

EDITORIALS AND ANNOUNCEMENTS

Editorial: Can There Be a Physics of the Brain?

John Beggs

Phys. Rev. Lett. **114**, 220001 (2015) – Published 1 June 2015

HIGHLIGHTED ARTICLES

Featured in Physics Editors' Suggestion

Spin Pumping in Electrodynamically Coupled Magnon-Photon Systems

Lihui Bai, M. Harder, Y.P. Chen, X. Fan, J.Q. Xiao, and C.-M. Hu

Phys. Rev. Lett. **114**, 227201 (2015) – Published 1 June 2015



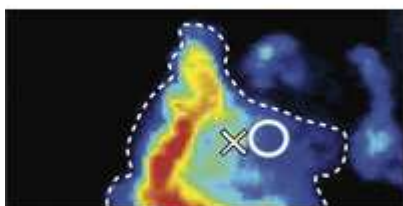
Excitations in a magnet coupled to a microwave cavity can be detected electrically, providing a new way to study magnets in the quantum regime.

Featured in Physics

Individual Quantum Probes for Optimal Thermometry

Luis A. Correa, Mohammad Mehboudi, Gerardo Adesso, and Anna Sanpera

Phys. Rev. Lett. **114**, 220405 (2015) – Published 5 June 2015



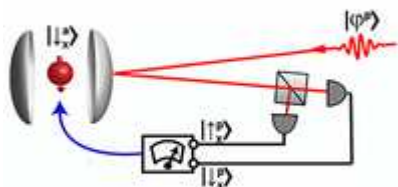
Theorists describe the best nanoscale thermometer allowed by the laws of physics to help experimenters push the limits of technology in measurements within cells or tiny electronic circuits.

Featured in Physics

Heralded Storage of a Photonic Quantum Bit in a Single Atom

Norbert Kalb, Andreas Reiserer, Stephan Ritter, and Gerhard Rempe

Phys. Rev. Lett. **114**, 220501 (2015) – Published 2 June 2015



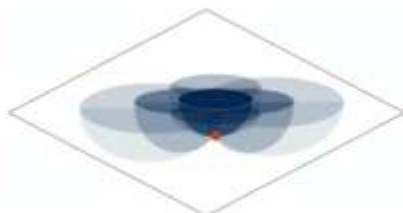
A scheme based on an atom trapped in a cavity faithfully transfers a qubit state between a photon and the atom.

Editors' Suggestion

Locality of Gravitational Systems from Entanglement of Conformal Field Theories

Jennifer Lin, Matilde Marcolli, Hiroshi Ooguri, and Bogdan Stoica

Phys. Rev. Lett. **114**, 221601 (2015) – Published 2 June 2015



AdS/CFT correspondence has uncovered a relationship between the quantum entanglement of non-gravitating systems and the equations of general relativity in the presence of matter sources.

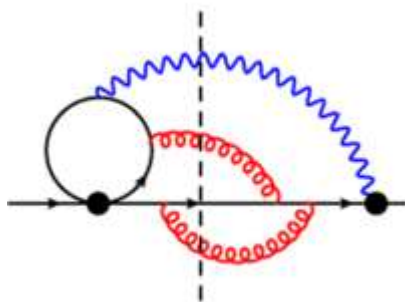
Editors' Suggestion

Updated Next-to-Next-to-Leading-Order QCD Predictions for the Weak Radiative B-Meson Decays

M. Misiak, H.M. Asatrian, R. Boughezal, M. Czakon, T. Ewerth, A. Ferroglia, P. Fiedler, P.

Gambino, C. Greub, U. Haisch, T. Huber, M. Kamiński, G. Ossola, M. Poradziński, A. Rehman, T. Schutzmeier, M. Steinhauser, and J. Virto

Phys. Rev. Lett. **114**, 221801 (2015) – Published 2 June 2015

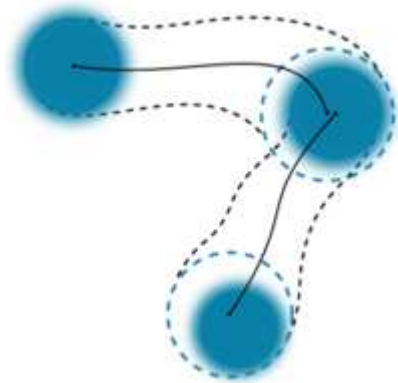


Precise standard-model theoretical predictions of the decay of a bottom-quark meson into a strange-quark and a photon allow better bounds on models of new physics, notably those with hypothetical charged Higgs bosons.

