

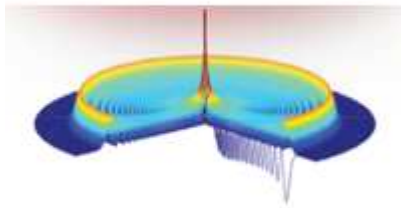
HIGHLIGHTED ARTICLES

Featured in Physics Editors' Suggestion

Rydberg Electrons in a Bose-Einstein Condensate

Jia Wang, Marko Gacesa, and R. Côté

Phys. Rev. Lett. **114**, 243003 (2015) – Published 18 June 2015



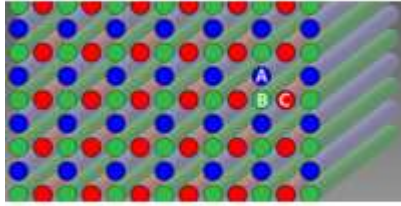
Atoms in a condensate could be used to image the quantum wave function of an impurity charge.

Featured in Physics Editors' Suggestion

Observation of Localized States in Lieb Photonic Lattices

Rodrigo A. Vicencio, Camilo Cantillano, Luis Morales-Inostroza, Bastián Real, Cristian Mejía-Cortés, Steffen Weimann, Alexander Szameit, and Mario I. Molina

Phys. Rev. Lett. **114**, 245503 (2015) – Published 15 June 2015



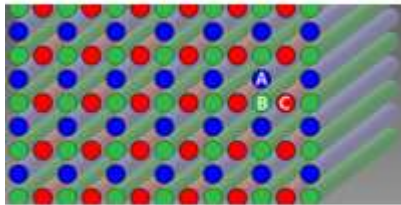
Strong confinement of light in crystalline structures known as Lieb lattices opens up routes to developing new light-trapping schemes.

Featured in Physics Editors' Suggestion

Observation of a Localized Flat-Band State in a Photonic Lieb Lattice

Seabrata Mukherjee, Alexander Spracklen, Debaditya Choudhury, Nathan Goldman, Patrik Öhberg, Erika Andersson, and Robert R. Thomson

Phys. Rev. Lett. **114**, 245504 (2015) – Published 15 June 2015



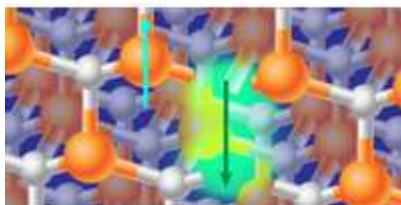
Strong confinement of light in crystalline structures known as Lieb lattices opens up routes to developing new light-trapping schemes.

Featured in Physics Editors' Suggestion

Optical Polarization of Nuclear Spins in Silicon Carbide

Abram L. Falk, Paul V. Klimov, Viktor Ivády, Krisztián Szász, David J. Christle, William F. Koehl, Ádám Gali, and David D. Awschalom

Phys. Rev. Lett. **114**, 247603 (2015) – Published 17 June 2015



An optical technique polarizes the spin of nuclei in silicon carbide, offering a potential new route to nuclear spin-based quantum memory.

Featured in Physics

Accurate Extraction of Electrostatic Force by a Voltage-Pulse Force Spectroscopy

Eiichi Inami and Yoshiaki Sugimoto

Phys. Rev. Lett. **114**, 246102 (2015) – Published 19 June 2015

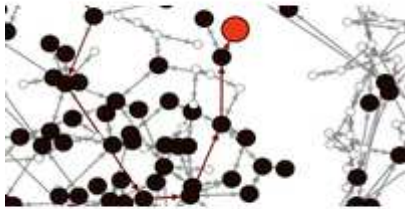


A new technique in atomic force microscopy more accurately measures the electrostatic force between the probe and the surface.

Featured in Physics

Identification of Patient Zero in Static and Temporal Networks: Robustness and Limitations

Nino Antulov-Fantulin, Alen Lančić, Tomislav Šmuc, Hrvoje Štefančić, and Mile Šikić
Phys. Rev. Lett. **114**, 248701 (2015) – Published 16 June 2015

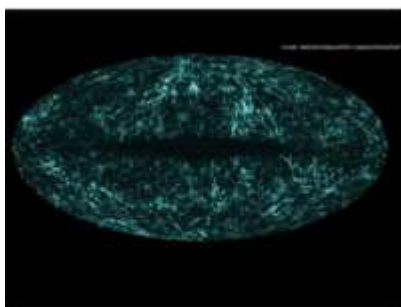


A new model could help narrow down the source of a disease outbreak.

