

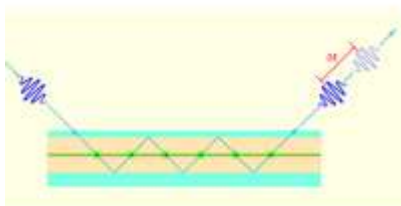
## HIGHLIGHTED ARTICLES

### Featured in Physics Editors' Suggestion

#### *Tunable Subluminal Propagation of Narrow-band X-Ray Pulses*

Kilian P. Heeg, Johann Haber, Daniel Schumacher, Lars Bocklage, Hans-Christian Wille, Kai S. Schulze, Robert Loetzsch, Ingo Uschmann, Gerhard G. Paulus, Rudolf Ruffer, Ralf Röhlsberger, and Jörg Evers

Phys. Rev. Lett. **114**, 203601 (2015) – Published 18 May 2015



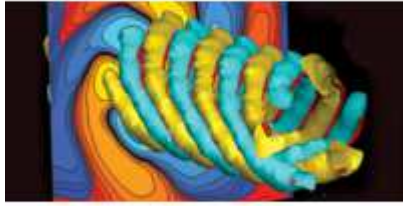
Slow light effects have been measured for x rays using a cavity filled with iron nuclei, where the speed of light was reduced by a factor of 10,000.

### Featured in Physics Editors' Suggestion

#### *Helicons in Unbounded Plasmas*

R.L. Stenzel and J.M. Urrutia

Phys. Rev. Lett. **114**, 205005 (2015) – Published 21 May 2015



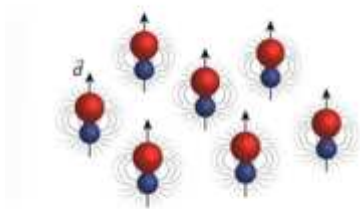
The plasma waves known as helicons can be created and measured in the laboratory even without confining walls.

**Featured in Physics Editors' Suggestion**

*Ultracold Dipolar Gas of Fermionic  $Na_{23}K_{40}$  Molecules in Their Absolute Ground State*

Jee Woo Park, Sebastian A. Will, and Martin W. Zwierlein

Phys. Rev. Lett. **114**, 205302 (2015) – Published 18 May 2015



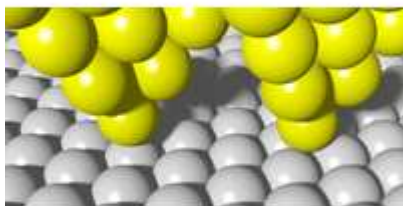
The cooling of strongly dipolar molecules to their absolute ground state has opened the possibility of creating new forms of matter.

**Featured in Physics**

*Site-Dependent Evolution of Electrical Conductance from Tunneling to Atomic Point Contact*

Howon Kim and Yukio Hasegawa

Phys. Rev. Lett. **114**, 206801 (2015) – Published 22 May 2015



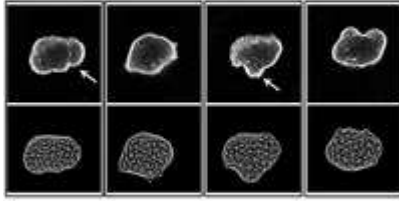
A highly stable scanning tunneling microscope measures the electrical properties of a metal on a scale smaller than individual atoms.

**Featured in Physics**

*Volume Changes During Active Shape Fluctuations in Cells*

Alessandro Taloni, Elena Kardash, Oguz Umut Salman, Lev Truskinovsky, Stefano Zapperi, and Caterina A.M. La Porta

Phys. Rev. Lett. **114**, 208101 (2015) – Published 19 May 2015



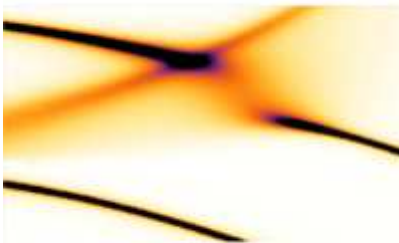
Water flowing through a cell's membrane is essential to the process of changing cellular shape.

