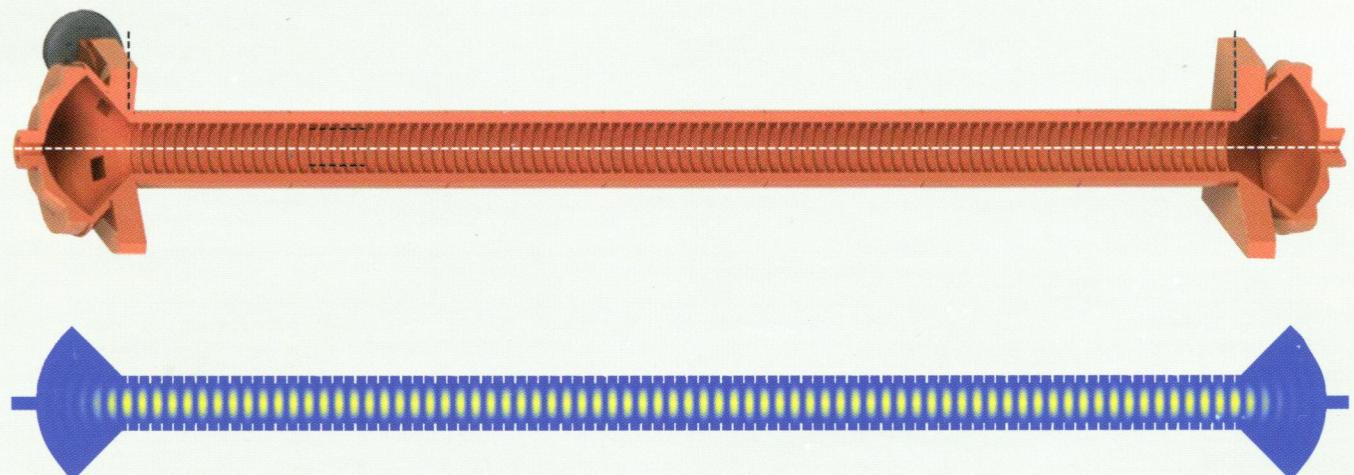


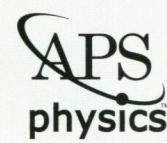
74  
p59/m

# PHYSICAL REVIEW LETTERS<sup>TM</sup>

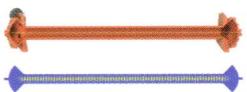
Articles published week ending 25 APRIL 2014



Published by  
**American Physical Society**<sup>TM</sup>



Volume 112, Number 16



Cutaway view of a short-period tunable microwave undulator showing the corrugated guiding walls (top); simulated profile of the on-axis electric field (bottom). Selected for a Synopsis in *Physics*. [Sami Tantawi *et al.*, Phys. Rev. Lett. **112**, 164802 (2014)]

# NEWSPAPER

## PHYSICAL REVIEW LETTERS™

### Contents

Articles published 19 April–25 April 2014

VOLUME 112, NUMBER 16

25 April 2014

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

Obtaining a <i>W</i> State from a Greenberger-Horne-Zeilinger State via Stochastic Local Operations and Classical Communication with a Rate Approaching Unity .....	160401
Nengkun Yu, Cheng Guo, and Runyao Duan	
Manifold Mixing in the Temporal Evolution of a Spin-1 Spinor Bose-Einstein Condensate .....	160402
Yun-Tak Oh, Panjin Kim, Jin-Hong Park, and Jung Hoon Han	
Scaling of Rényi Entanglement Entropies of the Free Fermi-Gas Ground State: A Rigorous Proof .....	160403
Hajo Leschke, Alexander V. Sobolev, and Wolfgang Spitzer	
$\psi$ -Epistemic Models are Exponentially Bad at Explaining the Distinguishability of Quantum States .....	160404
M. S. Leifer	
Linear-Optical Simulation of the Cooling of a Cluster-State Hamiltonian System .....	160501
G. H. Aguilar, T. Kolb, D. Cavalcanti, L. Aolita, R. Chaves, S. P. Walborn, and P. H. Souto Ribeiro	
Fluxon Readout of a Superconducting Qubit .....	160502
Kirill G. Fedorov, Anastasia V. Shcherbakova, Michael J. Wolf, Detlef Beckmann, and Alexey V. Ustinov	
Nano-Kelvin Thermometry and Temperature Control: Beyond the Thermal Noise Limit .....	160801
Wenle Weng, James D. Anstie, Thomas M. Stace, Geoff Campbell, Fred N. Baynes, and Andre N. Luiten	
Cavity-Enhanced Room-Temperature Magnetometry Using Absorption by Nitrogen-Vacancy Centers in Diamond .....	160802
K. Jensen, N. Leefer, A. Jarmola, Y. Dumeige, V. M. Acosta, P. Kehayias, B. Patton, and D. Budker	