Editors' Suggestion

Particle Dark Matter Searches Outside the Local Group

Marco Regis, Jun-Qing Xia, Alessandro Cuoco, Enzo Branchini, Nicolao Fornengo, and Matteo Viel
Phys. Rev. Lett. **114**, 241301 (2015) – Published 16 June 2015

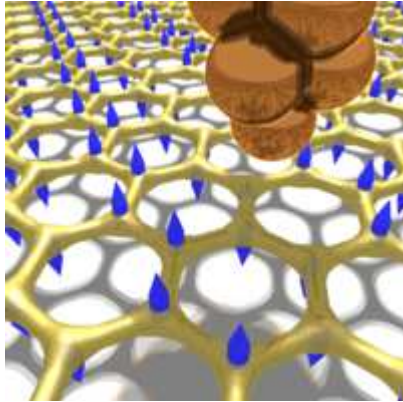


The most sensitive limits on dark matter annihilation rate could be obtained by cross-correlating γ -ray emission from dark matter with their gravitational fingerprint in the distribution of low redshift galaxies.

Editors' Suggestion

Strong Asymmetric Charge Carrier Dependence in Inelastic Electron Tunneling Spectroscopy of Graphene Phonons

Fabian D. Natterer, Yue Zhao, Jonathan Wyrick, Yang-Hao Chan, Wen-Ying Ruan, Mei-Yin Chou, Kenji Watanabe, Takashi Taniguchi, Nikolai B. Zhitenev, and Joseph A. Stroscio
Phys. Rev. Lett. **114**, 245502 (2015) – Published 16 June 2015



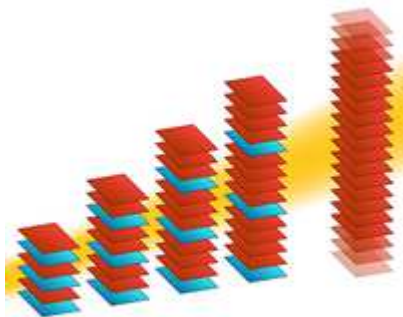
Inelastic electron tunneling spectroscopy has mapped the phonon density of states in graphene.

Editors' Suggestion

Engineering a Spin-Orbital Magnetic Insulator by Tailoring Superlattices

J. Matsuno, K. Ihara, S. Yamamura, H. Wadati, K. Ishii, V.V. Shankar, Hae-Young Kee, and H. Takagi

Phys. Rev. Lett. **114**, 247209 (2015) – Published 18 June 2015



The magnetic ordering temperature of complex iridates decreases as SrTiO₃ spacer layers are inserted between perovskite SrIrO₃ layers. At a critical number of spacers the material transitions from an insulator to a semimetal.

LETTERS

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

Accurate and Robust Unitary Transformations of a High-Dimensional Quantum System

B.E. Anderson, H. Sosa-Martinez, C.A. Riofrío, Ivan H. Deutsch, and Poul S. Jessen

Phys. Rev. Lett. **114**, 240401 (2015) – Published 16 June 2015

Thermal and Residual Excited-State Population in a 3D Transmon Qubit

X.Y. Jin, A. Kamal, A.P. Sears, T. Gudmundsen, D. Hover, J. Miloshi, R. Slattery, F. Yan, J. Yoder,

T.P. Orlando, S. Gustavsson, and W.D. Oliver

Phys. Rev. Lett. **114**, 240501 (2015) – Published 15 June 2015

Gravitation and Astrophysics

Editors' Suggestion

Particle Dark Matter Searches Outside the Local Group

Marco Regis, Jun-Qing Xia, Alessandro Cuoco, Enzo Branchini, Nicolao Fornengo, and Matteo Viel

Phys. Rev. Lett. **114**, 241301 (2015) – Published 16 June 2015

Elementary Particles and Fields

Color Confinement and Screening in the θ Vacuum of QCD

Dmitri E. Kharzeev and Eugene M. Levin

Phys. Rev. Lett. **114**, 242001 (2015) – Published 16 June 2015

Atomic, Molecular, and Optical Physics

High-Accuracy CO₂ Line Intensities Determined from Theory and Experiment

Oleg L. Polyansky, Katarzyna Bielska, Mélanie Ghysels, Lorenzo Lodi, Nikolai F. Zobov, Joseph T. Hodges, and Jonathan Tennyson

Phys. Rev. Lett. **114**, 243001 (2015) – Published 15 June 2015

Quantum Magnetism and Topological Ordering via Rydberg Dressing near Förster Resonances