**Editors' Suggestion**

*Rotation of Quantum Impurities in the Presence of a Many-Body Environment*

Richard Schmidt and Mikhail Lemeshko

Phys. Rev. Lett. **114**, 203001 (2015) – Published 18 May 2015



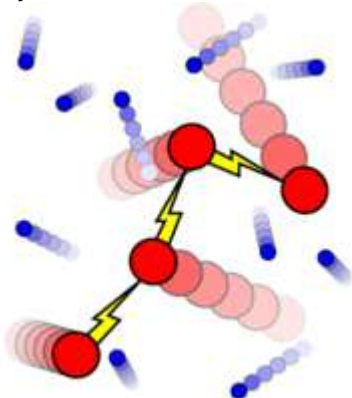
Immersing a quantum impurity into a Bose-Einstein condensate causes a redistribution of the angular momentum between the impurity and the many-body environment leading to collective excitations. These excitations can be explained using a new quasiparticle: the “angulon”.

**Editors' Suggestion**

*Strongly Correlated Growth of Rydberg Aggregates in a Vapor Cell*

A. Urvoy, F. Ripka, I. Lesanovsky, D. Booth, J.P. Shaffer, T. Pfau, and R. Löw

Phys. Rev. Lett. **114**, 203002 (2015) – Published 19 May 2015



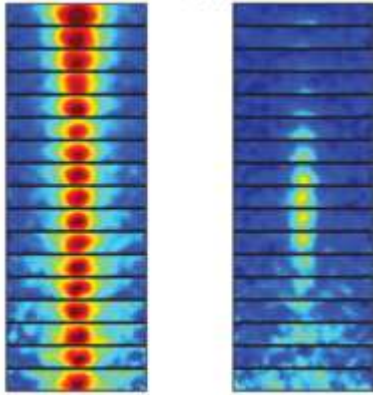
The strong interaction potential between multiple Rydberg atoms allow many-body effects to be observed in a room temperature atomic vapor.

**Editors' Suggestion**

*Suppression and Revival of Weak Localization through Control of Time-Reversal Symmetry*

K. Müller, J. Richard, V.V. Volchkov, V. Denechaud, P. Bouyer, A. Aspect, and V. Josse

Phys. Rev. Lett. **114**, 205301 (2015) – Published 18 May 2015



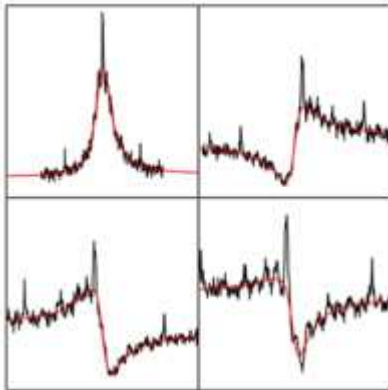
Controlled manipulation of the time reversal symmetry in a disordered quantum gas is achieved by applying a dephasing pulse.

### Editors' Suggestion

#### *Interferometric phase detection at x-ray energies via Fano resonance control*

K.P. Heeg, C. Ott, D. Schumacher, H.-C. Wille, R. Röhlberger, T. Pfeifer, and J. Evers

Phys. Rev. Lett. **114**, 207401 (2015) – Published 18 May 2015



The phase of an x ray can be detected when it interacts with nuclei, an effect that could be used to characterize the quantum state of a nuclear two-level system.

