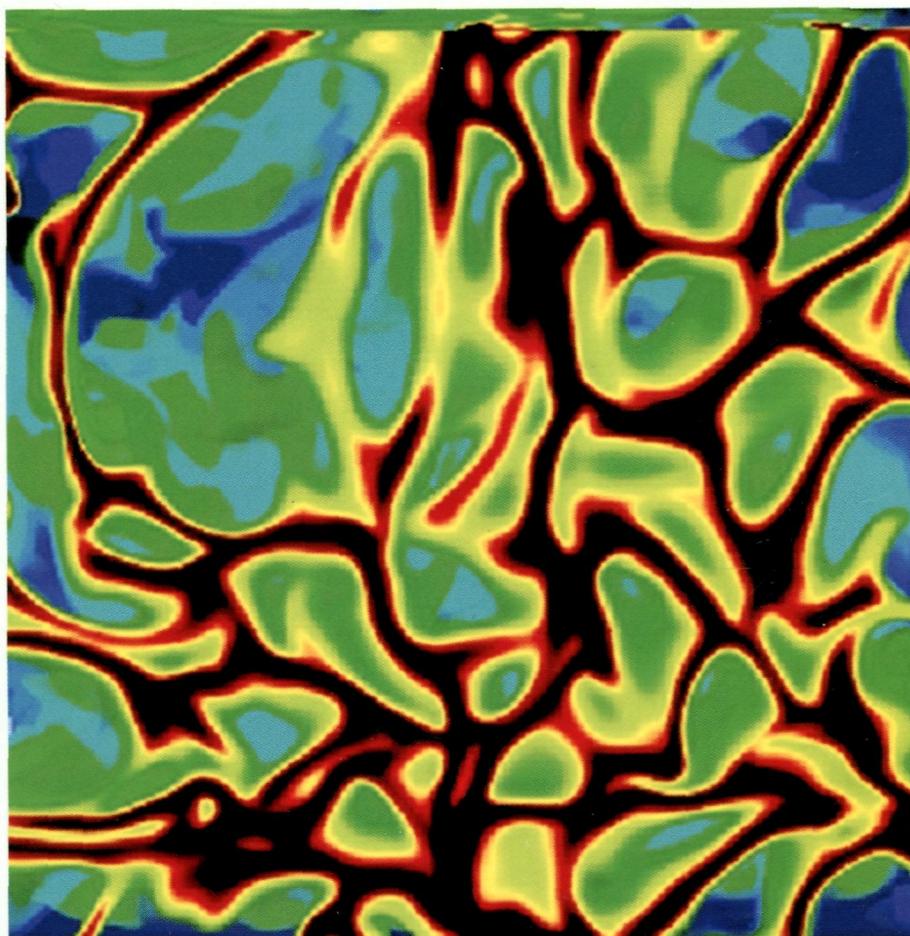


PHYSICAL REVIEW LETTERS[™]

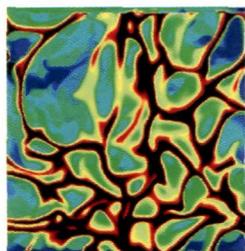
Articles published week ending 20 SEPTEMBER 2013



Published by
American Physical Society[™]



Volume 111, Number 12



Computed thermal structures in a horizontal layer of a uniformly heated fluid. [Bishakhdatta Gayen, Graham O. Hughes, and Ross W. Griffiths, *Phys. Rev. Lett.*, **111**, 124301 (2013)]

