



Microscopic image of a conducting wire network created by an evaporative assembly process using a gold nanoparticle suspension over a monolayer of 100 μm latex particles. See article 058303.

PHYSICAL REVIEW LETTERS

Contents

Articles published 31 January–6 February 2009

VOLUME 102, NUMBER 5

6 February 2009

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

Phonon Instability with Respect to Soliton Formation in Two-Dimensional Dipolar Bose-Einstein Condensates	050401
R. Nath, P. Pedri, and L. Santos	
Dynamically Induced Zeeman Effect in Massless QED	050402
Efrain J. Ferrer and Vivian de la Incera	
Momentum Exchange between Light and a Single Atom: Abraham or Minkowski?	050403
E. A. Hinds and Stephen M. Barnett	
Driven Quantum Coarsening	050404
Camille Aron, Giulio Biroli, and Leticia F. Cugliandolo	
Multiphoton Coherent Manipulation in Large-Spin Qubits	050501
S. Bertaina, L. Chen, N. Groll, J. Van Tol, N. S. Dalal, and I. Chiorescu	
Computational Power of Correlations	050502
Janet Anders and Dan E. Browne	
Direct and Reverse Secret-Key Capacities of a Quantum Channel	050503
Stefano Pirandola, Raul García-Patrón, Samuel L. Braunstein, and Seth Lloyd	
Pesin-Type Identity for Intermittent Dynamics with a Zero Lyapunov Exponent	050601
Nikolay Korabel and Eli Barkai	
Theory of Single File Diffusion in a Force Field	050602
E. Barkai and R. Silbey	
Phase Transitions Induced by Nanoconfinement in Liquid Water	050603
Nicolas Giovambattista, Peter J. Rossky, and Pablo G. Debenedetti	

Gravitation and Astrophysics

New Measurement of the Antiproton-to-Proton Flux Ratio up to 100 GeV in the Cosmic Radiation	051101
O. Adriani <i>et al.</i> (PAMELA Collaboration)	
Effective Scenario of Loop Quantum Cosmology	051301
You Ding, Yongge Ma, and Jinsong Yang	

Elementary Particles and Fields

Search for Large Extra Spatial Dimensions in the Dielectron and Diphoton Channels in $p\bar{p}$ Collisions at $\sqrt{s} = 1.96$ TeV	051601
V. M. Abazov <i>et al.</i> (D0 Collaboration)	
Holographic Quantum Liquid	051602
A. Karch, D. T. Son, and A. O. Starinets	
Measurement of the Semileptonic Branching Ratio of B_s^0 to an Orbitally Excited D_s^{**} State: $\text{Br}(B_s^0 \rightarrow D_{s1}^-(2536)\mu^+\nu X)$	051801
V. M. Abazov <i>et al.</i> (D0 Collaboration)	
Search for a Light Pseudoscalar Particle in the Decay $K_L^0 \rightarrow \pi^0\pi^0X$	051802
Y. C. Tung <i>et al.</i> (E391a 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).



Contents (Continued)

