HIGHLIGHTED ARTICLES

**Featured in Physics Editors' Suggestion**

*Settling the Half-Life of Fe60: Fundamental for a Versatile Astrophysical Chronometer*


A better measure of an iron isotope’s half-life may lead to new ways of dating astrophysical events that unfold over millions of years.

**Featured in Physics Editors' Suggestion**

*Observation of Generalized Optomechanical Coupling and Cooling on Cavity Resonance*

Andreas Sawadsky, Henning Kaufer, Ramon Moghadas Nia, Sergey P. Tarabrin, Farid Ya. Khalili, Klemens Hammerer, and Roman Schnabel


A new scheme for cooling a mechanical oscillator in a cavity may allow the observation of quantum effects on macroscopic objects and the realization of ultrasensitive gravitational-wave detectors.

**Featured in Physics Editors' Suggestion**

*Gigabar Spherical Shock Generation on the OMEGA Laser*


A two-step scheme for inertial confinement fusion generates gigabar shock pressures in a fuel target.

**Featured in Physics**

*Electric Dipole Moments of Nanosolvated Acid Molecules in Water Clusters*

Nicholas Guggemos, Petr Slavíček, and Vitaly V. Kresin


A new experimental technique probes the dissociation of a single molecule in water and reveals more complexities than expected.
Editors' Suggestion

Hypothesis Testing with Open Quantum Systems

Klaus Mølmer


Monitoring the emitted radiation and final state of an open quantum system could allow determination of the optimal Hamiltonian governing the system’s dynamics.

Editors' Suggestion

Laser Cooling without Spontaneous Emission

Christopher Corder, Brian Arnold, and Harold Metcalf


Atom-light interactions using polychromatic laser fields permit energy and momentum exchange for laser cooling without spontaneous emission.

LETTERS

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

Editors' Suggestion

Hypothesis Testing with Open Quantum Systems

Klaus Mølmer


Monitoring the emitted radiation and final state of an open quantum system could allow determination of the optimal Hamiltonian governing the system’s dynamics.

Variational Principle for Steady States of Dissipative Quantum Many-Body Systems

Hendrik Weimer


Gravitation and Astrophysics

Featured in Physics Editors' Suggestion

Settling the Half-Life of Fe60: Fundamental for a Versatile Astrophysical Chronometer


A better measure of an iron isotope’s half-life may lead to new ways of dating astrophysical events that unfold over millions of years.

**Elementary Particles and Fields**

*Measurement of the Semileptonic CP Asymmetry in B0-B¯ 0 Mixing*

R. Aaij *et al.* (LHCb Collaboration)


*Precision Measurement of CP Violation in B0S→J/ΨK+K− Decays*

R. Aaij *et al.* (LHCb Collaboration)


*Improving Identification of Dijet Resonances at Hadron Colliders*

Eder Izaguirre, Brian Shuve, and Itay Yavin


**Atomic, Molecular, and Optical Physics**

*One-Loop Dominance in the Imaginary Part of the Polarizability: Application to Blackbody and Noncontact van der Waals Friction*

U. D. Jentschura, G. Łach, M. De Kieviet, and K. Pachucki


**Editors’ Suggestion**

*Laser Cooling without Spontaneous Emission*

Christopher Corder, Brian Arnold, and Harold Metcalf


Atom-light interactions using polychromatic laser fields permit energy and momentum exchange for laser cooling without spontaneous emission.

**Featured in Physics**

*Electric Dipole Moments of Nanosolvated Acid Molecules in Water Clusters*

Nicholas Guggemos, Petr Slavíček, and Vitaly V. Kresin


A new experimental technique probes the dissociation of a single molecule in water and reveals more complexities than expected.
Observation of Generalized Optomechanical Coupling and Cooling on Cavity Resonance
Andreas Sawadsky, Henning Kauffer, Ramon Moghadas Nia, Sergey P. Tarabrin, Farid Ya. Khalili, Klemens Hammerer, and Roman Schnabel
A new scheme for cooling a mechanical oscillator in a cavity may allow the observation of quantum effects on macroscopic objects and the realization of ultrasensitive gravitational-wave detectors.

Superradiance Lattice
Da-Wei Wang, Ren-Bao Liu, Shi-Yao Zhu, and Marlan O. Scully

Electrical Manipulation of Crystal Symmetry for Switching Transverse Acoustic Phonons
H. Jeong, Y.D. Jho, and C.J. Stanton

Spin Squeezing in a Quadrupolar Nuclei NMR System
R. Auccaise, A.G. Araujo-Ferreira, R.S. Sarthour, I.S. Oliveira, T.J. Bonagamba, and I. Roditi

Nonlinear Dynamics, Fluid Dynamics, Classical Optics, etc.