PHYSICAL REVIEW LETTERS™

Contents

Articles published 14 September–20 September 2013

VOLUME 111, NUMBER 12

20 September 2013

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

Noisy Metrology beyond the Standard Quantum Limit	120401
R. Chaves, J.B. Brask, M. Markiewicz, J. Kołodyński, and A. Acín	
Detecting Topological Phases in Cold Atoms	120402
Xiong-Jun Liu, K.T. Law, T.K. Ng, and Patrick A. Lee	
Cross-Validated Tomography	120403
D. Mogilevtsev, Z. Hradil, J. Rehacek, and V.S. Shchesnovich	
Hardware-Efficient Autonomous Quantum Memory Protection	120501
Zaki Leghtas, Gerhard Kirchmair, Brian Vlastakis, Robert J. Schoelkopf, Michel H. Devoret, and Mazyar Mirrahimi	
Mapping Spin Coherence of a Single Rare-Earth Ion in a Crystal onto a Single Photon Polarization State	120502
Roman Kolesov, Kangwei Xia, Rolf Reuter, Mohammad Jamali, Rainer Stöhr, Tugrul Inal, Petr Siyushev, and Jörg Wrachtrup	
Nonequilibrium Microcanonical and Canonical Ensembles and Their Equivalence	120601
Raphaël Chetrite and Hugo Touchette	
Adiabatic Tracking of a State: A New Route to Nonequilibrium Physics	120602
M. Moliner and P. Schmitteckert	
Bulk Viscosity and Conformal Symmetry Breaking in the Dilute Fermi Gas near Unitarity	120603
Kevin Dusling and Thomas Schäfer	

Gravitation and Astrophysics

Constraints on the Formation and Structure of Langmuir Eigenmodes in the Solar Wind	121101
D.B. Graham and Iver H. Cairns	
TeV–PeV Neutrinos from Low-Power Gamma-Ray Burst Jets inside Stars	121102
Kohta Murase and Kunihito Ioka	
Particlelike Distributions of the Higgs Field Nonminimally Coupled to Gravity	121103
André Füzfa, Massimiliano Rinaldi, and Sandrine Schlögel	
Neutrino Signature of Supernova Hydrodynamical Instabilities in Three Dimensions	121104
Irene Tamborra, Florian Hanke, Bernhard Müller, Hans-Thomas Janka, and Georg Raffelt	
von Kármán Energy Decay and Heating of Protons and Electrons in a Kinetic Turbulent Plasma	121105
P. Wu, M. Wan, W.H. Matthaeus, M.A. Shay, and M. Swisdak	

Elementary Particles and Fields

Volume Independence in the Large N Limit and an Emergent Fermionic Symmetry	121601
Gökçe Başar, Aleksey Cherman, Daniele Dorigoni, and Mithat Ünsal	

(Continued Inside)



Selected for a Viewpoint in *Physics*. Please visit <http://physics.aps.org/>.

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)

Time-Dependent Hartree-Fock Solution of Gross-Neveu Models: Twisted-Kink Constituents of Baryons and Breathers	121602
Gerald V. Dunne and Michael Thies	
Spin-3 Gravity in Three-Dimensional Flat Space	121603
Hamid Afshar, Arjun Bagchi, Reza Fareghbal, Daniel Grumiller, and Jan Rosseel	
Electroweak Sudakov Corrections to New Physics Searches at the LHC	121801
Mauro Chiesa, Guido Montagna, Luca Barzè, Mauro Moretti, Oreste Nicrosini, Fulvio Piccinini, and Francesco Tramontano	
Hunting Mixed Top Squark Decays	121802
Michael L. Graesser and Jessie Shelton	
New Probe of Naturalness	121803
Nathaniel Craig, Christoph Englert, and Matthew McCullough	
Production of $J/\psi + \eta_c$ versus $J/\psi + J/\psi$ at the LHC: Importance of Real α_s^5 Corrections	122001
Jean-Philippe Lansberg and Hua-Sheng Shao	
Nuclear Physics	
First Use of High-Frequency Intensity Modulation of Narrow-Linewidth Laser Light and Its Application in Determination of $^{206,205,204}\text{Fr}$ Ground-State Properties	122501
Annika Voss, Matthew R. Pearson, Jonathan Billowes, Fritz Buchinger, Bradley Cheal, John E. Crawford, Anna A. Kwiatkowski, C.D. Levy, and Olivier Shelbaya	
First Principles Description of the Giant Dipole Resonance in ^{16}O	122502
S. Bacca, N. Barnea, G. Hagen, G. Orlandini, and T. Papenbrock	
☞ Results on Neutrinoless Double- β Decay of ^{76}Ge from Phase I of the GERDA Experiment	122503
M. Agostini <i>et al.</i> (GERDA Collaboration)	
Atomic, Molecular, and Optical Physics	
Near-Edge X-Ray Absorption Fine Structures Revealed in Core Ionization Photoelectron Spectroscopy	123001
M. Nakano, P. Selles, P. Lablanquie, Y. Hikosaka, F. Penent, E. Shigemasa, K. Ito, and S. Carniato	
☞ High-Order Harmonic Generation Spectroscopy of Correlation-Driven Electron Hole Dynamics	123002
Jonathan Leeuwenburgh, Bridgette Cooper, Vitali Averbukh, Jonathan P. Marangos, and Misha Ivanov	
Boosting Photoabsorption by Attosecond Control of Electron Correlation	123003
S. X. Hu	
Proton Ejection from Molecular Hydride Clusters Exposed to Strong x-Ray Pulses	123401
Pierfrancesco Di Cintio, Ulf Saalmann, and Jan-Michael Rost	
Protected State Enhanced Quantum Metrology with Interacting Two-Level Ensembles	123601
Laurin Ostermann, Helmut Ritsch, and Claudiu Genes	
☞ Narrow Band Source of Transform-Limited Photon Pairs via Four-Wave Mixing in a Cold Atomic Ensemble	123602
Bharath Srivathsan, Gurpreet Kaur Gulati, Brenda Chng, Gleb Maslennikov, Dzmityr Matsukevich, and Christian Kurtsiefer	
Nonlinear Dynamics, Fluid Dynamics, Classical Optics, etc.	
Carrier-Envelope Phase Effects of a Single Attosecond Pulse in Two-Color Photoionization	123901
Candong Liu, Maurizio Reduzzi, Andrea Trabattoni, Anumula Sunilkumar, Antoine Dubrouil, Francesca Calegari, Mauro Nisoli, and Giuseppe Sansone	
Self-Induced Mode Transformation in Nonlocal Nonlinear Media	123902
Yana V. Izdebskaya, Anton S. Desyatnikov, and Yuri S. Kivshar	
Eigenvalue Statistics as an Indicator of Integrability of Nonequilibrium Density Operators	124101
Tomaž Prosen and Marko Žnidarič	
Completing the Mechanical Energy Pathways in Turbulent Rayleigh-Bénard Convection	124301
Bishakhdatta Gayen, Graham O. Hughes, and Ross W. Griffiths	
Magnetic Field Variation Caused by Rotational Speed Change in a Magnetohydrodynamic Dynamo	124501
Takehiro Miyagoshi and Yozo Hamano	