R. M. W. van Bijnen and T. Pohl

Phys. Rev. Lett. **114**, 243002 (2015) – Published 17 June 2015

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Rydberg Electrons in a Bose-Einstein Condensate

Jia Wang, Marko Gacesa, and R. Côté

Phys. Rev. Lett. **114**, 243003 (2015) – Published 18 June 2015

Quantum Electrodynamical Corrections to Energy Levels of Diatomic Quasimolecules

A. N. Artemyev and A. Surzhykov

Phys. Rev. Lett. **114**, 243004 (2015) – Published 19 June 2015

Multiboson Correlation Interferometry with Arbitrary Single-Photon Pure States

Vincenzo Tamma and Simon Laibacher

Phys. Rev. Lett. **114**, 243601 (2015) – Published 15 June 2015

Nonlinear Dynamics, Fluid Dynamics, Classical Optics, etc.

Three-Dimensional Dynamic Localization of Light from a Time-Dependent Effective Gauge Field for Photons

Luqi Yuan and Shanhui Fan

Phys. Rev. Lett. **114**, 243901 (2015) – Published 16 June 2015

Rayleigh-Brillouin Scattering in Binary-Gas Mixtures

Z. Gu, W. Ubachs, W. Marques, Jr., and W. van de Water

Phys. Rev. Lett. **114**, 243902 (2015) – Published 17 June 2015

Plasma and Beam Physics

Simple Method to Generate Terawatt-Attosecond X-Ray Free-Electron-Laser Pulses

Eduard Prat and Sven Reiche

Phys. Rev. Lett. **114**, 244801 (2015) – Published 15 June 2015

X-Point-Position-Dependent Intrinsic Toroidal Rotation in the Edge of the TCV Tokamak

T. Stoltzfus-Dueck, A. N. Karpushov, O. Sauter, B. P. Duval, B. Labit, H. Reimerdes, W. A. J. Vijvers, the TCV Team, and Y. Camenen

Phys. Rev. Lett. **114**, 245001 (2015) – Published 17 June 2015

Excitation of Chirping Whistler Waves in a Laboratory Plasma

B. Van Compernelle, X. An, J. Bortnik, R. M. Thorne, P. Pribyl, and W. Gekelman

Phys. Rev. Lett. **114**, 245002 (2015) – Published 17 June 2015

Self-Similar Theory of Thermal Conduction and Application to the Solar Wind

K. Horaites, S. Boldyrev, S. I. Krasheninnikov, C. Salem, S. D. Bale, and M. Pulupa

Phys. Rev. Lett. **114**, 245003 (2015) – Published 18 June 2015

Condensed Matter: Structure, etc.

Instability of the Superfluid Flow as Black-Hole Lasing Effect

S. Finazzi, F. Piazza, M. Abad, A. Smerzi, and A. Recati

Phys. Rev. Lett. **114**, 245301 (2015) – Published 17 June 2015

Mesoscopic Impurities Expose a Nucleation-Limited Regime of Crystal Growth

Mike Sleutel, James F. Lutsko, Dominique Maes, and Alexander E. S. Van Driessche

Phys. Rev. Lett. **114**, 245501 (2015) – Published 15 June 2015

Editors' Suggestion

Strong Asymmetric Charge Carrier Dependence in Inelastic Electron Tunneling Spectroscopy of Graphene Phonons

Fabian D. Natterer, Yue Zhao, Jonathan Wyrick, Yang-Hao Chan, Wen-Ying Ruan, Mei-Yin Chou, Kenji Watanabe, Takashi Taniguchi, Nikolai B. Zhitenev, and Joseph A. Stroscio
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Sebabrata Mukherjee, Alexander Spracklen, Debaditya Choudhury, Nathan Goldman, Patrik Öhberg, Erika Andersson, and Robert R. Thomson

Phys. Rev. Lett. **114**, 245504 (2015) – Published 15 June 2015

Low Barrier Carbon Induced CO Dissociation on Stepped Cu

M. L. Ng, F. Abild-Pedersen, S. Kaya, F. Mbuga, H. Ogasawara, and A. Nilsson

Phys. Rev. Lett. **114**, 246101 (2015) – Published 17 June 2015

Featured in Physics

Accurate Extraction of Electrostatic Force by a Voltage-Pulse Force Spectroscopy

Eiichi Inami and Yoshiaki Sugimoto

Phys. Rev. Lett. **114**, 246102 (2015) – Published 19 June 2015

UO₂ Oxidative Corrosion by Nonclassical Diffusion

Joanne E. Stubbs, Anne M. Chaka, Eugene S. Ilton, Craig A. Biwer, Mark H. Engelhard, John R. Bargar, and Peter J. Eng

Phys. Rev. Lett. **114**, 246103 (2015) – Published 19 June 2015

Condensed Matter: Electronic Properties, etc.