General Phase Diagram of Multimodal Ordered and Disordered Lasers in Closed and Open Cavities
F. Antenucci, C. Conti, A. Crisanti, and L. Leuzzi

 Plasma and Beam Physics

Proposal to Generate an Isolated Monocycle X-Ray Pulse by Counteracting the Slippage Effect in Free-Electron Lasers
Takashi Tanaka

Featured in Physics Editors' Suggestion

Gigabar Spherical Shock Generation on the OMEGA Laser
A two-step scheme for inertial confinement fusion generates gigabar shock pressures in a fuel target.

**Condensed Matter: Structure, etc.**

*Mobile Magnetic Impurities in a Fermi Superfluid: A Route to Designer Molecules*
Sarang Gopalakrishnan, Colin V. Parker, and Eugene Demler

*Weyl Superfluidity in a Three-Dimensional Dipolar Fermi Gas*
Bo Liu, Xiaopeng Li, Lan Yin, and W. Vincent Liu

*SU(3) Semiclassical Representation of Quantum Dynamics of Interacting Spins*
Shainen M. Davidson and Anatoli Polkovnikov

**Condensed Matter: Electronic Properties, etc.**

*Electric Control of Spin Injection into a Ferroelectric Semiconductor*
Xiaohui Liu, J.D. Burton, M. Ye. Zhuravlev, and Evgeny Y. Tsymbal

*Oxygen Defects in Phosphorene*
A. Ziletti, A. Carvalho, D.K. Campbell, D.F. Coker, and A.H. Castro Neto

*Electronic Structure of Epitaxial Single-Layer MoS2*
Jill A. Miwa, Søren Ulstrup, Signe G. Sørensen, Maciej Dendzik, Antonija Grubišić Čabo, Marco Bianchi, Jeppe Vang Lauritsen, and Philip Hofmann

*Structural Origin of the Anomalous Temperature Dependence of the Local Magnetic Moments in the CaFe2As2 Family of Materials*

*Local Measurement of the Eliashberg Function of Pb Islands: Enhancement of Electron-Phonon Coupling by Quantum Well States*
Michael Schackert, Tobias Märkl, Jasmin Jandke, Martin Hölzer, Sergey Ostanin, Eberhard K.U. Gross, Arthur Ernst, and Wulf Wulfhekel


Direct Observation of the Dzyaloshinskii-Moriya Interaction in a Pt/Co/Ni Film

Kai Di, Vanessa Li Zhang, Hock Siah Lim, Ser Choon Ng, Meng Hau Kuok, Jiawei Yu, Jungbum Yoon, Xuepeng Qiu, and Hyunsoo Yang


Coupling of GHz Phonons to Ferroelastic Domain Walls in SrTiO3

L. Maerten, A. Bojahr, M. Gohlke, M. Rössle, and M. Bargheer


Measurements of the Electric Field of Zero-Point Optical Phonons in GaAs Quantum Wells Support the Urbach Rule for Zero-Temperature Lifetime Broadening

Rupak Bhattacharya, Richarj Mondal, Pradip Khatua, Alok Rudra, Eli Kapon, Stefan Malzer, Gottfried Döhler, Bipul Pal, and Bhavtosh Bansal


Electronic Structures and Optical Properties of Partially and Fully Fluorinated Graphene

Shengjun Yuan, Malte Rösner, Alexander Schulz, Tim O. Wehling, and Mikhail I. Katsnelson


Polymer, Soft Matter, Biological, and Interdisciplinary Physics

Multiscale Polar Theory of Microtubule and Motor-Protein Assemblies

Tong Gao, Robert Blackwell, Matthew A. Glaser, M.D. Betterton, and Michael J. Shelley


Dynamic Force Balances and Cell Shape Changes during Cytokinesis

Anirban Sain, Mandar M. Inamdar, and Frank Jülicher


X-Ray Holographic Imaging of Hydrated Biological Cells in Solution

M. Bartels, M. Krenkel, J. Haber, R.N. Wilke, and T. Salditt


COMMENTS

Comment on “Optical Response of Gas-Phase Atoms at Less than λ/80 from a Dielectric Surface”
ERRATA

Erratum: Measurement of the W Boson Production Charge Asymmetry in $p p^- \rightarrow W + X \rightarrow e \nu + X$ Events at $s \sqrt{\sqrt{\ }} = 1.96 \text{ TeV}$ [Phys. Rev. Lett. 112, 151803 (2014)]

V.M. Abazov et al. (D0 Collaboration)