Search for Associated W and Higgs Boson Production in $p\bar{p}$ Collisions at $\sqrt{s} = 1.96$ TeV	051803
V.M. Abazov <i>et al.</i> (D0 Collaboration)	
Search for Neutral Higgs Bosons at High $\tan\beta$ in the $b(h/H/A) \rightarrow b\tau^+\tau^-$ Channel	051804
V.M. Abazov <i>et al.</i> (The D0 Collaboration)	
Neutrino Mass, Dark Matter, and Baryon Asymmetry via TeV-Scale Physics without Fine-Tuning	051805
Mayumi Aoki, Shinya Kanemura, and Osamu Seto	
Nuclear Physics	
Double-Pionic Fusion of Nuclear Systems and the “ABC” Effect: Approaching a Puzzle by Exclusive and Kinematically Complete Measurements	052301
M. Bashkanov <i>et al.</i> (CELSIUS/WASA Collaboration)	
Indications of Conical Emission of Charged Hadrons at the BNL Relativistic Heavy Ion Collider	052302
B.I. Abelev <i>et al.</i> (STAR Collaboration)	
Atomic, Molecular, and Optical Physics	
Nearest-Neighbor Detection of Atoms in a 1D Optical Lattice by Fluorescence Imaging	053001
M. Karski, L. Förster, J.M. Choi, W. Alt, A. Widera, and D. Meschede	
Time-Dependent Density-Functional Theory for Nonadiabatic Electronic Dynamics	053002
Vinod Krishna	
Operational Determination of Multiqubit Entanglement Classes via Tuning of Local Operations	053601
T. Bastin, C. Thiel, J. von Zanthier, L. Lamata, E. Solano, and G.S. Agarwal	
Resonant Sum Frequency Generation with Time-Energy Entangled Photons	053602
S. Sensarn, Irfan Ali-Khan, G.Y. Yin, and S.E. Harris	
Nonlinear Dynamics, Fluid Dynamics, Classical Optics, etc.	
Low-Loss Metamaterials Based on Classical Electromagnetically Induced Transparency	053901
P. Tassin, Lei Zhang, Th. Koschny, E.N. Economou, and C.M. Soukoulis	
Quantum Fluctuations in Small Lasers	053902
Kaushik Roy-Choudhury, Stephan Haas, and A.F. Levi	
Plasma and Beam Physics	
Guiding of Relativistic Electron Beams in Solid Targets by Resistively Controlled Magnetic Fields	055001
S. Kar, A.P. Robinson, D. C Carroll, O Lundh, K. Markey, P. McKenna, P. Norreys, and M. Zepf	
Condensed Matter: Structure, etc.	
Strongly Interacting Bosons in a Disordered Optical Lattice	055301
M. White, M. Pasienski, D. McKay, S.Q. Zhou, D. Ceperley, and B. DeMarco	
Structures and Topological Transitions of Hydrocarbon Films on Quasicrystalline Surfaces	055501
Wahyu Setyawan, Renee D. Diehl, and Stefano Curtarolo	
Dislocation Core Energies and Core Fields from First Principles	055502
Emmanuel Clouet, Lisa Ventelon, and F. Willaime	
Harder than Diamond: Superior Indentation Strength of Wurtzite BN and Lonsdaleite	055503
Zicheng Pan, Hong Sun, Yi Zhang, and Changfeng Chen	
Complex Dynamics during Metal Dissolution: From Intrinsic to Faceted Anomalous Scaling	055504
P. Córdoba-Torres, T.J. Mesquita, I.N. Bastos, and R.P. Nogueira	
Exponential Distributions of Collective Flow-Event Properties in Viscous Liquid Dynamics	055701
Nicholas P. Bailey, Thomas B. Schröder, and Jeppe C. Dyre	
Quantum Switching at a Mean-Field Instability of a Bose-Einstein Condensate in an Optical Lattice	055702
V.S. Shchesnovich and V.V. Konotop	
New Metallic Carbon Crystal	055703
Masahiro Itoh, Motoko Kotani, Hisashi Naito, Toshikazu Sunada, Yoshiyuki Kawazoe, and Tadafumi Adschiri	
Equilibrium and Nonequilibrium Fluctuations in a Glass-Forming Liquid	055704
Azita Parsaeian and Horacio E. Castillo	

(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).

