



Contour plot of spectrogram of neutral beam driven toroidal $n = 3$ mode in high-beta tokamak plasma. [Andreas Bierwage, Nobuyuki Aiba, and Kouji Shinohara, Phys. Rev. Lett. **114**, 015002 (2015)]

NEWSPAPER

PHYSICAL REVIEW LETTERS™

Contents

Articles published 1 January–9 January 2015

VOLUME 114, NUMBER 1

9 January 2015

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

Measuring the Biphoton Temporal Wave Function with Polarization-Dependent and Time-Resolved Two-Photon Interference	010401
Peng Chen, Chi Shu, Xianxin Guo, M. M. T. Loy, and Shengwang Du	
Coherence and Decay of Higher Energy Levels of a Superconducting Transmon Qubit	010501
Michael J. Peterer, Samuel J. Bader, Xiaoyue Jin, Fei Yan, Archana Kamal, Theodore J. Gudmundsen, Peter J. Leek, Terry P. Orlando, William D. Oliver, and Simon Gustavsson	
 Experimental Observation of Lee-Yang Zeros	010601
Xinhua Peng, Hui Zhou, Bo-Bo Wei, Jiangyu Cui, Jiangfeng Du, and Ren-Bao Liu	
General Magnetic Transition Dipole Moments for Electron Paramagnetic Resonance	010801
Joscha Nehrkorn, Alexander Schnegg, Karsten Holldack, and Stefan Stoll	

Gravitation and Astrophysics

 Dark Matter with Pseudoscalar-Mediated Interactions Explains the DAMA Signal and the Galactic Center Excess	011301
Chiara Arina, Eugenio Del Nobile, and Paolo Panci	

Elementary Particles and Fields

New Physics in Resonant Production of Higgs Boson Pairs	011801
Vernon Barger, Lisa L. Everett, C. B. Jackson, Andrea D. Peterson, and Gabe Shaughnessy	
Can the Differences in the Determinations of V_{ub} and V_{cb} Be Explained by New Physics?	011802
Andreas Crivellin and Stefan Pokorski	
Hadronic Light-by-Light Scattering Contribution to the Muon Anomalous Magnetic Moment from Lattice QCD	012001
Thomas Blum, Saumitra Chowdhury, Masashi Hayakawa, and Taku Izubuchi	

Nuclear Physics

Nuclear Neutron-Proton Contact and the Photoabsorption Cross Section	012501
Ronen Weiss, Betzalel Bazak, and Nir Barnea	
Spectral Structure of Electron Antineutrinos from Nuclear Reactors	012502
D. A. Dwyer and T. J. Langford	
Relativistic Coulomb Excitation within the Time Dependent Superfluid Local Density Approximation	012701
I. Stetcu, C. A. Bertulani, A. Bulgac, P. Magierski, and K. J. Roche	

Atomic, Molecular, and Optical Physics

 Measurement of the Gravity-Field Curvature by Atom Interferometry	013001
G. Rosi, L. Cacciapuoti, F. Sorrentino, M. Menchetti, M. Prevedelli, and G. M. Tino	