(Continued on Preceding Page)



Selected for a Viewpoint in *Physics*. Please visit <http://physics.aps.org/>.

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

Plasma and Beam Physics

Fast Dynamos in Spherical Boundary-Driven Flows	125001
I. V. Khalzov, C. M. Cooper, and C. B. Forest	
Mode Conversion of Waves in the Ion-Cyclotron Frequency Range in Magnetospheric Plasmas	125002
Ye. O. Kazakov and T. Fülöp	
Effects of Magnetic Shear on Toroidal Rotation in Tokamak Plasmas with Lower Hybrid Current Drive	125003
J. E. Rice, Y. A. Podpaly, M. L. Reinke, R. Mumgaard, S. D. Scott, S. Shiraiwa, G. M. Wallace, B. Chouli, C. Fenzi-Bonizec, M. F. Nave, P. H. Diamond, C. Gao, R. S. Granetz, J. W. Hughes, R. R. Parker, P. T. Bonoli, L. Delgado-Aparicio, L.-G. Eriksson, C. Giroud, M. J. Greenwald, A. E. Hubbard, I. H. Hutchinson, J. H. Irby, K. Kirov, J. Mailloux, E. S. Marmor, and S. M. Wolfe	
Quantum Bound of the Shear Viscosity of a Strongly Coupled Plasma	125004
V. E. Fortov and V. B. Mintsev	
Generation of Whistler-Wave Heated Discharges with Planar Resonant rf Networks	125005
Ph. Guittienne, A. A. Howling, and Ch. Hollenstein	

Condensed Matter: Structure, etc.