Impact of Surface Chemistry on Grain Boundary Induced Intrinsic Stress Evolution during Polycrystalline Thin Film Growth	056101
Y. Qi, B.W. Sheldon, H. Guo, X. Xiao, and A.K. Kothari	
Molecular Self-Assembly of Functionalized Fullerenes on a Metal Surface	056102
Bogdan Diaconescu, Teng Yang, Savas Berber, Mikael Jazdyk, Glen P. Miller, David Tománek, and Karsten Pohl	
Condensed Matter: Electronic Properties, etc.	
Melting of the Na Layers in Solid $\text{Na}_{0.8}\text{CoO}_2$	056401
M. Weller, A. Sacchetti, H.R. Ott, K. Mattenberger, and B. Batlogg	
Observation of Long-Lived Polariton States in Semiconductor Microcavities across the Parametric Threshold	056402
D. Ballarini, D. Sanvitto, A. Amo, L. Viña, M. Wouters, I. Carusotto, A. Lemaitre, and J. Bloch	
Energy Gaps in Etched Graphene Nanoribbons	056403
C. Stampfer, J. Güttinger, S. Hellmüller, F. Molitor, K. Ensslin, and T. Ihn	
Evolution of Electronic Structure of Doped Mott Insulators: Reconstruction of Poles and Zeros of Green's Function.	056404
Shiro Sakai, Yukitoshi Motome, and Masatoshi Imada	
Full-Zone Spin Splitting for Electrons and Holes in Bulk GaAs and GaSb	056405
Jun-Wei Luo, Gabriel Bester, and Alex Zunger	
Enhanced Dimerization of TiOCl under Pressure: Spin-Peierls to Peierls Transition	056406
S. Blanco-Canosa, F. Rivadulla, A. Piñeiro, V. Pardo, D. Baldomir, D.I. Khomskii, M.M. Abd-Elmeguid, M.A. López-Quintela, and J. Rivas	
“Rainbow” Trapping and Releasing at Telecommunication Wavelengths	056801
Qiaoqiang Gan, Yujie J. Ding, and Filbert J. Bartoli	
Kondo Decoherence: Finding the Right Spin Model for Iron Impurities in Gold and Silver	056802
T.A. Costi, L. Bergqvist, A. Weichselbaum, J. von Delft, T. Micklitz, A. Rosch, P. Mavropoulos, P.H. Dederichs, F. Mallet, L. Saminadayar, and C. Bäuerle	
Shape of Disorder-Broadened Landau Subbands in Graphene	056803
W. Zhu, Q.W. Shi, X.R. Wang, J. Chen, J.L. Yang, and J.G. Hou	
Incipient Formation of an Electron Lattice in a Weakly Confined Quantum Wire	056804
W.K. Hew, K.J. Thomas, M. Pepper, I. Farrer, D. Anderson, G.A. Jones, and D.A. Ritchie	
Ferromagnetic Spin Coupling as the Origin of 0.7 Anomaly in Quantum Point Contacts	056805
K. Aryanpour and J.E. Han	
Symmetry Classes in Graphene Quantum Dots: Universal Spectral Statistics, Weak Localization, and Conductance Fluctuations	056806
Jürgen Wurm, Adam Rycerz, İnanç Adagideli, Michael Wimmer, Klaus Richter, and Harold U. Baranger	
Long-Range Coulomb Interaction in Bilayer Graphene	056807
D.S. Abergel and Tapash Chakraborty	
Dirac Cones and Minigaps for Graphene on Ir(111)	056808
I. Pletikosić, M. Kralj, P. Pervan, R. Brako, J. Coraux, A.T. N'Diaye, C. Busse, and T. Michely	
Magnetic Correlations in $\text{La}_{2-x}\text{Sr}_x\text{CoO}_4$ Studied by Neutron Scattering: Possible Evidence for Stripe Phases	057201
M. Cwik, M. Benomar, T. Finger, Y. Sidis, D. Senff, M. Reuther, T. Lorenz, and M. Braden	
Density Matrix Renormalization Group in the Heisenberg Picture	057202
Michael J. Hartmann, Javier Prior, Stephen R. Clark, and Martin B. Plenio	
Ultrafast Spin Dynamics: The Effect of Colored Noise	057203
U. Atxitia, O. Chubykalo-Fesenko, R.W. Chantrell, U. Nowak, and A. Rebei	
Local Control of Ultrafast Dynamics of Magnetic Nanoparticles	057204
A. Sukhov and J. Berakdar	
Fidelity Approach to the Disordered Quantum XY Model	057205
Silvano Garnerone, N. Tobias Jacobson, Stephan Haas, and Paolo Zanardi	
Pressure-Induced Electronic Mixing and Enhancement of Ferromagnetic Ordering in EuX ($X = \text{Te, Se, S, O}$) Magnetic Semiconductors	057206
Narcizo M. Souza-Neto, Daniel Haskel, Yuan-Chieh Tseng, and Gerard Lapertot	
Magnetic Circular Dichroism in Two-Photon Photoemission	057207
K. Hild, J. Maul, G. Schönhense, H.J. Elmers, M. Amft, and P.M. Oppeneer	

(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).

