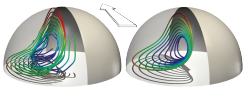
NEWSPAPER



Experimental (left) and theoretical (right) streamlines of the velocity field obtained from shear-driven flow within lipid membrane vesicles. The arrow indicates the direction of the imposed shear flow. [Aurelia R. Honerkamp-Smith, Francis G. Woodhouse, Vasily Kantsler, and Raymond E. Goldstein, Phys. Rev. Lett. **111**, 038103 (2013)]

PHYSICAL REVIEW LETTERS™

Contents

Articles published 13 July–19 July 2013

VOLUME 111, NUMBER 3 19 July 2013

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

Measurement of the He-McKellar-Wilkens Topological Phase by Atom Interferometry and Test of Its Independence with Atom Velocity 030401
J. Gillot, S. Lepoutre, A. Gauguet, M. Büchner, and J. Vigué

Generation of Orbital Angular Momentum Bell States and Their Verification via Accessible Nonlinear Witnesses ... 030402
Megan Agnew, Jeff Z. Salvail, Jonathan Leach, and Robert W. Boyd

Distribution of Scattering Matrix Elements in Quantum Chaotic Scattering 030403
S. Kumar, A. Nock, H.-J. Sommers, T. Guhr, B. Dietz, M. Miski-Oglu, A. Richter, and F. Schäfer

Time-Domain Measurements of Reflection Delay in Frustrated Total Internal Reflection 030404
George M. Gehring, Andreas C. Liapis, Svetlana G. Lukishova, and Robert W. Boyd

Optimal Coherent Control to Counteract Dissipation 030405
Simeon Sauer, Clemens Gneiting, and Andreas Buchleitner

Device-Independent Entanglement Quantification and Related Applications 030501
Tobias Moroder, Jean-Daniel Bancal, Yeong-Cherng Liang, Martin Hofmann, and Otfried Gühne

Private Quantum Subsystems 030502
Tomas Jochym-O'Connor, David W. Kribs, Raymond Laflamme, and Sarah Plosker

Equivalence Relations for the Classical Capacity of Single-Mode Gaussian Quantum Channels 030503
Joachim Schäfer, Evgueni Karpov, Raúl García-Patrón, Oleg V. Pilyavets, and Nicolas J. Cerf

Dynamical Correction to Linear Kohn-Sham Conductances from Static Density Functional Theory 030601
S. Kurth and G. Stefanucci

Maxwell's Refrigerator: An Exactly Solvable Model 030602
Dibyendu Mandal, H. T. Quan, and Christopher Jarzynski

Gravitation and Astrophysics

Cosmology from Group Field Theory Formalism for Quantum Gravity 031301
Steffen Gielen, Daniele Oriti, and Lorenzo Sindoni

Model Independent Determination of the Dark Matter Mass from Direct Detection Experiments 031302
Bradley J. Kavanagh and Anne M. Green

Elementary Particles and Fields

Natural Higgs-Flavor-Democracy Solution of the μ Problem of Supersymmetry and the QCD Axion 031801
Jihn E. Kim

Search for Pair Production of Strongly Interacting Particles Decaying to Pairs of Jets in $p\overline{p}$ Collisions at $\sqrt{s} = 1.96$ TeV 031802
T. Aaltonen *et al.* (CDF Collaboration)

Evidence of a New Narrow Resonance Decaying to $\chi_{c1}\gamma$ in $B \to \chi_{c1}\gamma K$ 032001
V. Bhardwaj *et al.* (Belle Collaboration)

(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 2013 American Physical Society

0031-9007(20130719)111:3;1-A

Determining the Higgs Spin and Parity in the Diphoton Decay Channel 032002
Daniël Boer, Wilco J. den Dunnen, Cristian Pisano, and Marc Schlegel

Nuclear Physics

Medium Modification of Jet Fragmentation in Au + Au Collisions at $\sqrt{s_{NN}} = 200$ GeV Measured in Direct Photon-Hadron Correlations 032301
A. Adare *et al.* (PHENIX Collaboration)

Quantum Monte Carlo Calculations with Chiral Effective Field Theory Interactions 032501
A. Gezerlis, I. Tews, E. Epelbaum, S. Gandolfi, K. Hebeler, A. Nogga, and A. Schwenk