(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(20150109)114:1;1-G

Observation of a Four-Electron Auger Process in Near- <i>K</i> -Edge Photoionization of Singly Charged Carbon Ions	013002
A. Müller, A. Borovik, T. Buhr, J. Hellhund, K. Holste, A. L. D. Kilcoyne, S. Klumpp, M. Martins, S. Ricz, J. Viefhaus, and S. Schippers	
Atomic Masses of Tritium and Helium-3	013003
E. G. Myers, A. Wagner, H. Kracke, and B. A. Wesson	
Body-Assisted van der Waals Interaction between Excited Atoms	013201
Hassan Safari and Mohammad Reza Karimpour	
Route to Chaos in Optomechanics	013601
L. Bakemeier, A. Alvermann, and H. Fehske	
Nonlinear Dynamics, Fluid Dynamics, Classical Optics, etc.	
Experimental Demonstration of Enhanced Self-Amplified Spontaneous Emission by an Optical Klystron	013901
G. Penco, E. Allaria, G. De Nino, E. Ferrari, and L. Giannessi	
Time-Driven Superoscillations with Negative Refraction	013902
M. Dubois, E. Bossy, S. Enoch, S. Guenneau, G. Leroisey, and P. Sebbah	
Indentation of Ultrathin Elastic Films and the Emergence of Asymptotic Isometry	014301
Dominic Vella, Jiangshui Huang, Narayanan Menon, Thomas P. Russell, and Benny Davidovitch	
Sustainable Drag Reduction in Turbulent Taylor-Couette Flows by Depositing Sprayable Superhydrophobic Surfaces	014501
Siddarth Srinivasan, Justin A. Kleingartner, Jonathan B. Gilbert, Robert E. Cohen, Andrew J. B. Milne, and Gareth H. McKinley	
Plasma and Beam Physics	
Magnetically Assisted Fast Ignition	015001
W.-M. Wang, P. Gibbon, Z.-M. Sheng, and Y.-T. Li	
Alfvén Acoustic Channel for Ion Energy in High-Beta Tokamak Plasmas	015002
Andreas Bierwage, Nobuyuki Aiba, and Kouji Shinohara	
Saturable Absorption of an X-Ray Free-Electron-Laser Heated Solid-Density Aluminum Plasma	015003
D. S. Rackstraw, O. Ciricosta, S. M. Vinko, B. Barbreil, T. Burian, J. Chalupský, B. I. Cho, H.-K. Chung, G. L. Dakovski, K. Engelhorn, V. Hájková, P. Heimann, M. Holmes, L. Juha, J. Krzywinski, R. W. Lee, S. Toleikis, J. J. Turner, U. Zastra, and J. S. Wark	
Condensed Matter: Structure, etc.	
Observation of the Leggett-Rice Effect in a Unitary Fermi Gas	015301
S. Trotzky, S. Beattie, C. Luciuk, S. Smale, A. B. Bardon, T. Enss, E. Taylor, S. Zhang, and J. H. Thywissen	
Selective Detection of Angular-Momentum-Polarized Auger Electrons by Atomic Stereography	015501
Fumihiko Matsui, Masayoshi Fujita, Takuya Ohta, Naoyuki Maejima, Hirosuke Matsui, Hiroaki Nishikawa, Tomohiro Matsushita, and Hiroshi Daimon	
Superhard BC ₃ in Cubic Diamond Structure	015502
Miao Zhang, Hanyu Liu, Quan Li, Bo Gao, Yanchao Wang, Hongdong Li, Changfeng Chen, and Yanming Ma	
Scale-Free Phase Field Theory of Dislocations	015503
István Groma, Zoltán Vándrus, and Péter Dusan Ispánovity	
Nanoscale Directional Motion towards Regions of Stiffness	015504
Tienchong Chang, Hongwei Zhang, Zhengrong Guo, Xingming Guo, and Huajian Gao	
Following the Evolution of Hard Sphere Glasses in Infinite Dimensions under External Perturbations: Compression and Shear Strain	015701
Corrado Rainone, Pierfrancesco Urbani, Hajime Yoshino, and Francesco Zamponi	
Spin Correlation in O ₂ Chemisorption on Ni(111)	016101
Mitsunori Kurahashi and Yasushi Yamauchi	

(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)

Condensed Matter: Electronic Properties, etc.

