

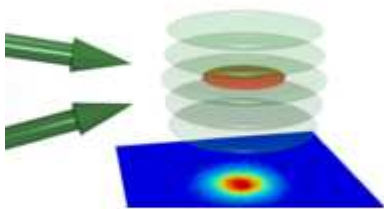
HIGHLIGHTED ARTICLES

Featured in Physics Editors' Suggestion

Observation of Pair Condensation in the Quasi-2D BEC-BCS Crossover

M.G. Ries, A.N. Wenz, G. Zürn, L. Bayha, I. Boettcher, D. Kedar, P.A. Murthy, M. Neidig, T. Lompe, and S. Jochim

Phys. Rev. Lett. **114**, 230401 (2015) – Published 8 June 2015



Experiments with cold atoms explore the superfluid phase transition of paired fermions in two dimensions.

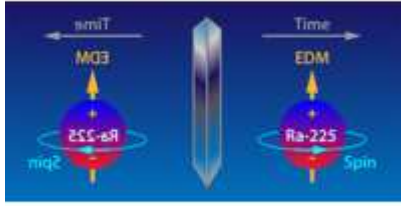
Featured in Physics Editors' Suggestion

First Measurement of the Atomic Electric Dipole Moment of Ra_{225}

R.H. Parker, M.R. Dietrich, M.R. Kalita, N.D. Lemke, K.G. Bailey, M. Bishof, J.P. Greene, R.J.

Holt, W. Korsch, Z.-T. Lu, P. Mueller, T.P. O'Connor, and J.T. Singh

Phys. Rev. Lett. **114**, 233002 (2015) – Published 9 June 2015



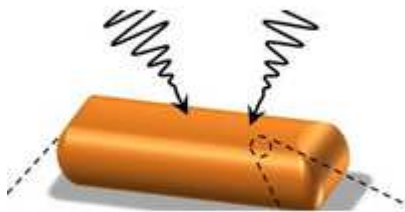
Researchers have devised a new technique to look for evidence of a permanent electric dipole moment in atoms, which would signal new physics.

Featured in Physics Editors' Suggestion

Ultrasensitive Ultrafast Vibrational Spectroscopy Employing the Near Field of Gold Nanoantennas

O. Selig, R. Siffels, and Y.L.A. Rezus

Phys. Rev. Lett. **114**, 233004 (2015) – Published 12 June 2015



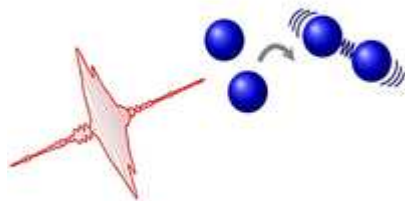
Micrometer-scale antennas made from gold may give chemists a peek into the dynamics of molecular bonds.

Featured in Physics

Coherent Control of Bond Making

Liat Levin, Wojciech Skomorowski, Leonid Rybak, Ronnie Kosloff, Christiane P. Koch, and Zohar Amitay

Phys. Rev. Lett. **114**, 233003 (2015) – Published 10 June 2015



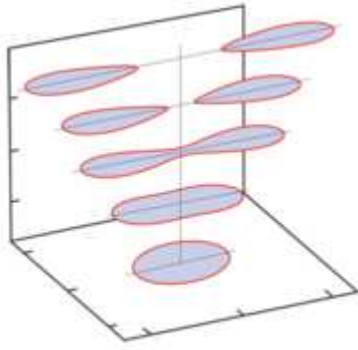
A tailored laser pulse controls the formation of a molecular bond between two atoms.

Editors' Suggestion

Splitting of the Fermi Contour of Quasi-2D Electrons in Parallel Magnetic Fields

M.A. Mueed, D. Kamburov, M. Shayegan, L.N. Pfeiffer, K.W. West, K.W. Baldwin, and R. Winkler

Phys. Rev. Lett. **114**, 236404 (2015) – Published 11 June 2015



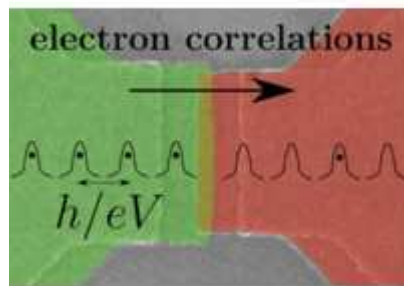
The two-dimensional Fermi surface for electrons confined in gallium arsenide quantum wells evolves, distorts and eventually splits in two from the presence of a strong in-plane magnetic field.