Radiative Capture Reactions in Lattice Effective Field Theory 032502
Gautam Rupak and Dean Lee

Atomic, Molecular, and Optical Physics

Probing Time-Dependent Molecular Dipoles on the Attosecond Time Scale 033001
Ch. Neidel, J. Klei, C.-H. Yang, A. Rouzée, M. J. Vrakking, K. Klünder, M. Miranda, C. L. Arnold, T. Fordell, A. L'Huillier, M. Gisselbrecht, P. Johnsson, M. P. Dinh, E. Suraud, P.-G. Reinhard, V. Despré, M. A. Marques, and F. Lépine

Zeptosecond High Harmonic keV X-Ray Waveforms Driven by Midinfrared Laser Pulses 033002
C. Hernández-García, J. A. Pérez-Hernández, T. Popmintchev, M. M. Murnane, H. C. Kapteyn, A. Jaron-Becker, A. Becker, and L. Plaja

Stopped Light and Image Storage by Electromagnetically Induced Transparency up to the Regime of One Minute 033601
Georg Heinze, Christian Hubrich, and Thomas Halfmann

Description of van der Waals Interactions Using Transformation Optics 033602
Rongkuo Zhao, Yu Luo, A. I. Fernández-Domínguez, and J. B. Pendry

Deterministic Superresolution with Coherent States at the Shot Noise Limit 033603
Emanuele Distante, Miroslav Ježek, and Ulrik L. Andersen

Phase Estimation with Weak Measurement Using a White Light Source 033604
Xiao-Ye Xu, Yaron Kedem, Kai Sun, Lev Vaidman, Chuan-Feng Li, and Guang-Can Guo

Spin Controlled Optical Radiation Pressure 033605
Georgiy Tkachenko and Etienne Brasselet

Dark Entangled Steady States of Interacting Rydberg Atoms 033606
D. D. Rao and Klaus Mølmer

Preparation of Entangled and Antiferromagnetic States by Dissipative Rydberg Pumping 033607
A. W. Carr and M. Saffman

Cancellation of Internal Quantum Noise of an Amplifier by Quantum Correlation 033608
Jia Kong, F. Hudelist, Z. Y. Ou, and Weiping Zhang

Nonlinear Dynamics, Fluid Dynamics, Classical Optics, etc.

Manipulating Polarization and Impedance Signature: A Reciprocal Field Transformation Approach 033901
Fu Liu, Zixian Liang, and Jensen Li

PHz-wide Supercontinua of Nondispersing Subcycle Pulses Generated by Extreme Modulational Instability 033902
F. Tani, J. C. Travers, and P. St. J. Russell

Interferometric Spectroscopy of Scattered Light Can Quantify the Statistics of Subdiffractional Refractive-Index Fluctuations 033903
L. Cherkezyan, I. Capoglu, H. Subramanian, J. D. Rogers, D. Damania, A. Taflove, and V. Backman

Friction Between a Viscoelastic Body and a Rigid Surface with Random Self-Affine Roughness 034301
Q. Li, M. Popov, A. Dimaki, A. E. Filippov, S. Kürschner, and V. L. Popov

Numerical Simulation of Ejected Molten Metal Nanoparticles Liquified by Laser Irradiation: Interplay of Geometry and Dewetting 034501
S. Afkhami and L. Kondic

Two-Phase Fluid Displacement and Interfacial Instabilities Under Elastic Membranes 034502
Talal T. Al-Housseiny, Ivan C. Christov, and Howard A. Stone

(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).

Plasma and Beam Physics

First Observation of Photons Carrying Orbital Angular Momentum in Undulator Radiation 034801
J. Bahrdt, K. Holldack, P. Kuske, R. Müller, M. Scheer, and P. Schmid

Hanbury Brown–Twiss Interferometry at a Free-Electron Laser 034802
A. Singer, U. Lorenz, F. Sorgenfrei, N. Gerasimova, J. Gulden, O. M. Yefanov, R. P. Kurta, A. Shabalin, R. Dronyak, R. Treusch, V. Kocharyan, E. Weckert, W. Wurth, and I. A. Vartanyants

Seeding, Controlling, and Benefiting from the Microbunching Instability 034803
S. Seletskiy, B. Podobedov, Y. Shen, and X. Yang

