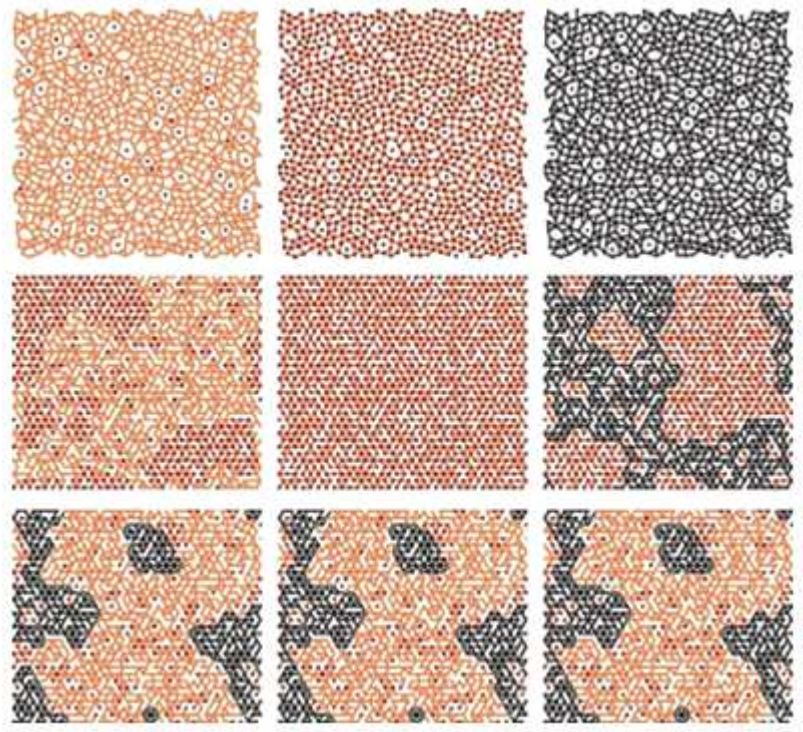
PHYSICAL REVIEW LETTERS
Volume 114, Issue 13 3 April 2015

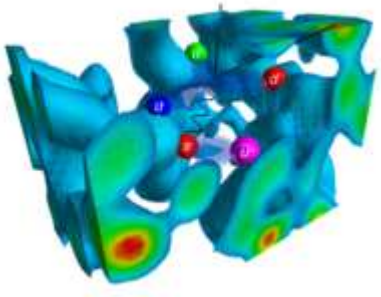


# HIGHLIGHTED ARTICLES

Featured in Physics Editors' Suggestion

## *Lattice QCD Evidence that the $\Lambda(1405)$ Resonance is an Antikaon-Nucleon Molecule*

Jonathan M. M. Hall, Waseem Kamleh, Derek B. Leinweber, Benjamin J. Menadue, Benjamin J. Owen, Anthony W. Thomas, and Ross D. Young
Phys. Rev. Lett. **114**, 132002 (2015) – Published 1 April 2015

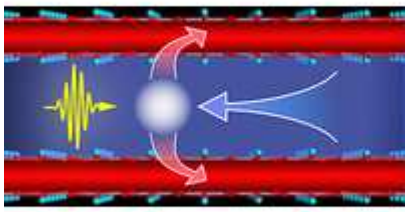


The Lambda baryon, in its excited state, behaves like a molecule, according to new lattice chromodynamics simulations of the particle's magnetic structure.

Featured in Physics Editors' Suggestion

## *Proposed Parametric Cooling of Bilayer Cuprate Superconductors by Terahertz Excitation*

S. J. Denny, S. R. Clark, Y. Laplace, A. Cavalleri, and D. Jaksch
Phys. Rev. Lett. **114**, 137001 (2015) – Published 31 March 2015

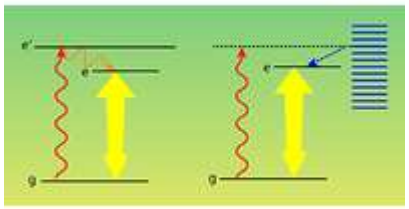


Terahertz radiation could reduce thermal noise in superconducting cuprates and potentially increase their critical temperature.