Magnetically Generated Spin-Orbit Coupling for Ultracold Atoms	125301
Brandon M. Anderson, I. B. Spielman, and Gediminas Juzeliūnas	
 Two-Dimensional Ferromagnetism of a ³ He Film: Influence of Weak Frustration	125302
A. Casey, M. Neumann, B. Cowan, J. Saunders, and N. Shannon	
Stability of a Unitary Bose Gas	125303
Richard J. Fletcher, Alexander L. Gaunt, Nir Navon, Robert P. Smith, and Zoran Hadzibabic	
Embedding Quasicrystals in a Periodic Cell: Dynamics in Quasiperiodic Structures	125501
Atahualpa S. Kraemer and David P. Sanders	
Effect of Temperature and Density Fluctuations on the Spatially Heterogeneous Dynamics of Glass-Forming Van der Waals Liquids under High Pressure	125701
K. Koperwas, A. Grzybowski, K. Grzybowska, Z. Wojnarowska, A. P. Sokolov, and M. Paluch	
Breakup of a Transient Wetting Layer in Polymer Blend Thin Films: Unification with 1D Phase Equilibria	125702
Sam Coveney and Nigel Clarke	
 Infrared Spectroscopy of Molecular Submonolayers on Surfaces by Infrared Scanning Tunneling Microscopy: Tetramantane on Au(111)	126101
Ivan V. Pechenezhskiy, Xiaoping Hong, Giang D. Nguyen, Jeremy E. Dahl, Robert M. Carlson, Feng Wang, and Michael F. Crommie	
Anomalous Fast Dynamics of Adsorbate Overlayers near an Incommensurate Structural Transition	126102
Enzo Granato, S. C. Ying, K. R. Elder, and T. Ala-Nissila	
 Atomic Structure Affects the Directional Dependence of Friction	126103
A. J. Weymouth, D. Meuer, P. Mutombo, T. Wutscher, M. Ondracek, P. Jelinek, and F. J. Giessel	
Impact of Lithium-Ion Ordering on Surface Electronic States of Li _x CoO ₂	126104
K. Iwaya, T. Ogawa, T. Minato, K. Miyoshi, J. Takeuchi, A. Kuwabara, H. Moriwake, Y. Kim, and T. Hitosugi	

Condensed Matter: Electronic Properties, etc.

 Layer-by-Layer Evolution of a Two-Dimensional Electron Gas Near an Oxide Interface	126401
Young Jun Chang, Luca Moreschini, Aaron Bostwick, Geoffrey A. Gaines, Yong Su Kim, Andrew L. Walter, Byron Freelon, Antonello Tebano, Karsten Horn, and Eli Rotenberg	
Derivative Discontinuity in the Strong-Interaction Limit of Density-Functional Theory	126402
André Mirtschink, Michael Seidl, and Paola Gori-Giorgi	
Emergent Heavy Fermion Behavior at the Wigner-Mott Transition	126403
Jaime Merino, Arnaud Ralko, and Simone Fratini	
Hall Drag and Magnetodrag in Graphene	126601
Justin C. Song and Leonid S. Levitov	
Peltier Cooling and Onsager Reciprocity in Ferromagnetic Thin Films	126602
A. D. Avery and B. L. Zink	

(Continued on Preceding Page)

Contents (Continued)

