



Bose-Einstein condensate density (color scale) as a function of position and time for a condensate coupled to the light field of a high- Q optical cavity for limit cycle dynamics (left) and chaotic dynamics (right). [Francesco Piazza and Helmut Ritsch, Phys. Rev. Lett. **115**, 163601 (2015)]

NEWSPAPER

PHYSICAL REVIEW LETTERS™

Contents

Articles published 10 October–16 October 2015

VOLUME 115, NUMBER 16

16 October 2015

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

Quasiparticle Properties of a Mobile Impurity in a Bose-Einstein Condensate	160401
Rasmus Søgaard Christensen, Jesper Levinsen, and Georg M. Bruun	
From Floquet to Dicke: Quantum Spin Hall Insulator Interacting with Quantum Light	160402
Balázs Gulácsi and Balázs Dóra	
Controlled Rephasing of Single Collective Spin Excitations in a Cold Atomic Quantum Memory	160501
Boris Albrecht, Pau Farrera, Georg Heinze, Matteo Cristiani, and Hugues de Riedmatten	
Phase-Reference-Free Experiment of Measurement-Device-Independent Quantum Key Distribution	160502
Chao Wang, Xiao-Tian Song, Zhen-Qiang Yin, Shuang Wang, Wei Chen, Chun-Mei Zhang, Guang-Can Guo, and Zheng-Fu Han	
Experimental Generation of Robust Entanglement from Classical Correlations via Local Dissipation	160503
Adeline Orioux, Mario A. Ciampini, Paolo Mataloni, Dagmar Bruß, Matteo Rossi, and Chiara Macchiavello	
Proposal for High-Fidelity Quantum Simulation Using a Hybrid Dressed State	160504
Jianming Cai, Itsik Cohen, Alex Retzker, and Martin B. Plenio	
Quantum Hilbert Hotel	160505
Václav Potoček, Filippo M. Miatto, Mohammad Mirhosseini, Omar S. Magaña-Loaiza, Andreas C. Liapis, Daniel K. L. Oi, Robert W. Boyd, and John Jeffers	

Gravitation and Astrophysics

Compactness of Neutron Stars	161101
Wei-Chia Chen and J. Piekarewicz	
Checking the Dark Matter Origin of a 3.53 keV Line with the Milky Way Center	161301
A. Boyarsky, J. Franse, D. Iakubovskiy, and O. Ruchayskiy	
Theoretically Palatable Flavor Combinations of Astrophysical Neutrinos	161302
Mauricio Bustamante, John F. Beacom, and Walter Winter	
Effect of New Physics in Astrophysical Neutrino Flavor	161303
Carlos. A. Argüelles, Teppei Katori, and Jordi Salvado	
Exact Path Integral for 3D Quantum Gravity	161304
Norihiro Iizuka, Akinori Tanaka, and Seiji Terashima	

Elementary Particles and Fields

Search for Violation of CPT and Lorentz Invariance in B_s^0 Meson Oscillations	161601
V. M. Abazov <i>et al.</i> (D0 Collaboration)	
Goldstone Gauginos	161801
Daniele S. M. Alves, Jamison Galloway, Matthew McCullough, and Neal Weiner	

(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).