Editors' Suggestion

Pauli-Heisenberg Oscillations in Electron Quantum Transport

Karl Thibault, Julien Gabelli, Christian Lupien, and Bertrand Reulet

Phys. Rev. Lett. **114**, 236604 (2015) – Published 11 June 2015



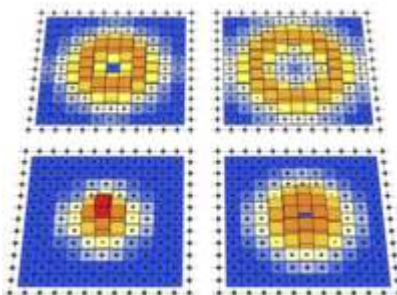
Temporal correlations between electrons reveal that electrons crossing a conductor at low temperature cross it at a regular pace h/eV with a jitter h/kBT , thus providing a simple picture of why and how current fluctuates.

Editors' Suggestion

Position-Momentum Duality and Fractional Quantum Hall Effect in Chern Insulators

Martin Claassen, Ching Hua Lee, Ronny Thomale, Xiao-Liang Qi, and Thomas P. Devereaux

Phys. Rev. Lett. **114**, 236802 (2015) – Published 11 June 2015



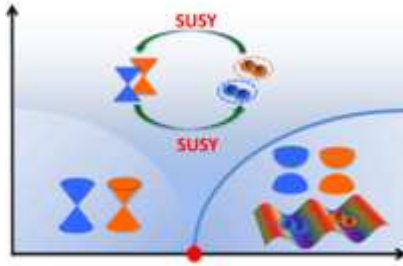
A first-quantized description of fractional Chern insulators is developed using the approach commonly employed in the quantum Hall effect.

Editors' Suggestion

Emergent Spacetime Supersymmetry in 3D Weyl Semimetals and 2D Dirac Semimetals

Shao-Kai Jian, Yi-Fan Jiang, and Hong Yao

Phys. Rev. Lett. **114**, 237001 (2015) – Published 11 June 2015



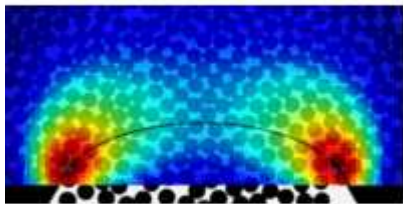
Renormalization group analysis demonstrates that space-time supersymmetry emerges at pair density wave transitions in 3D Weyl and 2D Dirac semimetals.

Editors' Suggestion

Disentangling the Free-Fall Arch Paradox in Silo Discharge

S.M. Rubio-Largo, A. Janda, D. Maza, I. Zuriguel, and R.C. Hidalgo

Phys. Rev. Lett. **114**, 238002 (2015) – Published 11 June 2015



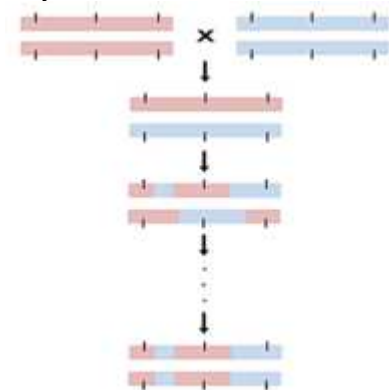
The flow rate of grains from a silo depends on the stress field above the outlet and not on the free fall of grains from the bottom of the packed surface as had been previously thought.

Editors' Suggestion

Statistical Physics Methods Provide the Exact Solution to a Long-Standing Problem of Genetics

Areejit Samal and Olivier C. Martin

Phys. Rev. Lett. **114**, 238101 (2015) – Published 9 June 2015



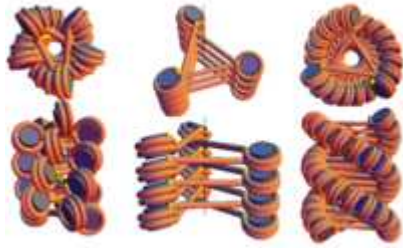
The probabilities of obtaining genotypes with fixed alleles at specific locations via repeated inbreeding is generalized to cases involving four or more genes.

Editors' Suggestion

Antipolar and Anticlinic Mesophase Order in Chromatin Induced by Nucleosome Polarity and Chirality Correlations

R. Garcés, R. Podgornik, and V. Lorman

Phys. Rev. Lett. **114**, 238102 (2015) – Published 9 June 2015



Order in chromatin arises from symmetries of the nucleosome-DNA interaction.

