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HIGHLIGHTED ARTICLES

Experimental Observation of Lee-Yang Zeros

Xinhua Peng, Hui Zhou, Bo-Bo Wei, Jiangyu Cui, Jiangfeng Du, and Ren-Bao Liu

Phys. Rev. Lett. 114, 010601 (2015) – Published 5 January 2015

Imaginary magnetic fields predicted by the fundamental theory of phase transitions can be realized experimentally.

Measurement of the Gravity-Field Curvature by Atom Interferometry

G. Rosi, L. Cacciapuoti, F. Sorrentino, M. Menchetti, M. Prevedelli, and G.M. Tino

Phys. Rev. Lett. 114, 013001 (2015) – Published 5 January 2015

By measuring gravity with cold atoms at three different heights simultaneously, a team determined a new property of a gravitational field.

Proximity-Induced Ferromagnetism in Graphene Revealed by the Anomalous Hall Effect

Zhiyong Wang, Chi Tang, Raymond Sachs, Yafis Barlas, and Jing Shi

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Placing graphene on an insulating magnetic substrate can make the material ferromagnetic without disturbing its exceptional conductivity.

Dark Matter with Pseudoscalar-Mediated Interactions Explains the DAMA Signal and the Galactic Center Excess

Chiara Arina, Eugenio Del Nobile, and Paolo Panci

Phys. Rev. Lett. 114, 011301 (2015) – Published 6 January 2015

A new dark matter model is able to account for the annual dark matter modulation observed by DAMA and the galactic center gamma-ray excess, while remaining compatible with other exclusion limits.

Observation of a Four-Electron Auger Process in Near-K-Edge Photoionization of Singly Charged Carbon Ions

A. Müller, A. Borovik, Jr., T. Buhr, J. Hellhund, K. Holste, A.L.D. Kilcoyne, S. Klumpp, M. Martins, S. Ricz, J. Viefhaus, and S. Schippers

Phys. Rev. Lett. 114, 013002 (2015) – Published 7 January 2015

Using a new photon-ion merged-beam setup at PETRA III, DESY, resonant Auger decay in which three electrons are emitted simultaneously is observed in carbon ions.

Observation of the Leggett-Rice Effect in a Unitary Fermi Gas

S. Trotzky, S. Beattie, C. Luciuk, S. Smale, A.B. Bardon, T. Enss, E. Taylor, S. Zhang, and J.H. Thywissen

Phys. Rev. Lett. 114, 015301 (2015) – Published 7 January 2015

Measurements of the transverse spin diffusivity of a unitary Fermi gas show that it behaves as a 'bad metal' with transport lifetimes near the quantum limit.

Shot Noise Induced by Nonequilibrium Spin Accumulation

Tomonori Arakawa, Junichi Shiogai, Mariusz Ciorga, Martin Utz, Dieter Schuh, Makoto Kohda, Junsaku Nitta, Dominique Bougeard, Dieter Weiss, Teruo Ono, and Kensuke Kobayashi

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Anomalies in quantum field theories point to a consistent effective theory for fractional Hall liquids.

Tunable Long Range Forces Mediated by Self-Propelled Colloidal Hard Spheres

Ran Ni, Martien A. Cohen Stuart, and Peter G. Bolhuis

Phys. Rev. Lett. 114, 018302 (2015) – Published 7 January 2015

The effective force between two flat objects immersed in a suspension of active colloids can be tuned by changing the activity and density of the colloids. This finding opens the door to using active matter as a way to manipulate the motion and assembly of macroscopic objects.

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Phys. Rev. Lett. 114, 010601 (2015) – Published 5 January 2015

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Measurement of the Gravity-Field Curvature by Atom Interferometry

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Using a new photon-ion merged-beam setup at PETRA III, DESY, resonant Auger decay in which three electrons are emitted simultaneously is observed in carbon ions.

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Condensed Matter: Structure, etc.

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Selective Detection of Angular-Momentum-Polarized Auger Electrons by Atomic Stereography

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Phys. Rev. Lett. 114, 016405 (2015) - Published 7 January 2015

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Andrey Gromov and Alexander G. Abanov

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Phys. Rev. Lett. 114, 016804 (2015) – Published 7 January 2015

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