Electronics with Correlated Oxides: SrVO₃/SrTiO₃ as a Mott Transistor

Zhicheng Zhong, Markus Wallerberger, Jan M. Tomczak, Ciro Taranto, Nicolaus Parragh, Alessandro Toschi, Giorgio Sangiovanni, and Karsten Held

Phys. Rev. Lett. **114**, 246401 (2015) – Published 16 June 2015

Bad-Metal Behavior Reveals Mott Quantum Criticality in Doped Hubbard Models

J. Vučičević, D. Tanasković, M. J. Rozenberg, and V. Dobrosavljević

Phys. Rev. Lett. **114**, 246402 (2015) – Published 18 June 2015

Helicity-Driven Ratchet Effect Enhanced by Plasmons

I. V. Rozhansky, V. Yu. Kachorovskii, and M. S. Shur

Phys. Rev. Lett. **114**, 246601 (2015) – Published 15 June 2015

Magnetism and Interaction-Induced Gap Opening in Graphene with Vacancies or Hydrogen Adatoms: Quantum Monte Carlo Study

M. V. Ulybyshev and M. I. Katsnelson

Phys. Rev. Lett. **114**, 246801 (2015) – Published 15 June 2015

Magnetization Signatures of Light-Induced Quantum Hall Edge States

Jan P. Dahlhaus, Benjamin M. Fregoso, and Joel E. Moore

Phys. Rev. Lett. **114**, 246802 (2015) – Published 17 June 2015

Inequivalence of Single-Particle and Population Lifetimes in a Cuprate Superconductor

S.-L. Yang, J. A. Sobota, D. Leuenberger, Y. He, M. Hashimoto, D. H. Lu, H. Eisaki, P. S. Kirchmann, and Z.-X. Shen

Phys. Rev. Lett. **114**, 247001 (2015) – Published 15 June 2015

Zigzag and Checkerboard Magnetic Patterns in Orbital Directional Double-Exchange Systems

W. Brzezicki, C. Noce, A. Romano, and M. Cuoco

Phys. Rev. Lett. **114**, 247002 (2015) – Published 16 June 2015

Direct Observation of Entropy-Driven Electron-Hole Pair Separation at an Organic Semiconductor Interface

Nicholas R. Monahan, Kristopher W. Williams, Bharat Kumar, Colin Nuckolls, and X.-Y. Zhu
Phys. Rev. Lett. **114**, 247003 (2015) – Published 16 June 2015

Mutual Independence of Critical Temperature and Superfluid Density under Pressure in Optimally Electron-Doped Superconducting $LaFeAsO_{1-x}F_x$

G. Prando, Th. Hartmann, W. Schottenhamel, Z. Guguchia, S. Sanna, F. Ahn, I. Nekrasov, C. G. F.

Blum, A. U. B. Wolter, S. Wurmehl, R. Khasanov, I. Eremin, and B. Büchner

Phys. Rev. Lett. **114**, 247004 (2015) – Published 17 June 2015

Single to Multiquasiparticle Excitations in the Itinerant Helical Magnet $CeRhIn_5$

C. Stock, J. A. Rodriguez-Rivera, K. Schmalzl, E. E. Rodriguez, A. Stunault, and C. Petrovic

Phys. Rev. Lett. **114**, 247005 (2015) – Published 19 June 2015

Superconductivity in the Graphite Intercalation Compound BaC_6

Satoshi Heguri, Naoya Kawade, Takumi Fujisawa, Akira Yamaguchi, Akihiko Sumiyama, Katsumi Tanigaki, and Mototada Kobayashi

Phys. Rev. Lett. **114**, 247201 (2015) – Published 15 June 2015

Anisotropy-Tuned Magnetic Order in Pyrochlore Iridates

E. Lefrançois, V. Simonet, R. Ballou, E. Lhotel, A. Hadj-Azzem, S. Kodjikian, P. Lejay, P. Manuel, D. Khalyavin, and L. C. Chapon

Phys. Rev. Lett. **114**, 247202 (2015) – Published 16 June 2015

Tuning the Magnetic Anisotropy at a Molecule-Metal Interface

K. Bairagi, A. Bellec, V. Repain, C. Chacon, Y. Girard, Y. Garreau, J. Lagoute, S. Rousset, R.

Breitwieser, Yu-Cheng Hu, Yen Cheng Chao, Woei Wu Pai, D. Li, A. Smogunov, and C. Barreteau

