two-Dimensional Hubbard Model	237001
Alexandru Macridin, M. Jarrell, Thomas Maier, and D.J. Scalapino	
Momentum and Energy Dependence of the Anomalous High-Energy Dispersion in the Electronic Structure of High Temperature Superconductors	237002
D.S. Inosov, J. Fink, A.A. Kordyuk, S.V. Borisenko, V.B. Zabolotnyy, R. Schuster, M. Knupfer, B. Büchner, R. Follath, H.A. Dürr, W. Eberhardt, V. Hinkov, B. Keimer, and H. Berger	
Superfluid Density in a Highly Underdoped YBa ₂ Cu ₃ O _{6+y} Superconductor	237003
D.M. Broun, W.A. Huttema, P.J. Turner, S. Özcan, B. Morgan, Ruixing Liang, W.N. Hardy, and D.A. Bonn	
Magnetic and Structural Properties of FeCr Alloys	237201
A. Froideval, R. Iglesias, M. Samaras, S. Schuppler, P. Nagel, D. Grolimund, M. Victoria, and W. Hoffelner	

(Continued on Preceding Page)



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

Contents (Continued)

Structural Fluctuations in the Spin-Liquid State of $\text{Tb}_2\text{Ti}_2\text{O}_7$	237202
J.P. Ruff, B.D. Gaulin, J.P. Castellan, K.C. Rule, J.P. Clancy, J. Rodriguez, and H.A. Dabkowska	
Magnetic Fluctuations at a Field-Induced Quantum Phase Transition	237203
O. Stockert, M. Enderle, and H.v. Löhneysen	
Effect of Pressure on Magnetoelastic Coupling in 3d Metal Alloys Studied with X-Ray Absorption Spectroscopy ...	237204
S. Pascarelli, M.P. Ruffoni, A. Trapananti, O. Mathon, G. Aquilanti, S. Ostanin, J.B. Staunton, and R.F. Pettifer	
Valence Changes and Structural Distortions in “Charge Ordered” Manganites Quantified by Atomic-Scale Scanning Transmission Electron Microscopy	237205
J.C. Loudon, L. Fitting Kourkoutis, J.S. Ahn, C.L. Zhang, S.-W. Cheong, and D.A. Muller	
Magnetic Ground State of Coupled Edge-Sharing CuO_2 Spin Chains	237206
U. Schwingenschlögl and C. Schuster	
Interaction of Strong Single-Cycle Terahertz Pulses with Semiconductor Quantum Wells	237401
J.R. Danielson, Yun-Shik Lee, J.P. Prineas, J.T. Steiner, M. Kira, and S.W. Koch	
Direct Observation of Deep Excitonic States in the Photoluminescence Spectra of Single-Walled Carbon Nanotubes	237402
Oliver Kiowski, Katharina Arnold, Sergei Lebedkin, Frank Hennrich, and Manfred M. Kappes	
Multiple Gap Symmetries for the Order Parameter of Cuprate Superconductors from Penetration Depth Measurements	237601
R. Khasanov, S. Strässle, D. Di Castro, T. Masui, S. Miyasaka, S. Tajima, A. Bussmann-Holder, and H. Keller	
Soft Matter, Biological, and Interdisciplinary Physics	
Elastic Breakup in Uniaxial Extension of Entangled Polymer Melts	237801
Yangyang Wang, Pouyan Boukany, Shi-Qing Wang, and Xiaorong Wang	
Dynamic Evolution of Topological Defects around Drops and Bubbles Rising in a Nematic Liquid Crystal	237802
Siddharth Khullar, Chunfeng Zhou, and James J. Feng	
Microscale Swimming: The Molecular Dynamics Approach	238101
D.C. Rapaport	
Relaxation of Stretched DNA in Slitlike Confinement	238102
A. Balducci, C.-C. Hsieh, and P.S. Doyle	
Anomalous Diffusion in Folding Dynamics of Minimalist Protein Landscape	238103
Yasuhiro Matsunaga, Chun-Biu Li, and Tamiki Komatsuzaki	
Discrete Breathers in Nonlinear Network Models of Proteins	238104
B. Juanico, Y.-H. Sanejouand, F. Piazza, and P. De Los Rios	
Noise and Correlations in a Spatial Population Model with Cyclic Competition	238105
Tobias Reichenbach, Mauro Mobilia, and Erwin Frey	
Temporal Decorrelation of Collective Oscillations in Neural Networks with Local Inhibition and Long-Range Excitation	238106
Demian Battaglia, Nicolas Brunel, and David Hansel	
Polymers in a Vacuum	238301
J.M. Deutsch	
Surface-Induced First-Order Transition in Athermal Polymer-Nanoparticle Blends	238302
E.S. McGarrity, A.L. Frischknecht, L.J. Frink, and M.E. Mackay	
Comments	
Comment on “Limits on the Time Variation of the Electromagnetic Fine-Structure Constant in the Low Energy Limit from Absorption Lines in the Spectra of Distant Quasars”	239001
M.T. Murphy, J.K. Webb, and V.V. Flambaum	
Srianand <i>et al.</i> Reply	239002
R. Srianand, H. Chand, P. Petitjean, and B. Aracil	

(Continued on Preceding Page)

Contents (Continued)

Errata

Publisher's Note: Field-Induced Paramagnons at the Metamagnetic Transition of $\text{Ca}_{1.8}\text{Sr}_{0.2}\text{RuO}_4$ [Phys. Rev. Lett. 99 , 217402 (2007)]	239901
P. Steffens, Y. Sidis, P. Link, K. Schmalzl, S. Nakatsuji, Y. Maeno, and M. Braden	
Publisher's Note: Generation of Spin Currents and Spin Densities in Systems with Reduced Symmetry [Phys. Rev. Lett. 99 , 226601 (2007)]	239902
Dimitrie Culcer and R. Winkler	
Erratum: Evidence of a Symmetry-Dependent Metallic Barrier in Fully Epitaxial MgO Based Magnetic Tunnel Junctions [Phys. Rev. Lett. 99 , 187202 (2007)]	239903
F. Greullet, C. Tiusan, F. Montaigne, M. Hehn, D. Halley, O. Bengone, M. Bowen, and W. Weber	
Erratum: Probing Nanoscale Solids at Thermal Extremes [Phys. Rev. Lett. 99 , 155901 (2007)]	239904
Gavi E. Begtrup, Keith G. Ray, Brian M. Kessler, Thomas D. Yuzvinsky, Henry Garcia, and Alex Zettl	



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



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.