Copyright 2015 American Physical Society



0031-9007(20151016)115:16;1-G

Search for Hidden-Sector Bosons in $B^0 \rightarrow K^{*0} \mu^+ \mu^-$ Decays	161802
R. Aaij <i>et al.</i> (LHCb Collaboration)	
Disentangling Mass and Mixing Hierarchies	161803
Simon Knapen and Dean J. Robinson	
Beyond-Standard-Model Tensor Interaction and Hadron Phenomenology	162001
Aurore Courtoy, Stefan Baeßler, Martín González-Alonso, and Simonetta Liuti	
Nuclear Physics	
Mass Measurement of ^{56}Sc Reveals a Small $A = 56$ Odd-Even Mass Staggering, Implying a Cooler Accreted Neutron Star Crust	162501
Z. Meisel, S. George, S. Ahn, D. Bazin, B. A. Brown, J. Browne, J. F. Carpino, H. Chung, A. L. Cole, R. H. Cyburt, A. Estradé, M. Famiano, A. Gade, C. Langer, M. Matoš, W. Mittig, F. Montes, D. J. Morrissey, J. Pereira, H. Schatz, J. Schatz, M. Scott, D. Shapira, K. Smith, J. Stevens, W. Tan, O. Tarasov, S. Towers, K. Wimmer, J. R. Winkelbauer, J. Yurkon, and R. G. T. Zegers	
Observation of Gravitationally Induced Vertical Striation of Polarized Ultracold Neutrons by Spin-Echo Spectroscopy	162502
S. Afach <i>et al.</i>	
Atomic, Molecular, and Optical Physics	
Sagnac Interferometry with a Single Atomic Clock	163001
R. Stevenson, M. R. Hush, T. Bishop, I. Lesanovsky, and T. Fernholz	
Spin-Mixing Interferometry with Bose-Einstein Condensates	163002
Marco Gabbrielli, Luca Pezzè, and Augusto Smerzi	
Probe of Rydberg-Atom Transitions via an Amplitude-Modulated Optical Standing Wave with a Ponderomotive Interaction	163003
K. R. Moore and G. Raithel	
Self-Ordered Limit Cycles, Chaos, and Phase Slippage with a Superfluid inside an Optical Resonator	163601
Francesco Piazza and Helmut Ritsch	
Above-Threshold Ionization of Quasiperiodic Structures by Low-Frequency Laser Fields	163602
F. Catoire and H. Bachau	
Deterministic Generation of Arbitrary Photonic States Assisted by Dissipation	163603
A. González-Tudela, V. Paulisch, D. E. Chang, H. J. Kimble, and J. I. Cirac	
Nonlinear Dynamics, Fluid Dynamics, Classical Optics, etc.	
Generation of Terahertz Surface Plasmon Polaritons Using Nondiffractive Bessel Beams with Orbital Angular Momentum	163901
B. A. Knyazev, Yu. Yu. Choporova, M. S. Mitkov, V. S. Pavelyev, and B. O. Volodkin	
Synchronization and Phase Noise Reduction in Micromechanical Oscillator Arrays Coupled through Light	163902
Mian Zhang, Shreyas Shah, Jaime Cardenas, and Michal Lipson	
Wettability Stabilizes Fluid Invasion into Porous Media via Nonlocal, Cooperative Pore Filling	164501
Ran Holtzman and Enrico Segre	
Blockage of Water Flow in Carbon Nanotubes by Ions Due to Interactions between Cations and Aromatic Rings	164502
Jian Liu, Guosheng Shi, Pan Guo, Jinrong Yang, and Haiping Fang	
Condensed Matter: Structure, etc.	
Lattice-Assisted Spectroscopy: A Generalized Scanning Tunneling Microscope for Ultracold Atoms	165301
A. Kantian, U. Schollwöck, and T. Giamarchi	
Heavy-Fermion Valence-Bond Liquids in Ultracold Atoms: Cooperation of the Kondo Effect and Geometric Frustration	165302
L. Isaev and A. M. Rey	
Laser-Induced Kondo Effect in Ultracold Alkaline-Earth Fermions	165303
Masaya Nakagawa and Norio Kawakami	
Polar Phase of Superfluid ^3He in Anisotropic Aerogel	165304
V. V. Dmitriev, A. A. Senin, A. A. Soldatov, and A. N. Yudin	

(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)