Interplay of Spin-Orbit Interactions, Dimensionality, and Octahedral Rotations in Semimetallic SrIrO_3	016401
Y. F. Nie, P. D. C. King, C. H. Kim, M. Uchida, H. I. Wei, B. D. Faeth, J. P. Ruf, J. P. C. Ruff, L. Xie, X. Pan, C. J. Fennie, D. G. Schlom, and K. M. Shen	
Spatial Correlations and the Insulating Phase of the High- T_c Cuprates: Insights from a Configuration-Interaction-Based Solver for Dynamical Mean Field Theory	016402
Ara Go and Andrew J. Millis	
Non-Kondo-like Electronic Structure in the Correlated Rare-Earth Hexaboride YbB_6	016403
Madhab Neupane, Su-Yang Xu, Nasser Alidoust, Guang Bian, D. J. Kim, Chang Liu, I. Belopolski, T.-R. Chang, H.-T. Jeng, T. Durakiewicz, H. Lin, A. Bansil, Z. Fisk, and M. Z. Hasan	
Spatially Resolved Transient Dynamics of Charge Density Waves in NbSe_3	016404
E. C. Geil and R. E. Thorne	
Determination of the Nitrogen Vacancy as a Shallow Compensating Center in GaN Doped with Divalent Metals	016405
J. Buckeridge, C. R. A. Catlow, D. O. Scanlon, T. W. Keal, P. Sherwood, M. Miskufova, A. Walsh, S. M. Woodley, and A. A. Sokol	
☞ Shot Noise Induced by Nonequilibrium Spin Accumulation	016601
Tomonori Arakawa, Junichi Shiogai, Mariusz Ciorga, Martin Utz, Dieter Schuh, Makoto Kohda, Junsaku Nitta, Dominique Bougeard, Dieter Weiss, Teruo Ono, and Kensuke Kobayashi	
☞ Shot Noise as a Probe of Spin-Polarized Transport through Single Atoms	016602
Andreas Burtzclaff, Alexander Weismann, Mads Brandbyge, and Richard Berndt	
☞ Proximity-Induced Ferromagnetism in Graphene Revealed by the Anomalous Hall Effect	016603
Zhiyong Wang, Chi Tang, Raymond Sachs, Yafis Barlas, and Jing Shi	
Induced Topological Phases at the Boundary of 3D Topological Superconductors	016801
Peter Finch, James de Lisle, Giandomenico Palumbo, and Jiannis K. Pachos	
Thermal Hall Effect and Geometry with Torsion	016802
Andrey Gromov and Alexander G. Abanov	
Pressure-Induced Inhomogeneous Chiral-Spin Ground State in FeGe	016803
A. Barla, H. Wilhelm, M. K. Forthaus, C. Strohm, R. Rüffer, M. Schmidt, K. Koepf, U. K. Röbler, and M. M. Abd-Elmeguid	
Phonon-Mediated Electron Transport through CaO Thin Films	016804
Yi Cui, Sergio Tosoni, Wolf-Dieter Schneider, Gianfranco Pacchioni, Niklas Nilius, and Hans-Joachim Freund	
☞ Framing Anomaly in the Effective Theory of the Fractional Quantum Hall Effect	016805
Andrey Gromov, Gil Young Cho, Yizhi You, Alexander G. Abanov, and Eduardo Fradkin	
Topology and Interactions in a Frustrated Slab: Tuning from Weyl Semimetals to $\mathcal{C} > 1$ Fractional Chern Insulators	016806
E. J. Bergholtz, Zhao Liu, M. Trescher, R. Moessner, and M. Udagawa	
Experimental Detection of a Majorana Mode in the core of a Magnetic Vortex inside a Topological Insulator-Superconductor $\text{Bi}_2\text{Te}_3/\text{NbSe}_2$ Heterostructure	017001
Jin-Peng Xu, Mei-Xiao Wang, Zhi Long Liu, Jian-Feng Ge, Xiaojun Yang, Canhua Liu, Zhu An Xu, Dandan Guan, Chun Lei Gao, Dong Qian, Ying Liu, Qiang-Hua Wang, Fu-Chun Zhang, Qi-Kun Xue, and Jin-Feng Jia	
Longitudinal and Transverse Zeeman Ladders in the Ising-Like Chain Antiferromagnet $\text{BaCo}_2\text{V}_2\text{O}_8$	017201
B. Grenier, S. Petit, V. Simonet, E. Canévet, L.-P. Regnault, S. Raymond, B. Canals, C. Berthier, and P. Lejay	
Sign Change of the Spin Hall Effect due to Electron Correlation in Nonmagnetic CuIr Alloys	017202
Zhuo Xu, Bo Gu, Michiyasu Mori, Timothy Ziman, and Sadamichi Maekawa	
Confinement-Deconfinement Transition as an Indication of Spin-Liquid-Type Behavior in Na_2IrO_3	017203
Zhanybek Alpichshev, Fahad Mahmood, Gang Cao, and Nuh Gedik	
Spectroscopy of Surface-Induced Noise Using Shallow Spins in Diamond	017601
Y. Romach, C. Müller, T. Unden, L. J. Rogers, T. Isoda, K. M. Itoh, M. Markham, A. Stacey, J. Meijer, S. Pezzagna, B. Naydenov, L. P. McGuinness, N. Bar-Gill, and F. Jelezko	

(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)

Anisotropic Local Modification of Crystal Field Levels in Pr-Based Pyrochlores: A Muon-Induced Effect Modeled Using Density Functional Theory	017602
F. R. Foronda, F. Lang, J. S. Möller, T. Lancaster, A. T. Boothroyd, F. L. Pratt, S. R. Giblin, D. Prabhakaran, and S. J. Blundell	
Polymer, Soft Matter, Biological, and Interdisciplinary Physics	
Silo Collapse under Granular Discharge	018001
G. Gutiérrez, C. Colonnello, P. Boltenhagen, J. R. Darias, R. Peralta-Fabi, F. Brau, and E. Clément	
Angular and Energy Distributions of Electrons Produced in Arbitrary Biomaterials by Proton Impact	018101
Pablo de Vera, Rafael Garcia-Molina, and Isabel Abril	
Lateral Line Layout Correlates with the Differential Hydrodynamic Pressure on Swimming Fish	018102
Leif Ristroph, James C. Liao, and Jun Zhang	
Flow-Driven Waves and Phase-Locked Self-Organization in Quasi-One-Dimensional Colonies of <i>Dictyostelium discoideum</i>	018103
A. Gholami, O. Steinbock, V. Zykov, and E. Bodenschatz	
Statistical Mechanics of Viral Entry	018104
Yaojun Zhang and Olga K. Dudko	
Antibiotic-Induced Anomalous Statistics of Collective Bacterial Swarming	018105
Sivan Benisty, Eshel Ben-Jacob, Gil Ariel, and Avraham Be'er	
Activity-Induced Phase Separation and Self-Assembly in Mixtures of Active and Passive Particles	018301
Joakim Stenhammar, Raphael Wittkowski, Davide Marenduzzo, and Michael E. Cates	
 Tunable Long Range Forces Mediated by Self-Propelled Colloidal Hard Spheres	018302
Ran Ni, Martien A. Cohen Stuart, and Peter G. Bolhuis	



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.