## LETTERS

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

#### *Entropic Tests of Multipartite Nonlocality and State-Independent Contextuality*

Sadegh Raeisi, Paweł Kurzyński, and Dagomir Kaszlikowski

Phys. Rev. Lett. **114**, 200401 (2015) – Published 22 May 2015

#### *Machine Learning for Discriminating Quantum Measurement Trajectories and Improving Readout*

Easwar Magesan, Jay M. Gambetta, A. D. Córcoles, and Jerry M. Chow

Phys. Rev. Lett. **114**, 200501 (2015) – Published 18 May 2015

#### *High-Fidelity Single-Shot Toffoli Gate via Quantum Control*

Ehsan Zahedinejad, Joydip Ghosh, and Barry C. Sanders

Phys. Rev. Lett. **114**, 200502 (2015) – Published 20 May 2015

### Gravitation and Astrophysics

#### *Wald Entropy for Ghost-Free, Infinite Derivative Theories of Gravity*

Aindriú Conroy, Anupam Mazumdar, and Ali Teimouri

Phys. Rev. Lett. **114**, 201101 (2015) – Published 21 May 2015

#### *Black Hole Interior in Quantum Gravity*

Yasunori Nomura, Fabio Sanches, and Sean J. Weinberg

Phys. Rev. Lett. **114**, 201301 (2015) – Published 18 May 2015

### Elementary Particles and Fields

#### *Eightfold Classification of Hydrodynamic Dissipation*

Felix M. Haehl, R. Loganayagam, and Mukund Rangamani

Phys. Rev. Lett. **114**, 201601 (2015) – Published 20 May 2015

*Monojetlike Searches for Top Squarks with a  $b$  Tag*

Gabriele Ferretti, Roberto Franceschini, Christoffer Petersson, and Riccardo Torre  
Phys. Rev. Lett. **114**, 201801 (2015) – Published 19 May 2015

*Generalized Supersoft Supersymmetry Breaking and a Solution to the  $\mu$ Problem*

Ann E. Nelson and Tuhin S. Roy  
Phys. Rev. Lett. **114**, 201802 (2015) – Published 20 May 2015

*Kinematical Correlations for Higgs Boson Plus High  $P_T$  Jet Production at Hadron Colliders*

Peng Sun, C.-P. Yuan, and Feng Yuan  
Phys. Rev. Lett. **114**, 202001 (2015) – Published 22 May 2015

**Nuclear Physics**

*Constraining the Equation of State of Superhadronic Matter from Heavy-Ion Collisions*

Scott Pratt, Evan Sangaline, Paul Sorensen, and Hui Wang  
Phys. Rev. Lett. **114**, 202301 (2015) – Published 19 May 2015

*Probing the  $N=32$  Shell Closure below the Magic Proton Number  $Z=20$ : Mass Measurements of the Exotic Isotopes  $K_{52,53}$*

M. Rosenbusch, P. Ascher, D. Atanasov, C. Barbieri, D. Beck, K. Blaum, Ch. Borgmann, M. Breitenfeldt, R.B. Cakirli, A. Cipollone, S. George, F. Herfurth, M. Kowalska, S. Kreim, D. Lunney, V. Manea, P. Navrátil, D. Neidherr, L. Schweikhard, V. Somà, J. Stanja, F. Wienholtz, R.N. Wolf, and K. Zuber  
Phys. Rev. Lett. **114**, 202501 (2015) – Published 20 May 2015

**Atomic, Molecular, and Optical Physics**

**Editors' Suggestion**

*Rotation of Quantum Impurities in the Presence of a Many-Body Environment*

Richard Schmidt and Mikhail Lemeshko  
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**Editors' Suggestion**

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Phys. Rev. Lett. **114**, 203002 (2015) – Published 19 May 2015

*Chiral Light-Matter Interaction in Optical Resonators*

SeokJae Yoo and Q-Han Park  
Phys. Rev. Lett. **114**, 203003 (2015) – Published 21 May 2015

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Phys. Rev. Lett. **114**, 203601 (2015) – Published 18 May 2015

*Realization of Single-Qubit Positive-Operator-Valued Measurement via a One-Dimensional Photonic Quantum Walk*

Zhihao Bian, Jian Li, Hao Qin, Xiang Zhan, Rong Zhang, Barry C. Sanders, and Peng Xue  
Phys. Rev. Lett. **114**, 203602 (2015) – Published 22 May 2015

**Nonlinear Dynamics, Fluid Dynamics, Classical Optics, etc.**

*Continuous Solitons in a Lattice Nonlinearity*

D. Pierangeli, M. Flammini, F. Di Mei, J. Parravicini, C.E.M. de Oliveira, A.J. Agranat, and E. DelRe  
Phys. Rev. Lett. **114**, 203901 (2015) – Published 20 May 2015

*Bubble Formation in Yield Stress Fluids Using Flow-Focusing and  $T$ -Junction Devices*

Benoit Laborie, Florence Rouyer, Dan E. Angelescu, and Elise Lorenceau

Phys. Rev. Lett. **114**, 204501 (2015) – Published 22 May 2015

## Plasma and Beam Physics

### *Observation of Wakefields and Resonances in Coherent Synchrotron Radiation*

B.E. Billingham, J.C. Bergstrom, C. Baribeau, T. Batten, L. Dallin, T.E. May, J.M. Vogt, W.A.