Pressure and Energy Balance of Stagnating Plasmas in z-Pinch Experiments: Implications to Current Flow at Stagnation 035001
Y. Maron, A. Starobinets, V. I. Fisher, E. Kroupp, D. Osin, A. Fisher, C. Deeney, C. A. Coverdale, P. D. Lepell, E. P. Yu, C. Jennings, M. E. Cuneo, M. C. Herrmann, J. L. Porter, T. A. Mehlhorn, and J. P. Apruzese

Spatiotemporal Structures of Edge Limit-Cycle Oscillation before L-to-H Transition in the JFT-2M Tokamak 035002
T. Kobayashi, K. Itoh, T. Ido, K. Kamiya, S.-I. Itoh, Y. Miura, Y. Nagashima, A. Fujisawa, S. Inagaki, K. Ida, and K. Hoshino

Condensed Matter: Structure, etc.

Exploring the Complex World of Two-Dimensional Ordering with Three Modes 035501
S. K. Mkhonta, K. R. Elder, and Zhi-Feng Huang

Impact of van der Waals Interactions on Single Asperity Friction 035502
Matthias Lessel, Peter Loskill, Florian Hausen, Nitya Nand Gosvami, Roland Bennewitz, and Karin Jacobs

Domain Dynamics in Thin Solid Films Following Ultrashort Pulse Excitation 035701
Jesse J. Dean, David W. Rench, Nitin Samarth, and Henry M. van Driel

Capillary Breakup of Discontinuously Rate Thickening Suspensions 036001
Pawel J. Zimoch, Gareth H. McKinley, and A. E. Hosoi

Effects of Atomic Collisions on the Stoichiometry of Thin Films Prepared by Pulsed Laser Deposition 036101
Daniel M. Packwood, Susumu Shiraki, and Taro Hitosugi

Origin of Quantum Ring Formation During Droplet Epitaxy 036102
Z. Y. Zhou, C. X. Zheng, W. X. Tang, J. Tersoff, and D. E. Jesson

Interaction of a Contact Resonance of Microspheres with Surface Acoustic Waves 036103
N. Boechler, J. K. Eliason, A. Kumar, A. A. Maznev, K. A. Nelson, and N. Fang

Stacking in Bulk and Bilayer Hexagonal Boron Nitride 036104
Gabriel Constantinescu, Agnieszka Kuc, and Thomas Heine

Critical Terrace Width for Two-Dimensional Nucleation during Si Growth on Si(111)-(7×7) Surface 036105
D. I. Rogilo, L. I. Fedina, S. S. Kosolobov, B. S. Ranguelov, and A. V. Latyshev

Condensed Matter: Electronic Properties, etc.

Hidden Fermi Liquid, Scattering Rate Saturation, and Nernst Effect: A Dynamical Mean-Field Theory Perspective 036401
Wenhu Xu, Kristjan Haule, and Gabriel Kotliar

Orbital Localization, Charge Transfer, and Band Gaps in Semilocal Density-Functional Theory 036402
R. Armiento and S. Kümmel

Optimal Hubbard Models for Materials with Nonlocal Coulomb Interactions: Graphene, Silicene, and Benzene 036601
M. Schüler, M. Rösner, T. O. Wehling, A. I. Lichtenstein, and M. I. Katsnelson

Anomalous Hall Effect from Frustration-Tuned Scalar Chirality Distribution in $Pr_2Ir_2O_7$ 036602
M. Udagawa and R. Moessner

Magnetic Control of Spin-Orbit Fields: A First-Principles Study of Fe/GaAs Junctions 036603
Martin Gmitra, Alex Matos-Abiague, Claudia Draxl, and Jaroslav Fabian

Interactions in Electronic Mach-Zehnder Interferometers with Copropagating Edge Channels 036801
Luca Chirolli, Fabio Taddei, Rosario Fazio, and Vittorio Giovannetti

Modulation of Majorana-Induced Current Cross-Correlations by Quantum Dots 036802
Björn Zocher and Bernd Rosenow

Anomalous Ground State of the Electrons in Nanoconfined Water 036803
G. F. Reiter, Aniruddha Deb, Y. Sakurai, M. Itou, V. G. Krishnan, and S. J. Paddison

(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).