Engineering Superposition States and Tailored Probes for Nanoresonators via Open-Loop Control	057208
Kurt Jacobs, Lin Tian, and Justin Finn	
Measuring Domain Wall Fidelity Lengths Using a Chirality Filter	057209
E. R. Lewis, D. Petit, A.-V. Jausovec, L. O'Brien, D. E. Read, H. T. Zeng, and R. P. Cowburn	
Electron-Plasmon and Electron-Electron Interactions at a Single Atom Contact	057401
Guillaume Schull, Nicolas Néel, Peter Johansson, and Richard Berndt	
Instantaneous Mapping of Coherently Coupled Electronic Transitions and Energy Transfers in a Photosynthetic Complex Using Angle-Resolved Coherent Optical Wave-Mixing	057402
Ian P. Mercer, Yasin C. El-Taha, Nathaniel Kajumba, Jonathan P. Marangos, John W. Tisch, Mads Gabrielsen, Richard J. Cogdell, Emma Springate, and Edmund Turcu	
Dynamic Polarization of Single Nuclear Spins by Optical Pumping of Nitrogen-Vacancy Color Centers in Diamond at Room Temperature	057403
V. Jacques, P. Neumann, J. Beck, M. Markham, D. Twitchen, J. Meijer, F. Kaiser, G. Balasubramanian, F. Jelezko, and J. Wrachtrup	
Electron Spin Dephasing due to Hyperfine Interactions with a Nuclear Spin Bath	057601
Łukasz Cywiński, Wayne M. Witzel, and S. Das Sarma	
Is There a Rashba Effect in Graphene on 3d Ferromagnets?	057602
O. Rader, A. Varykhalov, J. Sánchez-Barriga, D. Marchenko, A. Rybkin, and A. M. Shikin	
Langevin-Debye Model for Nonlinear Electrostatic Screening of Solvated Ions	057603
Haipeng Gong and Karl F. Freed	
Dynamics of Multiferroic Domain Wall in Spin-Cycloidal Ferroelectric DyMnO ₃	057604
F. Kagawa, M. Mochizuki, Y. Onose, H. Murakawa, Y. Kaneko, N. Furukawa, and Y. Tokura	

Soft Matter, Biological, and Interdisciplinary Physics

Icosahedral Order, Frustration, and the Glass Transition: Evidence from Time-Dependent Nucleation and Supercooled Liquid Structure Studies	057801
Y. T. Shen, T. H. Kim, A. K. Gangopadhyay, and K. F. Kelton	
Dynamic Effective Mass of Granular Media	058001
Chaur-Jian Hsu, David L. Johnson, Rohit A. Ingale, John J. Valenza, Nicolas Gland, and Hernán A. Makse	
Viscoelasticity in Homogeneous Protein Solutions	058101
Weichun Pan, Luis Filobelo, Ngoc D. Pham, Oleg Galkin, Veselina V. Uzunova, and Peter G. Vekilov	
Replicators in a Fine-Grained Environment: Adaptation and Polymorphism	058102
Armen E. Allahverdyan and Chin-Kun Hu	
Pushing off the Walls: A Mechanism of Cell Motility in Confinement	058103
R. J. Hawkins, M. Piel, G. Faure-Andre, A. M. Lennon-Dumenil, J. F. Joanny, J. Prost, and R. Voituriez	
Hydrodynamic Object Recognition: When Multipoles Count	058104
Andreas B. Sichert, Robert Bamler, and J. Leo van Hemmen	
Reacting Differently to Adverse Ties Promotes Cooperation in Social Networks	058105
S. Van Segbroeck, F. C. Santos, T. Lenaerts, and J. M. Pacheco	
☞ Equilibrium Route to Colloidal Gelation: Mixtures of Hard-Sphere-Like Colloids	058301
Ph. Germain and S. Amokrane	
Velocity Oscillations in Microfluidic Flows of Concentrated Colloidal Suspensions	058302
Lucio Isa, Rut Besseling, Alexander N. Morozov, and Wilson C. Poon	
☞ Assembly of Gold Nanoparticles into Microwire Networks Induced by Drying Liquid Bridges	058303
Ivan U. Vakarelski, Derek Y. Chan, Takashi Nonoguchi, Hiroyuki Shinto, and Ko Higashitani	
Navigating Ultrasmall Worlds in Ultrashort Time	058701
Marián Buguña and Dmitri Krioukov	

Errata

Publisher's Note: Search for High-Mass e^+e^- Resonances in $p\bar{p}$ Collisions at $\sqrt{s} = 1.96$ TeV [Phys. Rev. Lett. 102, 031801 (2009)]	059901
T. Aaltonen <i>et al.</i> (CDF Collaboration)	



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).