Wurtz, R. Warnock, D.A. Bizzozero, and S. Kramer

Phys. Rev. Lett. **114**, 204801 (2015) – Published 20 May 2015

### *Threefold Increase of the Bulk Electron Temperature of Plasma Discharges in a Magnetic Mirror Device*

P.A. Bagryansky, A.G. Shalashov, E.D. Gospodchikov, A.A. Lizunov, V.V. Maximov, V.V.

Prikhodko, E.I. Soldatkina, A.L. Solomakhin, and D.V. Yakovlev

Phys. Rev. Lett. **114**, 205001 (2015) – Published 18 May 2015

### *Performance and Mix Measurements of Indirect Drive Cu-Doped Be Implosions*

D.T. Casey, D.T. Woods, V.A. Smalyuk, O.A. Hurricane, V.Y. Glebov, C. Stoeckl, W. Theobald, R.

Wallace, A. Nikroo, M. Schoff, C. Shulberg, K.J. Wu, J.A. Frenje, O.L. Landen, B.A. Remington, and G. Glendinning

Phys. Rev. Lett. **114**, 205002 (2015) – Published 19 May 2015

### *Plasmoids Formation During Simulations of Coaxial Helicity Injection in the National Spherical Torus Experiment*

F. Ebrahimi and R. Raman

Phys. Rev. Lett. **114**, 205003 (2015) – Published 20 May 2015

### *Slowing of Magnetic Reconnection Concurrent with Weakening Plasma Inflows and Increasing Collisionality in Strongly Driven Laser-Plasma Experiments*

M.J. Rosenberg, C.K. Li, W. Fox, A.B. Zylstra, C. Stoeckl, F.H. Séguin, J.A. Frenje, and R.D.

Petrasso

Phys. Rev. Lett. **114**, 205004 (2015) – Published 20 May 2015

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R.L. Stenzel and J.M. Urrutia

Phys. Rev. Lett. **114**, 205005 (2015) – Published 21 May 2015

### Condensed Matter: Structure, etc.

#### **Editors' Suggestion**

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K. Müller, J. Richard, V.V. Volchkov, V. Denechaud, P. Bouyer, A. Aspect, and V. Josse

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Jee Woo Park, Sebastian A. Will, and Martin W. Zwierlein

Phys. Rev. Lett. **114**, 205302 (2015) – Published 18 May 2015

#### *Repulsion and Attraction between a Pair of Cracks in a Plastic Sheet*

Marie-Julie Dalbe, Juha Koivisto, Loïc Vanel, Amandine Miksic, Osvanny Ramos, Mikko Alava, and Stéphane Santucci

Phys. Rev. Lett. **114**, 205501 (2015) – Published 20 May 2015

#### *Evidence for a Disordered Critical Point in a Glass-Forming Liquid*

Ludovic Berthier and Robert L. Jack

Phys. Rev. Lett. **114**, 205701 (2015) – Published 22 May 2015

#### *Rotational Spectromicroscopy: Imaging the Orbital Interaction between Molecular Hydrogen and an Adsorbed Molecule*

Shaowei Li (李绍巍), Dingwang Yuan, Arthur Yu, Gregory Czap, Ruqian Wu, and W. Ho

Phys. Rev. Lett. **114**, 206101 (2015) – Published 19 May 2015

**Condensed Matter: Electronic Properties, etc.**

*Weyl Node and Spin Texture in Trigonal Tellurium and Selenium*

Motoaki Hirayama, Ryo Okugawa, Shoji Ishibashi, Shuichi Murakami, and Takashi Miyake