LETTERS

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

Featured in Physics Editors' Suggestion

Observation of Pair Condensation in the Quasi-2D BEC-BCS Crossover

M. G. Ries, A. N. Wenz, G. Zürn, L. Bayha, I. Boettcher, D. Kedar, P. A. Murthy, M. Neidig, T. Lompe, and S. Jochim

Phys. Rev. Lett. **114**, 230401 (2015) – Published 8 June 2015

Solid State Spin-Wave Quantum Memory for Time-Bin Qubits

Mustafa Gündoğan, Patrick M. Ledingham, Kutlu Kutluer, Margherita Mazzera, and Hugues de Riedmatten

Phys. Rev. Lett. **114**, 230501 (2015) – Published 12 June 2015

Coherent Spin Control at the Quantum Level in an Ensemble-Based Optical Memory

Pierre Jobez, Cyril Laplane, Nuala Timoney, Nicolas Gisin, Alban Ferrier, Philippe Goldner, and Mikael Afzelius

Phys. Rev. Lett. **114**, 230502 (2015) – Published 12 June 2015

Thermodynamics of Nonadditive Systems

Ivan Latella, Agustín Pérez-Madrid, Alessandro Campa, Lapo Casetti, and Stefano Ruffo

Phys. Rev. Lett. **114**, 230601 (2015) – Published 10 June 2015

Fluctuation-Induced Forces in Nonequilibrium Diffusive Dynamics

Avi Aminov, Yariv Kafri, and Mehran Kardar

Phys. Rev. Lett. **114**, 230602 (2015) – Published 12 June 2015

Frequency Ratio of Hg_{199} and Sr_{87} Optical Lattice Clocks beyond the SI Limit

Kazuhiro Yamanaka, Noriaki Ohmae, Ichiro Ushijima, Masao Takamoto, and Hidetoshi Katori

Phys. Rev. Lett. **114**, 230801 (2015) – Published 10 June 2015

Gravitation and Astrophysics

Thermodynamics of Asymptotically Conical Geometries

Mirjam Cvetič, Gary W. Gibbons, and Zain H. Saleem

Phys. Rev. Lett. **114**, 231301 (2015) – Published 10 June 2015

Dark Matter Search Results from the PICO-2L C_3F_8 Bubble Chamber

C. Amole *et al.* (PICO Collaboration)

Phys. Rev. Lett. **114**, 231302 (2015) – Published 11 June 2015

Direct Detection Phenomenology in Models Where the Products of Dark Matter Annihilation Interact with Nuclei

John F. Cherry, Mads T. Frandsen, and Ian M. Shoemaker

Phys. Rev. Lett. **114**, 231303 (2015) – Published 12 June 2015

Elementary Particles and Fields

Search for a Charged Higgs Boson Produced in the Vector-Boson Fusion Mode with

Decay $H_{\pm} \rightarrow W_{\pm} Z$ using pp Collisions at $s\sqrt{=} 8 TeV$ with the ATLAS Experiment

G. Aad *et al.* (ATLAS Collaboration)

Phys. Rev. Lett. **114**, 231801 (2015) – Published 9 June 2015

Nuclear Physics

Periodic Interference Structures in the Timelike Proton Form Factor

Andrea Bianconi and Egle Tomasi-Gustafsson

Phys. Rev. Lett. **114**, 232301 (2015) – Published 12 June 2015

Observation of $H_{\mu\mu}$ Hyperhydrogen by Decay-Pion Spectroscopy in Electron Scattering

A. Esser *et al.* (A1 Collaboration)

Phys. Rev. Lett. **114**, 232501 (2015) – Published 9 June 2015

First Direct Determination of the Superaligned β -Decay Q_{EC} Value for O_{14}

A.A. Valverde, G. Bollen, M. Brodeur, R.A. Bryce, K. Cooper, M. Eibach, K. Gulyuz, C. Izzo, D.J.

Morrissey, M. Redshaw, R. Ringle, R. Sandler, S. Schwarz, C.S. Sumithrarachchi, and A.C.C. Villari

Phys. Rev. Lett. **114**, 232502 (2015) – Published 12 June 2015

Atomic, Molecular, and Optical Physics

Torsional Motion of the Chromophore Catechol following the Absorption of Ultraviolet Light

J.D. Young, M. Staniforth, M.J. Paterson, and V.G. Stavros

Phys. Rev. Lett. **114**, 233001 (2015) – Published 8 June 2015

Featured in Physics Editors' Suggestion

First Measurement of the Atomic Electric Dipole Moment of Ra_{225}

R.H. Parker, M.R. Dietrich, M.R. Kalita, N.D. Lemke, K.G. Bailey, M. Bishof, J.P. Greene, R.J.