#### Gravitation and Astrophysics

Strong Binary Pulsar Constraints on Lorentz Violation in Gravity .....	161101
Kent Yagi, Diego Blas, Nicolás Yunes, and Enrico Barausse	
Dark Matter as a Trigger for Periodic Comet Impacts .....	161301
P Dark Matter as a Trigger for Periodic Comet Impacts .....	
Lisa Randall and Matthew Reece	
Simple Predictions from Multifield Inflationary Models .....	161302
Richard Easter, Jonathan Frazer, Hiranya V. Peiris, and Layne C. Price	
Resonantly Produced 7 keV Sterile Neutrino Dark Matter Models and the Properties of Milky Way Satellites .....	161303
G Resonantly Produced 7 keV Sterile Neutrino Dark Matter Models and the Properties of Milky Way Satellites .....	
Kevork N. Abazajian	

#### Elementary Particles and Fields

Observation of Photon Polarization in the $b \rightarrow s\gamma$ Transition .....	161801
G Observation of Photon Polarization in the $b \rightarrow s\gamma$ Transition .....	
R. Aaij <i>et al.</i> (LHCb Collaboration)	
Search for Top Squark and Higgsino Production Using Diphoton Higgs Boson Decays .....	161802
S. Chatrchyan <i>et al.</i> (CMS Collaboration)	
Lattice Study of the Jet Quenching Parameter .....	162001
Marco Panero, Kari Rummukainen, and Andreas Schäfer	
Lattice QCD with Mismatched Fermi Surfaces .....	162002
Arata Yamamoto	

(Continued Inside)

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

G 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)*

**Nuclear Physics**

Beam-Energy Dependence of the Directed Flow of Protons, Antiprotons, and Pions in Au+Au Collisions .....	162301
L. Adamczyk <i>et al.</i> (STAR Collaboration)	
Observation of Enhanced Monopole Strength and Clustering in $^{12}\text{Be}$ .....	162501
Z. H. Yang,(杨再宏) Y. L. Ye,(叶沿林) Z. H. Li,(李智煥) J. L. Lou,(楼建玲) J. S. Wang,(王建松) D. X. Jiang,(江栋兴) Y. C. Ge,(葛渝成) Q. T. Li,(李奇特) H. Hua,(华辉) X. Q. Li,(李湘庆) F. R. Xu,(许甫荣) J. C. Pei,(裴俊琛) R. Qiao,(乔锐) H. B. You,(游海波) H. Wang,(王赫) Z. Y. Tian,(田正阳) K. A. Li,(李阔昂) Y. L. Sun,(孙叶磊) H. N. Liu,(刘红娜) J. Chen,(陈洁) J. Wu,(吴锦) J. Li,(李晶) W. Jiang,(蒋伟) C. Wen,(文超) B. Yang,(杨彪) Y. Y. Yang,(杨彦云) P. Ma,(马朋) J. B. Ma,(马军兵) S. L. Jin,(金仕纶) J. L. Han,(韩建龙) and J. Lee(李晓菁)	
Hyperfine Structure Constant of the Neutron Halo Nucleus $^{11}\text{Be}^+$ .....	162502
A. Takamine, M. Wada, K. Okada, T. Sonoda, P. Schury, T. Nakamura, Y. Kanai, T. Kubo, I. Katayama, S. Ohtani, H. Wollnik, and H. A. Schuessler	
Forging the Link between Nuclear Reactions and Nuclear Structure .....	162503
M. H. Mahzoon, R. J. Charity, W. H. Dickhoff, H. Dussan, and S. J. Waldecker	
Shape Coexistence in the Neutron-Deficient Even-Even $^{182-188}\text{Hg}$ Isotopes Studied via Coulomb Excitation .....	162701
N. Bree <i>et al.</i>	