Phys. Rev. Lett. **114**, 206401 (2015) – Published 22 May 2015

*Entanglement Entropy of the  $\nu=1/2$  Composite Fermion Non-Fermi Liquid State*

Junping Shao, Eun-Ah Kim, F.D.M. Haldane, and Edward H. Rezayi

Phys. Rev. Lett. **114**, 206402 (2015) – Published 22 May 2015

*Generation and Detection of Spin Currents in Semiconductor Nanostructures with Strong Spin-Orbit Interaction*

Fabrizio Nichele, Szymon Hennel, Patrick Pietsch, Werner Wegscheider, Peter Stano, Philippe Jacquod, Thomas Ihn, and Klaus Ensslin

Phys. Rev. Lett. **114**, 206601 (2015) – Published 18 May 2015

*Disordered Weyl Semimetals and Their Topological Family*

Y.X. Zhao and Z.D. Wang

Phys. Rev. Lett. **114**, 206602 (2015) – Published 20 May 2015

*Unidirectional Spin-Dependent Molecule-Ferromagnet Hybridized States Anisotropy in Cobalt Phthalocyanine Based Magnetic Tunnel Junctions*

Clément Barraud, Karim Bouzehouane, Cyrile Deranlot, Stéphane Fusil, Hashim Jabbar, Jacek Arabski, Rajib Rakshit, Dong-Jik Kim, Christophe Kieber, Samy Boukari, Martin Bowen, Eric Beaurepaire, Pierre Seneor, Richard Mattana, and Frédéric Petroff

Phys. Rev. Lett. **114**, 206603 (2015) – Published 21 May 2015

**Featured in Physics**

*Site-Dependent Evolution of Electrical Conductance from Tunneling to Atomic Point Contact*

Howon Kim and Yukio Hasegawa

Phys. Rev. Lett. **114**, 206801 (2015) – Published 22 May 2015

*Singlet-Triplet Excitations and Long-Range Entanglement in the Spin-Orbital Liquid Candidate  $FeSc_2S_4$*

N.J. Laurita, J. Deisenhofer, LiDong Pan, C.M. Morris, M. Schmidt, M. Johnsson, V. Tsurkan, A.

Loidl, and N.P. Armitage

Phys. Rev. Lett. **114**, 207201 (2015) – Published 22 May 2015

**Editors' Suggestion**

*Interferometric phase detection at x-ray energies via Fano resonance control*

K.P. Heeg, C. Ott, D. Schumacher, H.-C. Wille, R. Röhlberger, T. Pfeifer, and J. Evers

Phys. Rev. Lett. **114**, 207401 (2015) – Published 18 May 2015

**Polymer, Soft Matter, Biological, and Interdisciplinary Physics**

*Interfacial Structural Transition in Hydration Shells of a Polarizable Solute*

Mohammadhasan Dinpajoo and Dmitry V. Matyushov

Phys. Rev. Lett. **114**, 207801 (2015) – Published 22 May 2015

**Featured in Physics**

*Volume Changes During Active Shape Fluctuations in Cells*

Alessandro Taloni, Elena Kardash, Oguz Umut Salman, Lev Truskinovsky, Stefano Zapperi, and Caterina A.M. La Porta

Phys. Rev. Lett. **114**, 208101 (2015) – Published 19 May 2015

## ERRATA

*Erratum: Baryogenesis in a Flat Direction with Neither Baryon nor Lepton Charge [Phys. Rev. Lett. **92**, 011301 (2004)]*

Takeshi Chiba, Fuminobu Takahashi, and Masahide Yamaguchi

Phys. Rev. Lett. **114**, 209901 (2015) – Published 21 May 2015

*Erratum: Interpenetration, Deflection, and Stagnation of Cylindrically Convergent Magnetized Supersonic Tungsten Plasma Flows [Phys. Rev. Lett. **113**, 035003 (2014)]*

G. F. Swadling, S. V. Lebedev, A. J. Harvey-Thompson, W. Rozmus, G. Burdiak, L. Suttle, S. Patankar, R. A. Smith, M. Bennett, G. N. Hall, F. Suzuki-Vidal, and J. Yuan  
Phys. Rev. Lett. **114**, 209902 (2015) – Published 22 May 2015