Crystal-Like Rearrangements of Icosahedra in Simulated Copper-Zirconium Metallic Glasses and their Effect on Mechanical Properties	165501
J. Zemp, M. Celino, B. Schönfeld, and J. F. Löffler	
Stretched Exponential Relaxation of Glasses at Low Temperature	165901
Yingtian Yu, Mengyi Wang, Dawei Zhang, Bu Wang, Gaurav Sant, and Mathieu Bauchy	
Condensed Matter: Electronic Properties, etc.	
Emergent Supersymmetry from Strongly Interacting Majorana Zero Modes	166401
Armin Rahmani, Xiaoyu Zhu, Marcel Franz, and Ian Affleck	
Signature of Strong Spin-Orbital Coupling in the Large Nonsaturating Magnetoresistance Material WTe_2	166601
J. Jiang, F. Tang, X. C. Pan, H. M. Liu, X. H. Niu, Y. X. Wang, D. F. Xu, H. F. Yang, B. P. Xie, F. Q. Song, P. Dudin, T. K. Kim, M. Hoesch, P. Kumar Das, I. Vobornik, X. G. Wan, and D. L. Feng	
Temperature-Induced Lifshitz Transition in WTe_2	166602
Yun Wu, Na Hyun Jo, Masayuki Ochi, Lunan Huang, Daixiang Mou, Sergey L. Bud'ko, P. C. Canfield, Nandini Trivedi, Ryotaro Arita, and Adam Kaminski	
 Transport Spectroscopy of a Spin-Coherent Dot-Cavity System	166603
C. Rössler, D. Oehri, O. Zilberberg, G. Blatter, M. Karalic, J. Pijnenburg, A. Hofmann, T. Ihn, K. Ensslin, C. Reichl, and W. Wegscheider	
Electronic Degeneracy and Intrinsic Magnetic Properties of Epitaxial Nb:SrTiO_3 Thin Films Controlled by Defects	166801
A. Sarantopoulos, E. Ferreira-Vila, V. Pardo, C. Magén, M. H. Aguirre, and F. Rivadulla	
Signatures of Bloch-Band Geometry on Excitons: Nonhydrogenic Spectra in Transition-Metal Dichalcogenides	166802
Ajit Srivastava and Ataç Imamoğlu	
Berry Phase Modification to the Energy Spectrum of Excitons	166803
Jianhui Zhou, Wen-Yu Shan, Wang Yao, and Di Xiao	
Light-Induced Exciton Spin Hall Effect in van der Waals Heterostructures	166804
Yun-Mei Li, Jian Li, Li-Kun Shi, Dong Zhang, Wen Yang, and Kai Chang	
$\text{SU}(3)$ and $\text{SU}(4)$ Singlet Quantum Hall States at $\nu = 2/3$	166805
Fengcheng Wu, Inti Sodemann, Allan H. MacDonald, and Thierry Jolicoeur	
 High-Fidelity Rapid Initialization and Read-Out of an Electron Spin via the Single Donor D^- Charge State	166806
T. F. Watson, B. Weber, M. G. House, H. Büch, and M. Y. Simmons	
Emergent $\text{SU}(3)$ Symmetry in Random Spin-1 Chains	167201
V. L. Quito, José A. Hoyos, and E. Miranda	
Resonating-Valence-Bond Physics Is Not Always Governed by the Shortest Tunneling Loops	167202
Arnaud Ralko and Ioannis Rouschatzakis	
Rare-Earth Triangular Lattice Spin Liquid: A Single-Crystal Study of YbMgGaO_4	167203
Yuesheng Li, Gang Chen, Wei Tong, Li Pi, Juanjuan Liu, Zhaorong Yang, Xiaoqun Wang, and Qingming Zhang	
First-Principles Study of the Magnetic Structure of Na_2IrO_3	167204
Kaige Hu (胡凯歌), Fa Wang, and Ji Feng (冯济)	
Adjacent Fe-Vacancy Interactions as the Origin of Room Temperature Ferromagnetism in $(\text{In}_{1-x}\text{Fe}_x)_2\text{O}_3$	167401
R. J. Green, T. Z. Regier, B. Leedahl, J. A. McLeod, X. H. Xu, G. S. Chang, E. Z. Kurmaev, and A. Moewes	
Polymer, Soft Matter, Biological, and Interdisciplinary Physics	
General Differential Contact Identities for Macromolecules	167801
Jonathan Landy, P. A. Pincus, and YongSeok Jho	
Criticality in the Approach to Failure in Amorphous Solids	168001
Jie Lin, Thomas Gueudré, Alberto Rosso, and Matthieu Wyart	
Propulsion and Instability of a Flexible Helical Rod Rotating in a Viscous Fluid	168101
M. K. Jawed, N. K. Khouri, F. Da, E. Grinspun, and P. M. Reis	
Three-Dimensional Conformation of Folded Polymers in Single Crystals	168301
You-lee Hong, Shichen Yuan, Zhen Li, Yutian Ke, Koji Nozaki, and Toshikazu Miyoshi	

(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)

Comments

Comment on “General Non-Markovian Dynamics of Open Quantum Systems”	168901
Dara P. S. McCutcheon, Juan Pablo Paz, and Augusto J. Roncaglia	
Zhang <i>et al.</i> Reply	168902
Wei-Min Zhang, Ping-Yuan Lo, Heng-Na Xiong, Matisse Wei-Yuan Tu, and Franco Nori	

Errata

Erratum: New Steady-State Quiescent High-Confinement Plasma in an Experimental Advanced Superconducting Tokamak [Phys. Rev. Lett. 114 , 055001 (2015)]	169901
J. S. Hu, Z. Sun, H. Y. Guo, J. G. Li, B. N. Wan, H. Q. Wang, S. Y. Ding, G. S. Xu, Y. F. Liang, D. K. Mansfield, R. Maingi, X. L. Zou, L. Wang, J. Ren, G. Z. Zuo, L. Zhang, Y. M. Duan, T. H. Shi, L. Q. Hu, and EAST team	
Publisher’s Note: Decay and Fission Hindrance of Two- and Four-Quasiparticle K Isomers in ^{254}Rf [Phys. Rev. Lett. 115 , 132502 (2015)]	169902
H. M. David <i>et al.</i>	



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).

Physics
spotlighting exceptional research

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