**Atomic, Molecular, and Optical Physics**

Wireless Network Control of Interacting Rydberg Atoms .....	163001
Jaron Sanders, Rick van Bijnen, Edgar Vredenbregt, and Servaas Kokkelmans	
Zeeman-Tuned Rotational Level-Crossing Spectroscopy in a Diatomic Free Radical .....	163002
S. B. Cahn, J. Ammon, E. Kirilov, Y. V. Gurevich, D. Murphree, R. Paolino, D. A. Rahmlow, M. G. Kozlov, and D. DeMille	
Selective Control over Fragmentation Reactions in Polyatomic Molecules Using Impulsive Laser Alignment .....	163003
Xinhua Xie, Katharina Doblhoff-Dier, Huailiang Xu, Stefan Roither, Markus S. Schöffler, Daniil Kartashov, Sonia Erattupuzha, Tim Rathje, Gerhard G. Paulus, Kaoru Yamanouchi, Andrius Baltuška, Stefanie Gräfe, and Markus Kitzler	
Photoassociation of Long-Range $nD$ Rydberg Molecules .....	163201
D. A. Anderson, S. A. Miller, and G. Raithel	

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

X-Ray Second Harmonic Generation .....	163901
S. Shwartz, M. Fuchs, J. B. Hastings, Y. Inubushi, T. Ishikawa, T. Katayama, D. A. Reis, T. Sato, K. Tono, M. Yabashi, S. Yudovich, and S. E. Harris	
Manipulation of High-Order Scattering Processes in Ultrasmall Optical Resonators to Control Far-Field Emission .....	163902
Brandon Redding, Li Ge, Qinghai Song, Glenn S. Solomon, and Hui Cao	
Dissipation-Driven Behavior of Nonpropagating Hydrodynamic Solitons Under Confinement .....	164101
Leonardo Gordillo and Mónica A. García-Ñustes	
Genesis of Streamwise-Localized Solutions from Globally Periodic Traveling Waves in Pipe Flow .....	164501
M. Chantry, A. P. Willis, and R. R. Kerswell	

**Plasma and Beam Physics**

Transverse Spreading of Electrons in High-Intensity Laser Fields .....	164801
D. G. Green and C. N. Harvey	
Experimental Demonstration of a Tunable Microwave Undulator .....	164802
Sami Tantawi, Muhammad Shumail, Jeffery Neilson, Gordon Bowden, Chao Chang, Erik Hemsing, and Michael Dunning	
Observation of Turbulent Intermittency Scaling with Magnetic Helicity in an MHD Plasma Wind Tunnel .....	165001
D. A. Schaffner, A. Wan, and M. R. Brown	

**Condensed Matter: Structure, etc.**

Dissociation of High-Pressure Solid Molecular Hydrogen: A Quantum Monte Carlo and Anharmonic Vibrational Study .....	165501
Sam Azadi, Bartomeu Monserrat, W. M. C. Foulkes, and R. J. Needs	

(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*)