Holt, W. Korsch, Z.-T. Lu, P. Mueller, T.P. O'Connor, and J.T. Singh

Phys. Rev. Lett. **114**, 233002 (2015) – Published 9 June 2015

Featured in Physics

Coherent Control of Bond Making

Liat Levin, Wojciech Skomorowski, Leonid Rybak, Ronnie Kosloff, Christiane P. Koch, and Zohar Amitay

Phys. Rev. Lett. **114**, 233003 (2015) – Published 10 June 2015

Featured in Physics Editors' Suggestion

Ultrasensitive Ultrafast Vibrational Spectroscopy Employing the Near Field of Gold Nanoantennas

O. Selig, R. Siffels, and Y.L.A. Rezus

Phys. Rev. Lett. **114**, 233004 (2015) – Published 12 June 2015

Metastable Aluminum Atoms Floating on the Surface of Helium Nanodroplets

Jay Jeffs, Nicholas A. Besley, Anthony J. Stace, Gautam Sarma, Ethan M. Cunningham, Adrian Boatwright, Shengfu Yang, and Andrew M. Ellis

Phys. Rev. Lett. **114**, 233401 (2015) – Published 11 June 2015

Coherent Generation of Nonclassical Light on Chip via Detuned Photon Blockade

Kai Müller, Armand Rundquist, Kevin A. Fischer, Tomas Sarmiento, Konstantinos G. Lagoudakis, Yousif A. Kelaita, Carlos Sánchez Muñoz, Elena del Valle, Fabrice P. Laussy, and Jelena Vučković

Phys. Rev. Lett. **114**, 233601 (2015) – Published 8 June 2015

Environment-Assisted Speed-up of the Field Evolution in Cavity Quantum Electrodynamics

A.D. Cimmarusti, Z. Yan, B.D. Patterson, L.P. Corcos, L.A. Orozco, and S. Deffner

Phys. Rev. Lett. **114**, 233602 (2015) – Published 11 June 2015

Nonlinear Dynamics, Fluid Dynamics, Classical Optics, etc.

Hyperbolic Plasmons and Topological Transitions Over Uniaxial Metasurfaces

J. Sebastian Gomez-Diaz, Mykhailo Tymchenko, and Andrea Alù

Phys. Rev. Lett. **114**, 233901 (2015) – Published 11 June 2015

Stability Limits of Capillary Bridges: How Contact Angle Hysteresis Affects Morphology Transitions of Liquid Microstructures

Riëlle de Ruiter, Ciro Semprebon, Mathijs van Gorcum, Michèl H. G. Duits, Martin Brinkmann, and Frieder Mugele

Phys. Rev. Lett. **114**, 234501 (2015) – Published 10 June 2015

Experimental Evidence for Three Universality Classes for Reaction Fronts in Disordered Flows

Séverine Atis, Awadhesh Kumar Dubey, Dominique Salin, Laurent Talon, Pierre Le Doussal, and Kay Jörg Wiese

Phys. Rev. Lett. **114**, 234502 (2015) – Published 11 June 2015

Plasma and Beam Physics

Extending the Nonlinear-Beam-Dynamics Concept of 1D Fixed Points to 2D Fixed Lines

G. Franchetti and F. Schmidt

Phys. Rev. Lett. **114**, 234801 (2015) – Published 12 June 2015

Nonuniversality and Finite Dissipation in Decaying Magnetohydrodynamic Turbulence

M. F. Linkmann, A. Berera, W. D. McComb, and M. E. McKay

Phys. Rev. Lett. **114**, 235001 (2015) – Published 11 June 2015

Condensed Matter: Electronic Properties, etc.

Spectroscopic Determination of the Atomic f -Electron Symmetry Underlying Hidden Order in URu_2Si_2

L. Andrew Wray, Jonathan Denlinger, Shih-Wen Huang, Haowei He, Nicholas P. Butch, M. Brian Maple, Zahid Hussain, and Yi-De Chuang

Phys. Rev. Lett. **114**, 236401 (2015) – Published 9 June 2015

Fluctuation Diagnostics of the Electron Self-Energy: Origin of the Pseudogap Physics