Editors' Suggestion

Optimal State Estimation for Cavity Optomechanical Systems

Witlef Wieczorek, Sebastian G. Hofer, Jason Hoelscher-Obermaier, Ralf Riedinger, Klemens Hammerer, and Markus Aspelmeyer
Phys. Rev. Lett. **114**, 223601 (2015) – Published 4 June 2015



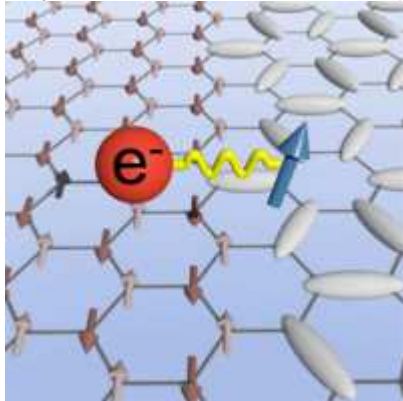
Accounting for nontrivial experimental noise sources, optical measurements of a cavity optomechanical system demonstrate real-time optimal state estimation.

Editors' Suggestion

Wess-Zumino-Witten Terms in Graphene Landau Levels

Junhyun Lee and Subir Sachdev

Phys. Rev. Lett. **114**, 226801 (2015) – Published 1 June 2015



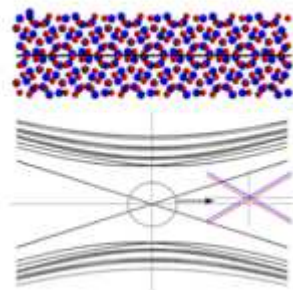
An effective field theory describing the quantum critical behavior of magnetic ordering in monolayer and bilayer graphene has a Wess-Zumino-Witten term, similar to that found in the chiral Lagrangian for QCD.

Editors' Suggestion

Topological Crystalline Insulator Phase in Graphene Multilayers

M. Kindermann

Phys. Rev. Lett. **114**, 226802 (2015) – Published 2 June 2015



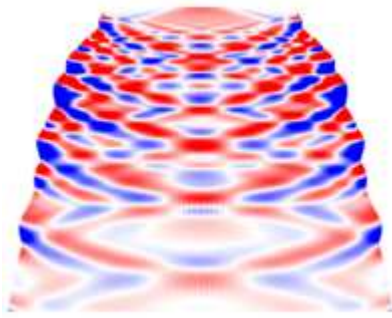
Interlayer coupling in graphene multilayers with certain commensurate twists is predicted to form a 2D topological insulator.

Editors' Suggestion

Propagating Stress Waves During Epithelial Expansion

Shiladitya Banerjee, Kazage J.C. Utuje, and M. Cristina Marchetti

Phys. Rev. Lett. **114**, 228101 (2015) – Published 2 June 2015

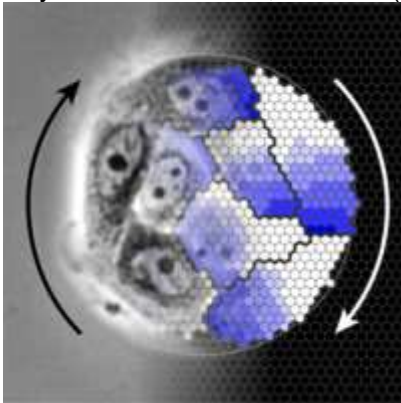


A continuum model of a monolayer of spreading cells demonstrates that feedback between strain and regulatory biochemistry gives rise to propagating stress waves in tissues.

Editors' Suggestion

Emergence and Persistence of Collective Cell Migration on Small Circular Micropatterns

Felix J. Segerer, Florian Thüroff, Alicia Piera Alberola, Erwin Frey, and Joachim O. Rädler
Phys. Rev. Lett. **114**, 228102 (2015) – Published 2 June 2015



An extended version of the cellular Potts model is able to describe an experiment directly addressing the transition from erratic single cell motion to multicellular collective migration.