Strain Imaging of Nanoscale Semiconductor Heterostructures with X-Ray Bragg Projection Ptychography .....	165502
Martin V. Holt, Stephan O. Hruszkewycz, Conal E. Murray, Judson R. Holt, Deborah M. Paskiewicz, and Paul H. Fuoss	
Two-Level Systems and Boson Peak Remain Stable in 110-Million-Year-Old Amber Glass .....	165901
Tomás Pérez-Castañeda, Rafael J. Jiménez-Riobóo, and Miguel A. Ramos	
Fast Imaging with Inelastically Scattered Electrons by Off-Axis Chromatic Confocal Electron Microscopy .....	166101
Changlin Zheng, Ye Zhu, Sorin Lazar, and Joanne Etheridge	
CO Tip Functionalization Inverts Atomic Force Microscopy Contrast via Short-Range Electrostatic Forces .....	166102
Maximilian Schneiderbauer, Matthias Emmrich, Alfred J. Weymouth, and Franz J. Giessibl	
<b>Condensed Matter: Electronic Properties, etc.</b>	
Field Induced Positional Shift of Bloch Electrons and Its Dynamical Implications .....	166601
Yang Gao, Shengyuan A. Yang, and Qian Niu	
Charge Fractionalization in the Integer Quantum Hall Effect .....	166801
Hiroyuki Inoue, Anna Grivnin, Nissim Ofek, Izhar Neder, Moty Heiblum, Vladimir Umansky, and Diana Mahalu	
Protected Josephson Rhombus Chains .....	167001
Matthew T. Bell, Joshua Paramanandam, Lev B. Ioffe, and Michael E. Gershenson	
Distinct Magnetic Phase Transition at the Surface of an Antiferromagnet .....	167201
S. Langridge, G. M. Watson, D. Gibbs, J. J. Betouras, N. I. Gidopoulos, F. Pollmann, M. W. Long, C. Vettier, and G. H. Lander	
Coupled Skyrmion Sublattices in Cu <sub>2</sub> OSeO <sub>3</sub> .....	167202
M. C. Langner, S. Roy, S. K. Mishra, J. C. T. Lee, X. W. Shi, M. A. Hossain, Y.-D. Chuang, S. Seki, Y. Tokura, S. D. Kevan, and R. W. Schoenlein	
Quantum Spin Ices and Topological Phases from Dipolar-Octupolar Doublets on the Pyrochlore Lattice .....	167203
Yi-Ping Huang, Gang Chen, and Michael Hermele	
Superconductivity of Composite Particles in a Two-Channel Kondo Lattice .....	167204
Shintaro Hoshino and Yoshio Kuramoto	
Completely Stopped and Dispersionless Light in Plasmonic Waveguides .....	167401
Kosmas L. Tsakmakidis, Tim W. Pickering, Joachim M. Hamm, A. Freddie Page, and Ortwin Hess	
Josephson Directional Amplifier for Quantum Measurement of Superconducting Circuits .....	167701
Baleegh Abdo, Katrina Sliwa, S. Shankar, Michael Hatridge, Luigi Frunzio, Robert Schoelkopf, and Michel Devoret	
<b>Soft Matter, Biological, and Interdisciplinary Physics</b>	
Defect-Mediated Phase Transitions in Active Soft Matter .....	168301
Christoph A. Weber, Christopher Bock, and Erwin Frey	
<b>Errata</b>	
Publisher's Note: Dynamics of the Force Exchanged between Membrane Inclusions [Phys. Rev. Lett. 112, 128101 (2014)]	169901
Jean-Baptiste Fournier	
Erratum: Current-Induced Spin Polarization in Anisotropic Spin-Orbit Fields [Phys. Rev. Lett. 112, 056601 (2014)] ....	169902
B. M. Norman, C. J. Trowbridge, D. D. Awschalom, and V. Sih	
Publisher's Note: Oxygen vacancies versus fluorine at CeO <sub>2</sub> (111): A case of mistaken Identity? [Phys. Rev. Lett. 112, 156102 (2014)] .....	169903
J. Kullgren, M. J. Wolf, C. W. M. Castleton, P. Mitev, W. J. Briels, and K. Hermansson	



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.