Self-Induced Torque in Hyperbolic Metamaterials 036804
Pavel Ginzburg, Alexey V. Krasavin, Alexander N. Poddubny, Pavel A. Belov, Yuri S. Kivshar, and Anatoly V. Zayats
Wigner-Poisson Statistics of Topological Transitions in a Josephson Junction 037001
C. W. Beenakker, J. M. Edge, J. P. Dahlhaus, D. I. Pikulin, Shuo Mi, and M. Wimmer
Strain-Induced Ferromagnetism in Antiferromagnetic $LuMnO_3$ Thin Films 037201
J. S. White, M. Bator, Y. Hu, H. Luetkens, J. Stahn, S. Capelli, S. Das, M. Döbeli, Th. Lippert, V. K. Malik, J. Martynczuk, A. Wokaun, M. Kenzelmann, Ch. Niedermayer, and C. W. Schneider
Constructing a Gapless Spin-Liquid State for the Spin-1/2 $J_1 - J_2$ Heisenberg Model on a Square Lattice 037202
Ling Wang, Didier Poilblanc, Zheng-Cheng Gu, Xiao-Gang Wen, and Frank Verstraete
Electrical Readout of Individual Nuclear Spin Trajectories in a Single-Molecule Magnet Spin Transistor 037203
S. Thiele, R. Vincent, M. Holzmann, S. Klyatskaya, M. Ruben, F. Balestro, and W. Wernsdorfer
Terahertz Magnetoelectric Resonance Enhanced by Mutual Coupling of Electromagnons 037204
Y. Takahashi, Y. Yamasaki, and Y. Tokura
Hidden Quasiparticles and Incoherent Photoemission Spectra in Na_2IrO_3 037205
Fabien Trousselet, Mona Berciu, Andrzej M. Oleś, and Peter Horsch
Controlling Localized Surface Plasmon Resonances in GeTe Nanoparticles Using an Amorphous-to-Crystalline Phase Transition 037401
Mark J. Polking, Prashant K. Jain, Yehonadav Bekenstein, Uri Banin, Oded Millo, Ramamoorthy Ramesh, and A. Paul Alivisatos

Soft Matter, Biological, and Interdisciplinary Physics

Fractional Hoppinglike Motion in Columnar Mesophases of Semiflexible Rodlike Particles 037801
Saber Naderi, Emilie Pouget, Pierre Ballesta, Paul van der Schoot, M. Paul Lettinga, and Eric Grelet
Manipulating the Orbital Angular Momentum of Light at the Micron Scale with Nematic Disclinations in a Liquid Crystal Film 037802
Charles Loussert, Ulysse Delabre, and Etienne Brasselet
Thermal Convection and Temperature Inhomogeneity in a Vibrofluidized Granular Bed: The Influence of Sidewall Dissipation 038001
C. R. Windows-Yule, N. Rivas, and D. J. Parker
Reflection and Refraction of Flexural Waves at Geometric Boundaries 038101
Arthur A. Evans and Alex J. Levine
Active Transport in Dense Diffusive Single-File Systems 038102
P. Illien, O. Bénichou, C. Mejía-Monasterio, G. Oshanin, and R. Voituriez
Membrane Viscosity Determined from Shear-Driven Flow in Giant Vesicles 038103
Aurelia R. Honerkamp-Smith, Francis G. Woodhouse, Vasily Kantsler, and Raymond E. Goldstein

Comments

Comment on "Proton Spin Structure from Measurable Parton Distributions" 039101
Elliot Leader and Cédric Lorcé
Comment on "Proton Spin Structure from Measurable Parton Distributions" 039102
A. Harindranath, Rajen Kundu, Asmita Mukherjee, and Raghunath Ratabole
Ji, Xiong, and Yuan Reply 039103
Xiangdong Ji, Xiaonu Xiong, and Feng Yuan

Errata

Publisher's Note: Elastic Energy Flux by Flexible Polymers in Fluid Turbulence [Phys. Rev. Lett. **111**, 024501 (2013)] 039901
Heng-Dong Xi, Eberhard Bodenschatz, and Haitao Xu

(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).

Publisher's Note: Multiloop Integrals in Dimensional Regularization Made Simple [Phys. Rev. Lett. **110**, 251601 (2013)] 039902
Johannes M. Henn

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.