**Featured in Physics** **Editors' Suggestion**

## *Phonon-Assisted Population Inversion of a Single InGaAs/GaAs Quantum Dot by Pulsed Laser Excitation*

J. H. Quilter, A. J. Brash, F. Liu, M. Glässl, A. M. Barth, V. M. Axt, A. J. Ramsay, M. S. Skolnick, and A. M. Fox
Phys. Rev. Lett. **114**, 137401 (2015) – Published 30 March 2015

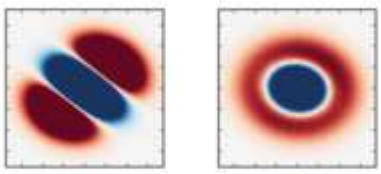


Phonons assist in creating an excitation-dominated state, or population inversion, in a single quantum dot—an effect that could be used to realize single-photon sources.

**Featured in Physics**

## *Experimental Violation of Bell-like Inequalities By Electronic Shot Noise*

Jean-Charles Forgues, Christian Lupien, and Bertrand Reulet
Phys. Rev. Lett. **114**, 130403 (2015) – Published 2 April 2015

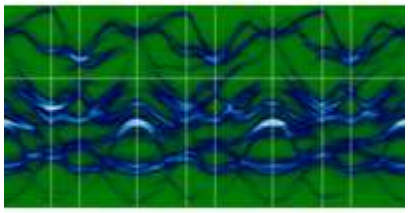


Evidence of quantum entanglement is uncovered in an unlikely place: the electrical noise in a simple quantum conductor chilled to near zero.

Editors' Suggestion

## *Origin of First-Order-Type Electronic and Structural Transitions in $IrTe_2$*

Kyoo Kim, Sooran Kim, K.-T. Ko, Hwangho Lee, J.-H. Park, J.J. Yang, S.-W. Cheong, and B.I. Min
Phys. Rev. Lett. **114**, 136401 (2015) – Published 31 March 2015

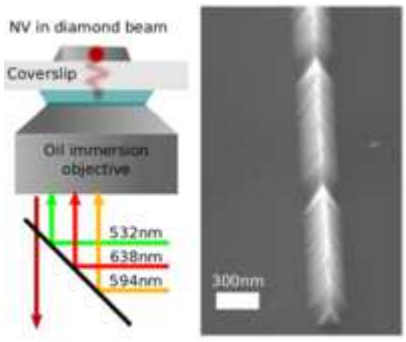


The microscopic origin of the first order electronic and structural transitions in $IrTe_2$, a candidate for a new topological superconductor, have been elucidated providing insight into its intriguing structural properties.

Editors' Suggestion

## *Efficient Readout of a Single Spin State in Diamond via Spin-to-Charge Conversion*

B.J. Shields, Q.P. Unterreithmeier, N.P. de Leon, H. Park, and M.D. Lukin
Phys. Rev. Lett. **114**, 136402 (2015) – Published 31 March 2015

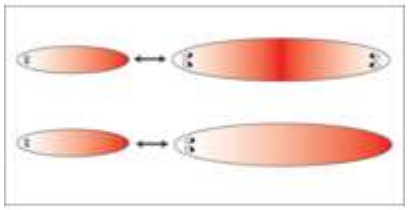



A scheme to read single electron spin states at nitrogen vacancy centers in diamond achieves a threefold reduction in noise for room temperature measurements.

Editors' Suggestion

## *Scaling and Regeneration of Self-Organized Patterns*

Steffen Werner, Tom Stückemann, Manuel Beirán Amigo, Jochen C. Rink, Frank Jülicher, and Benjamin M. Friedrich
Phys. Rev. Lett. **114**, 138101 (2015) – Published 1 April 2015



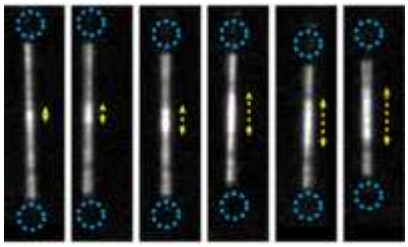
A modification to the classical Turing pattern mechanism is proposed to address body plan regeneration in flatworms. In particular, how these spontaneously forming patterns automatically and reliably adjust to animal size ensuring only one head forms.