O. Gunnarsson, T. Schäfer, J. P. F. LeBlanc, E. Gull, J. Merino, G. Sangiovanni, G. Rohringer, and A. Toschi

Phys. Rev. Lett. **114**, 236402 (2015) – Published 10 June 2015

Observation of a Devil's Staircase in the Novel Spin-Valve System $SrCo_6O_{11}$

T. Matsuda, S. Partzsch, T. Tsuyama, E. Schierle, E. Weschke, J. Geck, T. Saito, S. Ishiwata, Y. Tokura, and H. Wadati

Phys. Rev. Lett. **114**, 236403 (2015) – Published 11 June 2015

Editors' Suggestion

Splitting of the Fermi Contour of Quasi-2D Electrons in Parallel Magnetic Fields

M. A. Mueed, D. Kamburov, M. Shayegan, L. N. Pfeiffer, K. W. West, K. W. Baldwin, and R. Winkler

Phys. Rev. Lett. **114**, 236404 (2015) – Published 11 June 2015

Electrical and Thermal Transport in Inhomogeneous Luttinger Liquids

Wade DeGottardi and K. A. Matveev

Phys. Rev. Lett. **114**, 236405 (2015) – Published 12 June 2015

Geometric Resonance of Composite Fermions Near the $\nu=1/2$ Fractional Quantum Hall State

M. A. Mueed, D. Kamburov, S. Hasdemir, M. Shayegan, L. N. Pfeiffer, K. W. West, and K. W. Baldwin

Phys. Rev. Lett. **114**, 236406 (2015) – Published 12 June 2015

Remarkably Robust and Correlated Coherence and Antiferromagnetism in $(Ce_{1-x}La_x)Cu_2Ge_2$

H. Hodovanets, S. L. Bud'ko, W. E. Straszheim, V. Taufour, E. D. Mun, H. Kim, R. Flint, and P. C. Canfield

Phys. Rev. Lett. **114**, 236601 (2015) – Published 8 June 2015
Tunable Magnetism and Half-Metallicity in Hole-Doped Monolayer GaSe

Ting Cao, Zhenglu Li, and Steven G. Louie

Phys. Rev. Lett. **114**, 236602 (2015) – Published 8 June 2015

Unified Picture for the Colossal Thermopower Compound $FeSb_2$

M. Battiato, J.M. Tomczak, Z. Zhong, and K. Held

Phys. Rev. Lett. **114**, 236603 (2015) – Published 10 June 2015

Editors' Suggestion

Pauli-Heisenberg Oscillations in Electron Quantum Transport

Karl Thibault, Julien Gabelli, Christian Lupien, and Bertrand Reulet

Phys. Rev. Lett. **114**, 236604 (2015) – Published 11 June 2015

Multiplasmon Absorption in Graphene

Marinko Jablan and Darrick E. Chang

Phys. Rev. Lett. **114**, 236801 (2015) – Published 10 June 2015

Editors' Suggestion

Position-Momentum Duality and Fractional Quantum Hall Effect in Chern Insulators

Martin Claassen, Ching Hua Lee, Ronny Thomale, Xiao-Liang Qi, and Thomas P. Devereaux

Phys. Rev. Lett. **114**, 236802 (2015) – Published 11 June 2015

Topological Superconductivity and High Chern Numbers in 2D Ferromagnetic Shiba Lattices

Joel Röntynen and Teemu Ojanen

Phys. Rev. Lett. **114**, 236803 (2015) – Published 12 June 2015

Impurity-Induced Bound States in Superconductors with Spin-Orbit Coupling

Younghyun Kim, Junhua Zhang, E. Rossi, and Roman M. Lutchyn

Phys. Rev. Lett. **114**, 236804 (2015) – Published 12 June 2015

Spin Chirality Tuning and Topological Semimetals in Strained $HgTe_xS_{1-x}$

Tomáš Rauch, Steven Achilles, Jürgen Henk, and Ingrid Mertig

Phys. Rev. Lett. **114**, 236805 (2015) – Published 12 June 2015

Editors' Suggestion

Emergent Spacetime Supersymmetry in 3D Weyl Semimetals and 2D Dirac Semimetals

Shao-Kai Jian, Yi-Fan Jiang, and Hong Yao

Phys. Rev. Lett. **114**, 237001 (2015) – Published 11 June 2015

Frequency-Independent Response of Self-Complementary Checkerboard Screens

Yoshiro Urade, Yosuke Nakata, Toshihiro Nakanishi, and Masao Kitano

Phys. Rev. Lett. **114**, 237401 (2015) – Published 9 June 2015

Hyperbolic Metamaterials with Bragg Polaritons

Evgeny S. Sedov, I.V. Iorsh, S.M. Arakelian, A.P. Alodjants, and Alexey Kavokin

Phys. Rev. Lett. **114**, 237402 (2015) – Published 10 June 2015

Optical Realization of Double-Continuum Fano Interference and Coherent Control in Plasmonic Metasurfaces