Phys. Rev. Lett. **114**, 247203 (2015) – Published 16 June 2015

Affleck-Kennedy-Lieb-Tasaki State on a Honeycomb Lattice from t_{2g} Orbitals

Maciej Koch-Janusz, D. I. Khomskii, and Eran Sela

Phys. Rev. Lett. **114**, 247204 (2015) – Published 18 June 2015

Spin-Lattice Order in One-Dimensional Conductors: Beyond the RKKY Effect

Michael Schechter, Mark S. Rudner, and Karsten Flensberg

Phys. Rev. Lett. **114**, 247205 (2015) – Published 18 June 2015

Narrow Magnonic Waveguides Based on Domain Walls

Felipe Garcia-Sanchez, Pablo Borys, Rémy Soucaille, Jean-Paul Adam, Robert L. Stamps, and Joo-Von Kim

Phys. Rev. Lett. **114**, 247206 (2015) – Published 18 June 2015

Topological Spin Glass in Diluted Spin Ice

Arnab Sen and R. Moessner

Phys. Rev. Lett. **114**, 247207 (2015) – Published 18 June 2015

Dynamics and Correlations among Soft Excitations in Marginally Stable Glasses

Le Yan, Marco Baity-Jesi, Markus Müller, and Matthieu Wyart

Phys. Rev. Lett. **114**, 247208 (2015) – Published 18 June 2015

Editors' Suggestion

Engineering a Spin-Orbital Magnetic Insulator by Tailoring Superlattices

J. Matsuno, K. Ihara, S. Yamamura, H. Wadati, K. Ishii, V. V. Shankar, Hae-Young Kee, and H. Takagi

Phys. Rev. Lett. **114**, 247209 (2015) – Published 18 June 2015

Antiferromagnetic Dichroism in a Complex Multisublattice Magnetoelectric CuB_2O_4

K. N. Boldyrev, R. V. Pisarev, L. N. Bezmaternykh, and M. N. Popova

Phys. Rev. Lett. **114**, 247210 (2015) – Published 19 June 2015

Unraveling the Mesoscopic Character of Quantum Dots in Nanophotonics

P. Tighineanu, A. S. Sørensen, S. Stobbe, and P. Lodahl

Phys. Rev. Lett. **114**, 247401 (2015) – Published 19 June 2015

Bistable Magnetism and Potential for Voltage-Induced Spin Crossover in Dilute Magnetic Ferroelectrics

L. Weston, X. Y. Cui, S. P. Ringer, and C. Stampfl

Phys. Rev. Lett. **114**, 247601 (2015) – Published 17 June 2015

Triangular Spin-Orbit-Coupled Lattice with Strong Coulomb Correlations: Sn Atoms on a SiC(0001) Substrate

S. Glass, G. Li, F. Adler, J. Aulbach, A. Fleszar, R. Thomale, W. Hanke, R. Claessen, and J. Schäfer

Phys. Rev. Lett. **114**, 247602 (2015) – Published 18 June 2015

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Optical Polarization of Nuclear Spins in Silicon Carbide

Abram L. Falk, Paul V. Klimov, Viktor Ivády, Krisztián Szász, David J. Christle, William F. Koehl, Ádám Gali, and David D. Awschalom

Phys. Rev. Lett. **114**, 247603 (2015) – Published 17 June 2015

Polymer, Soft Matter, Biological, and Interdisciplinary Physics

Giant Acceleration of Diffusion Observed in a Single-Molecule Experiment on F₁-ATPase

Ryunosuke Hayashi, Kazuo Sasaki, Shuichi Nakamura, Seishi Kudo, Yuichi Inoue, Hiroyuki Noji, and Kumiko Hayashi

Phys. Rev. Lett. **114**, 248101 (2015) – Published 16 June 2015

Featured in Physics

Identification of Patient Zero in Static and Temporal Networks: Robustness and Limitations

Nino Antulov-Fantulin, Alen Lančić, Tomislav Šmuc, Hrvoje Štefančić, and Mile Šikić

Phys. Rev. Lett. **114**, 248701 (2015) – Published 16 June 2015

COMMENTS

Comment on “Abelian Chern-Simons-Maxwell Theory from a Tight-Binding Model of Spinless Fermions”

Xi Luo, Yuanpei Lan, Yue Yu, and Long Liang

Phys. Rev. Lett. **114**, 249101 (2015) – Published 15 June 2015