**Editors' Suggestion**

### *Measuring Cohesion between Macromolecular Filaments One Pair at a Time: Depletion-Induced Microtubule Bundling*

Feodor Hilitski, Andrew R. Ward, Luis Cajamarca, Michael F. Hagan, Gregory M. Grason, and Zvonimir Dogic

Phys. Rev. Lett. **114**, 138102 (2015) – Published 2 April 2015



A new technique combining imaging and optical trapping of microtubule filaments finds that the free energy between two filaments scales linearly with the applied strain, in violation of Hooke’s law.

# LETTERS

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

### ***Complementarity and Correlations***

Lorenzo Maccone, Dagmar Bruß, and Chiara MacchiavelloPhys. Rev. Lett. **114**, 130401 (2015) – Published 1 April 2015

### ***Completely Positive Approximate Solutions of Driven Open Quantum Systems***

Farhang Haddadfarshi, Jian Cui, and Florian Mintert
Phys. Rev. Lett. **114**, 130402 (2015) – Published 1 April 2015

**Featured in Physics**

### *Experimental Violation of Bell-like Inequalities By Electronic Shot Noise*

Jean-Charles Forgues, Christian Lupien, and Bertrand Reulet
Phys. Rev. Lett. **114**, 130403 (2015) – Published 2 April 2015

### *Fluctuation-Driven Selection at Criticality in a Frustrated Magnetic System: The Case of Multiple-$k$ Partial Order on the Pyrochlore Lattice*

Behnam Javanparast, Zhihao Hao, Matthew Enjalran, and Michel J. P. Gingras
Phys. Rev. Lett. **114**, 130601 (2015) – Published 2 April 2015

## Elementary Particles and Fields

### *Measurement of $B_c^+$ Production in Proton-Proton Collisions at $\sqrt{s}=8$ TeV*

R. Aaij *et al.* ((LHCb Collaboration))
Phys. Rev. Lett. **114**, 132001 (2015) – Published 2 April 2015

Featured in Physics | Editors' Suggestion

### *Lattice QCD Evidence that the $\Lambda(1405)$ Resonance is an Antikaon-Nucleon Molecule*

Jonathan M. M. Hall, Waseem Kamleh, Derek B. Leinweber, Benjamin J. Menadue, Benjamin J. Owen, Anthony W. Thomas, and Ross D. Young
Phys. Rev. Lett. **114**, 132002 (2015) – Published 1 April 2015

## Atomic, Molecular, and Optical Physics

### *Rydberg-Resolved Resonant Inelastic Soft X-Ray Scattering: Dynamics at Core Ionization Thresholds*

J.-E. Rubensson, J. Söderström, C. Binggeli, J. Gråsjö, J. Andersson, C. Såthe, F. Hennies, V. Bisogni, Y. Huang, P. Olalde, T. Schmitt, V. N. Strocov, A. Föhlisch, B. Kennedy, and A. Pietzsch
Phys. Rev. Lett. **114**, 133001 (2015) – Published 31 March 2015

### *Experimental Characterization of Singlet Scattering Channels in Long-Range Rydberg Molecules*

Heiner Saßmannshausen, Frédéric Merkt, and Johannes Deiglmayr
Phys. Rev. Lett. **114**, 133201 (2015) – Published 31 March 2015

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

### *Sagnac Interferometry Using Bright Matter-Wave Solitons*

J. L. Helm, S. L. Cornish, and S. A. Gardiner
Phys. Rev. Lett. **114**, 134101 (2015) – Published 1 April 2015

### *Feedback-Induced Phase Transitions in Active Heterogeneous Conductors*

Samuel A. Ocko and L. Mahadevan
Phys. Rev. Lett. **114**, 134501 (2015) – Published 2 April 2015

## Condensed Matter: Structure, etc.

### *Rigidity Loss in Disordered Systems: Three Scenarios*

Wouter G. Ellenbroek, Varda F. Hagh, Avishek Kumar, M.F. Thorpe, and Martin van Hecke
Phys. Rev. Lett. **114**, 135501 (2015) – Published 1 April 2015