Nihal Arju, Tzuhsuan Ma, Alexander Khanikaev, David Purtseladze, and Gennady Shvets

Phys. Rev. Lett. **114**, 237403 (2015) – Published 11 June 2015

Fermi Surface of Three-Dimensional $La_{1-x}Sr_xMnO_3$ Explored by Soft-X-Ray ARPES: Rhombohedral Lattice Distortion and its Effect on Magnetoresistance

L.L. Lev, J. Krempaský, U. Staub, V.A. Rogalev, T. Schmitt, M. Shi, P. Blaha, A.S. Mishchenko,

A.A. Veligzhanin, Y.V. Zubavichus, M.B. Tsetlin, H. Volfová, J. Braun, J. Minár, and V.N. Strocov

Phys. Rev. Lett. **114**, 237601 (2015) – Published 9 June 2015

Polymer, Soft Matter, Biological, and Interdisciplinary Physics

Porous Liquid Phases for Indented Colloids with Depletion Interactions

Douglas J. Ashton, Robert L. Jack, and Nigel B. Wilding

Phys. Rev. Lett. **114**, 237801 (2015) – Published 12 June 2015

Underlying Asymmetry within Particle Size Segregation

K. van der Vaart, P. Gajjar, G. Epely-Chauvin, N. Andreini, J.M.N.T. Gray, and C. Ancey
Phys. Rev. Lett. **114**, 238001 (2015) – Published 10 June 2015

Editors' Suggestion

Disentangling the Free-Fall Arch Paradox in Silo Discharge

S.M. Rubio-Largo, A. Janda, D. Maza, I. Zuriguel, and R.C. Hidalgo

Phys. Rev. Lett. **114**, 238002 (2015) – Published 11 June 2015

Editors' Suggestion

Statistical Physics Methods Provide the Exact Solution to a Long-Standing Problem of Genetics

Areejit Samal and Olivier C. Martin

Phys. Rev. Lett. **114**, 238101 (2015) – Published 9 June 2015

Editors' Suggestion

Antipolar and Anticlinic Mesophase Order in Chromatin Induced by Nucleosome Polarity and Chirality Correlations

R. Garcés, R. Podgornik, and V. Lorman

Phys. Rev. Lett. **114**, 238102 (2015) – Published 9 June 2015

Programed Death is Favored by Natural Selection in Spatial Systems

Justin Werfel, Donald E. Ingber, and Yaneer Bar-Yam

Phys. Rev. Lett. **114**, 238103 (2015) – Published 12 June 2015

Log-Log Convexity of Type-Token Growth in Zipf's Systems

Francesc Font-Clos and Álvaro Corral

Phys. Rev. Lett. **114**, 238701 (2015) – Published 9 June 2015

ERRATA

*Erratum: Optimal Strategies for Estimating the Average Fidelity of Quantum Gates [Phys. Rev. Lett. **111**, 200401 (2013)]*

Daniel M. Reich, Giulia Gualdi, and Christiane P. Koch

Phys. Rev. Lett. **114**, 239901 (2015) – Published 9 June 2015

*Erratum: Test of Time Dilation Using Stored Li^+ Ions as Clocks at Relativistic Speed [Phys. Rev. Lett. **113**, 120405 (2014)]*

Benjamin Botermann, Dennis Bing, Christopher Geppert, Gerald Gwinner, Theodor W. Hänsch, Gerhard Huber, Sergei Karpuk, Andreas Krieger, Thomas Kühl, Wilfried Nörtershäuser, Christian Novotny, Sascha Reinhardt, Rodolfo Sánchez, Dirk Schwalm, Thomas Stöhlker, Andreas Wolf, and Guido Saathoff

Phys. Rev. Lett. **114**, 239902 (2015) – Published 11 June 2015

*Erratum: Direct Observation of Coherent Interorbital Spin-Exchange Dynamics [Phys. Rev. Lett. **113**, 120402 (2014)]*

G. Cappellini, M. Mancini, G. Pagano, P. Lombardi, L. Livi, M. Siciliani de Cumis, P. Cancio, M. Pizzocaro, D. Calonico, F. Levi, C. Sias, J. Catani, M. Inguscio, and L. Fallani

Phys. Rev. Lett. **114**, 239903 (2015) – Published 12 June 2015