

Simulation snapshots of the bubble-pair dynamics resulting in an ultrafast needle jet in water. In each panel: numerical Schlieren (left), normalized velocity magnitude (right). [Y. Fan *et al.*, Phys. Rev. Lett. **132**, 104004 (2024)]

NEWSPAPER

PHYSICAL REVIEW LETTERS

Contents

Articles published 2 March–8 March 2024

VOLUME 132, NUMBER 10 8 March 2024

Quantum Information, Science, and Technology

Contextuality as a Precondition for Quantum Entanglement 100201
Martin Plávala and Otfried Gühne
Prethermal Stability of Eigenstates under High Frequency Floquet Driving 100401
Nicholas O'Dea, Fiona Burnell, Anushya Chandran, and Vedika Khemani
Converting Long-Range Entanglement into Mixture: Tensor-Network Approach to Local Equilibration 100402
Miguel Frías-Pérez, Luca Tagliacozzo, and Mari Carmen Bañuls
Systematic Coarse Graining of Environments for the Nonperturbative Simulation of Open Quantum Systems 100403
Nicola Lorenzoni, Namgee Cho, James Lim, Dario Tamascelli, Susana F. Huelga, and Martin B. Plenio
Robust Measurements of n-Point Correlation Functions of Driven-Dissipative Quantum Systems on a Digital Quantum Computer 100601
Lorenzo Del Re, Brian Rost, Michael Foss-Feig, A. F. Kemper, and J. K. Freericks
Generative Quantum Machine Learning via Denoising Diffusion Probabilistic Models 100602
Bingzhi Zhang, Peng Xu, Xiaohui Chen, and Quntao Zhuang
Model-Based Optimization of Superconducting Qubit Readout 100603
Andreas Bengtsson, Alex Opremcak, Mostafa Khezri, Daniel Sank, Alexandre Bourassa, Kevin J. Satzinger, Sabrina Hong, Catherine Erickson, Brian J. Lester, Kevin C. Miao, Alexander N. Korotkov, Julian Kelly, Zijun Chen, and Paul V. Klimov
Deterministic All-Optical Quantum Teleportation of Four Degrees of Freedom 100801
Shengshuai Liu, Yinghui Lv, Xutong Wang, Jiabin Wang, Yanbo Lou, and Jietai Jing
Long-lived and Efficient Optomechanical Memory for Light 100802
Mads Bjerregaard Kristensen, Nenad Kralj, Eric C. Langman, and Albert Schliesser
Universal Shot-Noise Limit for Quantum Metrology with Local Hamiltonians 100803
Hai-Long Shi, Xi-Wen Guan, and Jing Yang

Cosmology, Astrophysics, and Gravitation

GALILEO: Galactic Axion Laser Interferometer Leveraging Electro-Optics 101001
Reza Ebadi, David E. Kaplan, Surjeet Rajendran, and Ronald L. Walsworth
Neutrino Signal from a Population of Seyfert Galaxies 101002
A. Neronov, D. Savchenko, and D. V. Semikoz
First Constraints on the Photon Coupling of Axionlike Particles from Multimessenger Studies of the Neutron Star Merger GW170817 101003
P. S. Bhupal Dev, Jean-François Fortin, Steven P. Harris, Kuver Sinha, and Yongchao Zhang
Multimessenger Constraints on Radiatively Decaying Axions from GW170817 101004
M. Diamond, D. Fiorillo, G. Marques-Tavares, I. Tamborra, and E. Vitagliano
Resonances of Supernova Neutrinos in Twisting Magnetic Fields 101005
Sudip Jana and Yago Porto

(Continued Inside)

This paper was highlighted in the APS publication *Physics* (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 2024 American Physical Society

0031-9007(20240308)132:10;1-I

Search for Daily Modulation of MeV Dark Matter Signals with DAMIC-M 101006
I. Arnquist *et al.* (DAMIC-M Collaboration)
Unveiling the Merger Structure of Black Hole Binaries in Generic Planar Orbits 101401
Gregorio Carullo, Simone Albanesi, Alessandro Nagar, Rossella Gamba, Sebastiano Bernuzzi, Tomas Andrade, and Juan Trenado
Experimental Demonstrations of Alignment and Mode Matching in Optical Cavities with Higher-Order Hermite-Gauss Modes 101402
Liu Tao and Paul Fulda
Using Pulsar Parameter Drifts to Detect Subnanohertz Gravitational Waves 101403
William DeRocco and Jeff A. Dror