LETTERS

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

Quantum Bounds on Heat Transport Through Nanojunctions

Edward Taylor and Dvira Segal

Phys. Rev. Lett. **114**, 220401 (2015) – Published 4 June 2015

Simple Explanation of the Quantum Limits of Genuine n -Body Nonlocality

Adán Cabello

Phys. Rev. Lett. **114**, 220402 (2015) – Published 4 June 2015

Bounding Quantum Contextuality with Lack of Third-Order Interference

Joe Henson

Phys. Rev. Lett. **114**, 220403 (2015) – Published 4 June 2015

Demonstration of Quantum Nonlocality in the Presence of Measurement Dependence

Djeylan Aktas, Sébastien Tanzilli, Anthony Martin, Gilles Pütz, Rob Thew, and Nicolas Gisin

Phys. Rev. Lett. **114**, 220404 (2015) – Published 4 June 2015

Featured in Physics

Individual Quantum Probes for Optimal Thermometry

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Phys. Rev. Lett. **114**, 220405 (2015) – Published 5 June 2015

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Phys. Rev. Lett. **114**, 220501 (2015) – Published 2 June 2015

Iterated Gate Teleportation and Blind Quantum Computation

Carlos A. Pérez-Delgado and Joseph F. Fitzsimons

Phys. Rev. Lett. **114**, 220502 (2015) – Published 4 June 2015

Variational Matrix Product Operators for the Steady State of Dissipative Quantum Systems

Jian Cui, J. Ignacio Cirac, and Mari Carmen Bañuls

Phys. Rev. Lett. **114**, 220601 (2015) – Published 4 June 2015

Gravitation and Astrophysics

Neutral Black Rings in Five Dimensions are Unstable

Jorge E. Santos and Benson Way

Phys. Rev. Lett. **114**, 221101 (2015) – Published 3 June 2015

Elementary Particles and Fields

Editors' Suggestion

Locality of Gravitational Systems from Entanglement of Conformal Field Theories

Jennifer Lin, Matilde Marcolli, Hiroshi Ooguri, and Bogdan Stoica

Phys. Rev. Lett. **114**, 221601 (2015) – Published 2 June 2015

Effective Field Theories from Soft Limits of Scattering Amplitudes

Clifford Cheung, Karol Kampf, Jiri Novotny, and Jaroslav Trnka

Phys. Rev. Lett. **114**, 221602 (2015) – Published 5 June 2015

Editors' Suggestion

Updated Next-to-Next-to-Leading-Order QCD Predictions for the Weak Radiative B-Meson Decays

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Gambino, C. Greub, U. Haisch, T. Huber, M. Kamiński, G. Ossola, M. Poradziński, A. Rehman, T. Schutzmeier, M. Steinhauser, and J. Virto

Phys. Rev. Lett. **114**, 221801 (2015) – Published 2 June 2015

Search for New Phenomena in Dijet Angular Distributions in Proton-Proton

Collisions at $s\sqrt{=8 TeV}$ Measured with the ATLAS Detector

G. Aad *et al.* (ATLAS Collaboration)

Phys. Rev. Lett. **114**, 221802 (2015) – Published 4 June 2015

Possible New Resonance from $WLWL-hh$ Interchannel Coupling

Rafael L. Delgado, Antonio Dobado, and Felipe J. Llanes-Estrada

Phys. Rev. Lett. **114**, 221803 (2015) – Published 4 June 2015

QCD inequalities for hadron interactions

William Detmold

Phys. Rev. Lett. **114**, 222001 (2015) – Published 2 June 2015

Angular Structure of the In-Medium QCD Cascade

J.-P. Blaizot, Y. Mehtar-Tani, and M.A.C. Torres

Phys. Rev. Lett. **114**, 222002 (2015) – Published 5 June 2015

Atomic, Molecular, and Optical Physics

Measurement of Magic Wavelengths for the Ca_{+40} Clock Transition

Pei-Liang Liu, Yao Huang, Wu Bian, Hu Shao, Hua Guan, Yong-Bo Tang, Cheng-Bin Li, J. Mitroy, and Ke-Lin Gao

Phys. Rev. Lett. **114**, 223001 (2015) – Published 2 June 2015

Rotational State Microwave Mixing for Laser Cooling of Complex Diatomic Molecules

Mark Yeo, Matthew T. Hummon, Alejandra L. Collopy, Bo Yan, Boerge Hemmerling, Eunmi Chae, John M. Doyle, and Jun Ye