Circular Dichroism and Superdiffusive Transport at the Surface of BiTeI	126605
J. Mauchain, Y. Ohtsubo, M. Hajlaoui, E. Papalazarou, M. Marsi, A. Taleb-Ibrahimi, J. Faure, K. A. Kokh, O. E. Tereshchenko, S. V. Eremeev, E. V. Chulkov, and L. Perfetti	
Spin-Orbit Splitting in Single-Layer MoS ₂ Revealed by Triply Resonant Raman Scattering	126801
Lin Feng Sun, Jiaxu Yan, Da Zhan, Lei Liu, Hailong Hu, Hong Li, Ben Kang Tay, Jer-Lai Kuo, Chung-Che Huang, Daniel W. Hewak, Pooi See Lee, and Ze Xiang Shen	
Hierarchy of Fractional Chern Insulators and Competing Compressible States	126802
A. M. Läuchli, Zhao Liu, E. J. Bergholtz, and R. Moessner	
Detection and Measurement of Spin-Dependent Dynamics in Random Telegraph Signals	126803
M. G. House, Ming Xiao, GuoPing Guo, HaiOu Li, Gang Cao, M. M. Rosenthal, and HongWen Jiang	
Massive Symmetry Breaking in LaAlO ₃ /SrTiO ₃ (111) Quantum Wells: A Three-Orbital Strongly Correlated Generalization of Graphene	126804
David Doennig, Warren E. Pickett, and Rossitza Pentcheva	
Nematicity as a Probe of Superconducting Pairing in Iron-Based Superconductors	127001
Rafael M. Fernandes and Andrew J. Millis	
Imaging the Three-Dimensional Fermi-Surface Pairing near the Hidden-Order Transition in URu ₂ Si ₂ Using Angle-Resolved Photoemission Spectroscopy	127002
Jian-Qiao Meng, Peter M. Oppeneer, John A. Mydosh, Peter S. Riseborough, Krzysztof Gofryk, John J. Joyce, Eric D. Bauer, Yinwan Li, and Tomasz Durakiewicz	
High Cooperativity in Coupled Microwave Resonator Ferrimagnetic Insulator Hybrids	127003
Hans Huebl, Christoph W. Zollitsch, Johannes Lotze, Fredrik Hocke, Moritz Greifenstein, Achim Marx, Rudolf Gross, and Sebastian T. Goennenwein	
Local Conservation Laws and the Structure of the Many-Body Localized States	127201
Maksym Serbyn, Z. Papić, and Dmitry A. Abanin	
Giant Magnetic Susceptibility of Gold Nanorods Detected by Magnetic Alignment	127202
P. G. van Rhee, P. Zijlstra, T. G. Verhagen, J. Aarts, M. I. Katsnelson, J. C. Maan, M. Orrit, and P. C. Christianen	
Local Control of Single Atom Magnetocrystalline Anisotropy	127203
B. Bryant, A. Spinelli, J. J. Wagenaar, M. Gerrits, and A. F. Otte	
Interatomic Exchange Interactions for Finite-Temperature Magnetism and Nonequilibrium Spin Dynamics	127204
A. Szilva, M. Costa, A. Bergman, L. Szunyogh, L. Nordström, and O. Eriksson	
Ballistic Spreading of Entanglement in a Diffusive Nonintegrable System	127205
Hyungwon Kim and David A. Huse	
Spin-Induced Optical Conductivity in the Spin-Liquid Candidate Herbertsmithite	127401
D. V. Pilon, C. H. Lui, T.-H. Han, D. Shrekenhamer, A. J. Frenzel, W. J. Padilla, Y. S. Lee, and N. Gedik	
Tuning the Competition between Ferromagnetism and Antiferromagnetism in a Half-Doped Manganite through Magnetoelectric Coupling	127601
Di Yi, Jian Liu, Satoshi Okamoto, Suresha Jagannatha, Yi-Chun Chen, Pu Yu, Ying-Hao Chu, Elke Arenholz, and R. Ramesh	
Polarization Sensitive Surface Band Structure of Doped BaTiO ₃ (001)	127602
J. E. Rault, J. Dionot, C. Mathieu, V. Feyer, C. M. Schneider, G. Geneste, and N. Barrett	
Soft Matter, Biological, and Interdisciplinary Physics	
Soft Collective Fluctuations Governing Hydrophobic Association	127801
Aljaž Godec, Jeremy C. Smith, and Franci Merzel	
Breakdown of Fast-Slow Analysis in an Excitable System with Channel Noise	128101
Jay M. Newby, Paul C. Bressloff, and James P. Keener	
Localization Dynamics of Fluids in Random Confinement	128301
Thomas O. Skinner, Simon K. Schnyder, Dirk G. Aarts, Jürgen Horbach, and Roel P. Dullens	
Hexatic-to-Disorder Transition in Colloidal Crystals Near Electrodes: Rapid Annealing of Polycrystalline Domains	128302
C. S. Dutcher, T. J. Woehl, N. H. Talken, and W. D. Ristenpart	
Dynamical Interplay between Awareness and Epidemic Spreading in Multiplex Networks	128701
Clara Granell, Sergio Gómez, and Alex Arenas	

(Continued on Preceding Page)



Selected for a Viewpoint in *Physics*. Please visit <http://physics.aps.org/>.

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)

Errata

Erratum: Optical Pumping into Many-Body Entanglement [Phys. Rev. Lett. 106 , 020504 (2011)]	129901
Jaeyoon Cho, Sougato Bose, and M. S. Kim	
Publisher's Note: No-Scale Supergravity Realization of the Starobinsky Model of Inflation [Phys. Rev. Lett. 111 , 111301 (2013)]	129902
John Ellis, Dimitri V. Nanopoulos, and Keith A. Olive	



Selected for a Viewpoint in *Physics*. Please visit <http://physics.aps.org/>.

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



The American Physical Society's free online publication, *Physics* (<http://physics.aps.org/>), provides thought-provoking analysis and spotlights exceptional research.