## Condensed Matter: Electronic Properties, etc.

Editors' Suggestion

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B.J. Shields, Q.P. Unterreithmeier, N.P. de Leon, H. Park, and M.D. Lukin
Phys. Rev. Lett. **114**, 136402 (2015) – Published 31 March 2015

### *Symmetry-Dependent Exciton-Phonon Coupling in 2D and Bulk $MoS_2$ Observed by Resonance Raman Scattering*

Bruno R. Carvalho, Leandro M. Malard, Juliana M. Alves, Cristiano Fantini, and Marcos A. Pimenta
Phys. Rev. Lett. **114**, 136403 (2015) – Published 2 April 2015

### *Low-Dimensional Transport and Large Thermoelectric Power Factors in Bulk Semiconductors by Band Engineering of Highly Directional Electronic States*

Daniel I. Bilc, Geoffroy Hautier, David Waroquiers, Gian-Marco Rignanese, and Philippe Ghosez
Phys. Rev. Lett. **114**, 136601 (2015) – Published 31 March 2015

### *Encounter-Limited Charge-Carrier Recombination in Phase-Separated Organic Semiconductor Blends*

Michael C. Heiber, Christoph Baumbach, Vladimir Dyakonov, and Carsten Deibel
Phys. Rev. Lett. **114**, 136602 (2015) – Published 1 April 2015

### *Coexisting Edge States and Gapless Bulk in Topological States of Matter*

Yuval Baum, Thore Posske, Ion Cosma Fulga, Björn Trauzettel, and Ady Stern
Phys. Rev. Lett. **114**, 136801 (2015) – Published 31 March 2015

Featured in Physics Editors' Suggestion

### *Proposed Parametric Cooling of Bilayer Cuprate Superconductors by Terahertz Excitation*

S.J. Denny, S.R. Clark, Y. Laplace, A. Cavalleri, and D. Jaksch
Phys. Rev. Lett. **114**, 137001 (2015) – Published 31 March 2015

### *Dynamical Skyrmion State in a Spin Current Nano-Oscillator with Perpendicular Magnetic Anisotropy*

R. H. Liu (刘荣华), W. L. Lim, and S. Urazhdin
Phys. Rev. Lett. **114**, 137201 (2015) – Published 31 March 2015

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### *Phonon-Assisted Population Inversion of a Single InGaAs/GaAs Quantum Dot by Pulsed Laser Excitation*

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Phys. Rev. Lett. **114**, 137401 (2015) – Published 30 March 2015

### *Population Pulsation Resonances of Excitons in Monolayer $MoSe_2$ with Sub-$1\ \mu eV$ Linewidths*

John R. Schaibley, Todd Karin, Hongyi Yu, Jason S. Ross, Pasqual Rivera, Aaron M. Jones, arie E. Scott, Jiaqiang Yan, D. G. Mandrus, Wang Yao, Kai-Mei Fu, and Xiaodong Xu
Phys. Rev. Lett. **114**, 137402 (2015) – Published 1 April 2015

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

Editors' Suggestion

### *Scaling and Regeneration of Self-Organized Patterns*

Steffen Werner, Tom Stückemann, Manuel Beirán Amigo, Jochen C. Rink, Frank Jülicher, and Benjamin M. Friedrich
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Feodor Hilitski, Andrew R. Ward, Luis Cajamarca, Michael F. Hagan, Gregory M. Grason, and Zvonimir Dogic
Phys. Rev. Lett. **114**, 138102 (2015) – Published 2 April 2015

### *Classical $XY$ Model with Conserved Angular Momentum is an Archetypal Non-Newtonian Fluid*

R. M. L. Evans, Craig A. Hall, R. Aditi Simha, and Tom S. Welsh
Phys. Rev. Lett. **114**, 138301 (2015) – Published 2 April 2015

## ERRATA

### *Erratum: Convexity of the Entanglement Entropy of SU($2N$)-Symmetric Fermions with Attractive Interactions [Phys. Rev. Lett. 114, 050402 (2015)]*

Joaquín E. Drut and William J. Porter
Phys. Rev. Lett. **114**, 139901 (2015) – Published 1 April 2015