Particles and Fields

Landau Singularities Revisited: Computational Algebraic Geometry for Feynman Integrals 101601
Claudia Fevola, Sebastian Mizera, and Simon Telen
Integrated Correlators in $\mathcal{N} = 4$ Supersymmetric Yang-Mills Theory beyond Localization 101602
Augustus Brown, Paul Heslop, Congkao Wen, and Haitian Xie
Investigation of the $\Delta I = 1/2$ Rule and Test of CP Symmetry through the Measurement of Decay Asymmetry Parameters in Ξ^- Decays 101801
M. Ablikim *et al.* (BESIII Collaboration)
Fifth Forces from QCD Axions Scale Differently 101802
Martin Bauer and Guillaume Rostagni
Heavy-Quark Pair Production at Lepton Colliders at NNNLO in QCD 101901
Xiang Chen, Xin Guan, Chuan-Qi He, Xiao Liu, and Yan-Qing Ma

Nuclear Physics

Measurement of the Centrality Dependence of the Dijet Yield in $p + \mathrm{Pb}$ Collisions at $\sqrt{s_{\mathrm{NN}}} = 8.16$ TeV with the ATLAS Detector 102301
G. Aad *et al.* (ATLAS Collaboration)
Fraction of χ_c Decays in Prompt J/ψ Production Measured in $p\mathrm{Pb}$ Collisions at $\sqrt{s_{\mathrm{NN}}} = 8.16$ TeV 102302
R. Aaij *et al.* (LHCb Collaboration)
Reanalysis of the $\beta - \bar{\nu}_e$ Angular Correlation Measurement from the aSPECT Experiment with New Constraints on Fierz Interference 102501
M. Beck, W. Heil, Ch. Schmidt, S. Baeßler, F. Glück, G. Konrad, and U. Schmidt

Atomic, Molecular, and Optical Physics

Femtosecond Collisional Dissipation of Vibrating D_2^+ in Helium Nanodroplets 103201
Junjie Qiang, Lianrong Zhou, Yigeng Peng, Chao Yu, Peifen Lu, Shengzhe Pan, Chenxu Lu, Gang Chen, Ruifeng Lu, Wenbin Zhang, and Jian Wu
Measurement of the Excitation Spectrum of a Dipolar Gas in the Macrodroplet Regime 103401
J. J. A. Houwman, D. Baillie, P. B. Blakie, G. Natale, F. Ferlaino, and M. J. Mark
Nonequilibrium Transport in a Superfluid Josephson Junction Chain: Is There Negative Differential Conductivity? 103402
Samuel E. Begg, Matthew J. Davis, and Matthew T. Reeves
Programmable Photonic Time Circuits for Highly Scalable Universal Unitaries 103801
Xianji Piao, Sunkyu Yu, and Namkyoo Park

Physics of Fluids, Earth & Planetary Science, and Climate

Phototaxis Flight of Microdroplets in a Laser 104001
Weizheng Cheng, Hanrui Zhu, Feiyu Zheng, Ben Chu, Ruitong Wang, Jinran Tao, Wanli Zhang, Peng Tao, Chengyi Song, Wen Shang, Benwei Fu, and Tao Deng
Spontaneous Stochasticity Amplifies Even Thermal Noise to the Largest Scales of Turbulence in a Few Eddy Turnover Times 104002
Dmytro Bandak, Alexei A. Mailybaev, Gregory L. Eyink, and Nigel Goldenfeld

(Continued on Preceding Page)

This paper was highlighted in the APS publication *Physics* (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)

Minimal Quantization Model in Pilot-Wave Hydrodynamics 104003
Austin M. Blitstein, Rodolfo R. Rosales, and Pedro J. Sáenz
Amplification of Supersonic Microjets by Resonant Inertial Cavitation-Bubble Pair 104004
Yuzhe Fan, Alexander Bußmann, Fabian Reuter, Hengzhu Bao, Stefan Adami, José M. Gordillo, Nikolaus Adams, and Claus-Dieter Ohl
Turbulence Unsteadiness Drives Extreme Clustering 104005
F. Zapata, S. Angriman, A. Ferran, P. Cobelli, M. Obligado, and P. D. Mininni

Plasma and Solar Physics, Accelerators and Beams

Reversal of the Parallel Drift Frequency in Anomalous Transport of Impurity Ions 105101
Shaokang Xu, S. Maeyama, T.-H. Watanabe, and Ö. D. Gürcan
Turbulence in Magnetic Reconnection Jets from Injection to Sub-Ion Scales 105201
Louis Richard, Luca Sorriso-Valvo, Emiliya Yordanova, Daniel B. Graham, and Yuri V. Khotyaintsev