Phys. Rev. Lett. **114**, 223003 (2015) – Published 5 June 2015

Editors' Suggestion

Optimal State Estimation for Cavity Optomechanical Systems

Witlief Wieczorek, Sebastian G. Hofer, Jason Hoelscher-Obermaier, Ralf Riedinger, Klemens Hammerer, and Markus Aspelmeyer

Phys. Rev. Lett. **114**, 223601 (2015) – Published 4 June 2015
Nonlinear Dynamics, Fluid Dynamics, Classical Optics, etc.
Scheme for Achieving a Topological Photonic Crystal by Using Dielectric Material
Long-Hua Wu and Xiao Hu

Phys. Rev. Lett. **114**, 223901 (2015) – Published 3 June 2015
Brownian Motion of Molecular Probes in Supercooled Liquids
Qihan Liu, Shicheng Huang, and Zhigang Suo

Phys. Rev. Lett. **114**, 224301 (2015) – Published 4 June 2015
Condensed Matter: Structure, etc.
Weyl Points in Three-Dimensional Optical Lattices: Synthetic Magnetic Monopoles in Momentum Space
Tena Dubček, Colin J. Kennedy, Ling Lu, Wolfgang Ketterle, Marin Soljačić, and Hrvoje Buljan

Phys. Rev. Lett. **114**, 225301 (2015) – Published 3 June 2015
Antiferromagnetic Spinor Condensates in a Two-Dimensional Optical Lattice
L. Zhao, J. Jiang, T. Tang, M. Webb, and Y. Liu

Phys. Rev. Lett. **114**, 225302 (2015) – Published 4 June 2015
Damping of Long-Wavelength Collective Modes in Spinor Bose-Fermi Mixtures
J.H. Pixley, Xiaopeng Li, and S. Das Sarma

Phys. Rev. Lett. **114**, 225303 (2015) – Published 4 June 2015
The Principle of Independent Bond-Level Response: Tuning by Pruning to Exploit Disorder for Global Behavior
Carl P. Goodrich, Andrea J. Liu, and Sidney R. Nagel

Phys. Rev. Lett. **114**, 225501 (2015) – Published 4 June 2015
Specific Heat Anomaly in a Supercooled Liquid with Amorphous Boundary Conditions
Daniel A. Martín, Andrea Cavagna, and Tomás S. Grigera

Phys. Rev. Lett. **114**, 225901 (2015) – Published 3 June 2015
Transition from Order to Configurational Disorder for Surface Reconstructions on SrTiO₃(111)
L.D. Marks, A.N. Chiamonti, S.U. Rahman, and M.R. Castell

Phys. Rev. Lett. **114**, 226101 (2015) – Published 2 June 2015
Origin of Spinel Nanocheckerboards via First Principles
Mordechai Kornbluth and Chris A. Marianetti

Phys. Rev. Lett. **114**, 226102 (2015) – Published 3 June 2015
Interfacial Charge States in Graphene on SiC Studied by Noncontact Scanning Nonlinear Dielectric Potentiometry
Kohei Yamasue, Hirokazu Fukidome, Kazutoshi Funakubo, Maki Suemitsu, and Yasuo Cho

Phys. Rev. Lett. **114**, 226103 (2015) – Published 4 June 2015
Condensed Matter: Electronic Properties, etc.
Quantum Monte Carlo Calculations in Solids with Downfolded Hamiltonians
Fengjie Ma, Wirawan Purwanto, Shiwei Zhang, and Henry Krakauer

Phys. Rev. Lett. **114**, 226401 (2015) – Published 1 June 2015
Normal-Mode Splitting in the Coupled System of Hybridized Nuclear Magnons and Microwave Photons
L.V. Abdurakhimov, Yu.M. Bunkov, and D. Konstantinov

Phys. Rev. Lett. **114**, 226402 (2015) – Published 3 June 2015
Electric-Field-Driven Resistive Switching in the Dissipative Hubbard Model
Jiajun Li, Camille Aron, Gabriel Kotliar, and Jong E. Han

Phys. Rev. Lett. **114**, 226403 (2015) – Published 4 June 2015
Non-Fermi-Liquid Behavior and Anomalous Suppression of Landau Damping in Layered Metals Close to Ferromagnetism
Sam P. Ridgway and Chris A. Hooley