Condensed Matter and Materials

Optical Manipulation of Bipolarons in a System with Nonlinear Electron-Phonon Coupling 106001
K. Kovač, D. Golež, M. Mierzejewski, and J. Bonča
Possible High T_c Superconductivity in $La_3Ni_2O_7$ under High Pressure through Manifestation of a Nearly Half-Filled Bilayer Hubbard Model 106002
Hirofumi Sakakibara, Naoya Kitamine, Masayuki Ochi, and Kazuhiko Kuroki
Nonconservation of the Valley Density and Its Implications for the Observation of the Valley Hall Effect 106301
Alexander Kazantsev, Amelia Mills, Eoin O'Neill, Hao Sun, Giovanni Vignale, and Alessandro Principi
Unexpected Competition between Ferroelectricity and Rashba Effects in Epitaxially Strained $SrTiO_3$ 106401
Julien Varignon
Nonlinear Hall Effect from Long-Lived Valley-Polarizing Relaxons 106402
Jae-Mo Lihm and Cheol-Hwan Park
Fractional Quantum Hall States of the $\mathcal{A}$ Phase in the Second Landau Level 106501
Sudipto Das, Sahana Das, and Sudhansu S. Mandal
Phonon Thermal Transport in UO_2 via Self-Consistent Perturbation Theory 106502
Shuxiang Zhou, Enda Xiao, Hao Ma, Krzysztof Gofryk, Chao Jiang, Michael E. Manley, David H. Hurley, and Chris A. Marianetti
Orbital Magneto-Nonlinear Anomalous Hall Effect in Kagome Magnet Fe_3Sn_2 106601
Lujunyu Wang, Jiaojiao Zhu, Haiyun Chen, Hui Wang, Jinjin Liu, Yue-Xin Huang, Bingyan Jiang, Jiaji Zhao, Hengjie Shi, Guang Tian, Haoyu Wang, Yugui Yao, Dapeng Yu, Zhiwei Wang, Cong Xiao, Shengyuan A. Yang, and Xiaosong Wu
Monolayer V_2MX_4: A New Family of Quantum Anomalous Hall Insulators 106602
Yadong Jiang, Huan Wang, Kejie Bao, Zhaochen Liu, and Jing Wang
Inhibited Inelastic Scattering of Incoherent Excitons for Near-Band Edge Excitations 106901
D. Anders, F. Dobener, F. Schäfer, S. Chatterjee, and M. Stein
Lindblad Master Equation Capable of Describing Hybrid Quantum Systems in the Ultrastrong Coupling Regime 106902
Maksim Lednev, Francisco J. García-Vidal, and Johannes Feist
Scale-Dependent Heat Transport in Dissipative Media via Electromagnetic Fluctuations 106903
Matthias Krüger, Kiryl Asheichyk, Mehran Kardar, and Ramin Golestanian
Suppression of Pulsed Dynamic Nuclear Polarization by Many-Body Spin Dynamics 106904
Kento Sasaki and Eisuke Abe

Statistical Physics; Classical, Nonlinear, and Complex Systems

Dynamics of Oscillator Populations Globally Coupled with Distributed Phase Shifts 107401
Lev A. Smirnov and Arkady Pikovsky

(Continued on Preceding Page)

This paper was highlighted in the APS publication *Physics* (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)

Polymers, Chemical Physics, Soft Matter, and Biological Physics

Curved-Crease Origami for Morphing Metamaterials 108201
Asma Karami, Adam Reddy, and Hussein Nassar
Controlling Confined Collective Organization with Taxis 108301
Albane Théry, Alexander Chamolly, and Eric Lauga

Errata

Erratum: Enhanced Deuteron Coalescence Probability in Jets [Phys. Rev. Lett. **131**, 042301 (2023)] 109901
S. Acharya *et al.* (ALICE Collaboration)
Erratum: Linear Optical Quantum Computation with Frequency-Comb Qubits and Passive Devices
[Phys. Rev. Lett. **130**, 200602 (2023)] 109902
Tomohiro Yamazaki, Tomoaki Arizono, Toshiki Kobayashi, Rikizo Ikuta, and Takashi Yamamoto

This paper was highlighted in the APS publication *Physics* (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* (physics.aps.org), provides thought-provoking analysis and spotlights exceptional research.