Phys. Rev. Lett. **114**, 226404 (2015) – Published 5 June 2015

Editors' Suggestion*Wess-Zumino-Witten Terms in Graphene Landau Levels*

Junhyun Lee and Subir Sachdev

Phys. Rev. Lett. **114**, 226801 (2015) – Published 1 June 2015**Editors' Suggestion***Topological Crystalline Insulator Phase in Graphene Multilayers*

M. Kindermann

Phys. Rev. Lett. **114**, 226802 (2015) – Published 2 June 2015*Tunable Spin-Qubit Coupling Mediated by a Multielectron Quantum Dot*

V. Srinivasa, H. Xu, and J.M. Taylor

Phys. Rev. Lett. **114**, 226803 (2015) – Published 4 June 2015*Double Path Interference and Magnetic Oscillations in Cooper Pair Transport through a Single Nanowire*

S.V. Mironov, A.S. Mel'nikov, and A.I. Buzdin

Phys. Rev. Lett. **114**, 227001 (2015) – Published 2 June 2015**Featured in Physics Editors' Suggestion***Spin Pumping in Electrodynamically Coupled Magnon-Photon Systems*

Lihui Bai, M. Harder, Y.P. Chen, X. Fan, J.Q. Xiao, and C.-M. Hu

Phys. Rev. Lett. **114**, 227201 (2015) – Published 1 June 2015*One-Third Magnetization Plateau with a Preceding Novel Phase in Volborthite*

H. Ishikawa, M. Yoshida, K. Nawa, M. Jeong, S. Krämer, M. Horvatić, C. Berthier, M. Takigawa, M. Akaki, A. Miyake, M. Tokunaga, K. Kindo, J. Yamaura, Y. Okamoto, and Z. Hiroi

Phys. Rev. Lett. **114**, 227202 (2015) – Published 1 June 2015*Dispersionless Spin Waves and Underlying Field-Induced Magnetic Order in Gadolinium Gallium Garnet*

N. d'Ambrumenil, O.A. Petrenko, H. Mutka, and P.P. Deen

Phys. Rev. Lett. **114**, 227203 (2015) – Published 2 June 2015*Coherent Visible-Light-Generation Enhancement in Silicon-Based Nanoplasmonic Waveguides via Third-Harmonic Conversion*

S. Sederberg and A.Y. Elezzabi

Phys. Rev. Lett. **114**, 227401 (2015) – Published 4 June 2015*Spatially Resolved Thermodynamics of the Partially Ionized Exciton Gas in GaAs*

S. Bieker, T. Henn, T. Kiessling, W. Ossau, and L.W. Molenkamp

Phys. Rev. Lett. **114**, 227402 (2015) – Published 5 June 2015*Highly Coherent Electron Beam from a Laser-Triggered Tungsten Needle Tip*

Dominik Ehberger, Jakob Hammer, Max Eisele, Michael Krüger, Jonathan Noe, Alexander Högele, and Peter Hommelhoff

Phys. Rev. Lett. **114**, 227601 (2015) – Published 5 June 2015**Polymer, Soft Matter, Biological, and Interdisciplinary Physics***Boundary Condition in Liquid Thin Films Revealed through the Thermal Fluctuations of Their Free Surfaces*

B. Pottier, C. Fréty, and L. Talini

Phys. Rev. Lett. **114**, 227801 (2015) – Published 1 June 2015**Editors' Suggestion***Propagating Stress Waves During Epithelial Expansion*

Shiladitya Banerjee, Kazage J.C. Utuje, and M. Cristina Marchetti

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Phys. Rev. Lett. **114**, 228102 (2015) – Published 2 June 2015

Two-Dimensional Clusters of Colloidal Spheres: Ground States, Excited States, and Structural Rearrangements

Rebecca W. Perry, Miranda C. Holmes-Cerfon, Michael P. Brenner, and Vinothan N. Manoharan
Phys. Rev. Lett. **114**, 228301 (2015) – Published 3 June 2015

ERRATA

*Erratum: Bounds on Invisible Higgs Boson Decays Extracted from LHC $t\bar{t}H$ Production Data [Phys. Rev. Lett. **113**, 151801 (2014)]*

Ning Zhou, Zepyoor Khechadorian, Daniel Whiteson, and Tim M.P. Tait
Phys. Rev. Lett. **114**, 229901 (2015) – Published 4 June 2015