

Power input of stochastic forcing in a turbulent flow. [Wouter J. T. Bos and Rémi Zamansky, Phys. Rev. Lett. **122**, 124504 (2019)]

NEWSPAPER

PHYSICAL REVIEW LETTERS

Contents

Articles published 23 March–29 March 2019

VOLUME 122, NUMBER 12 29 March 2019

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

Full Counting Statistics and Large Deviations in a Thermal 1D Bose Gas 120401
Maksims Arzamasovs and Dimitri M. Gangardt
Stabilizing Arrays of Photonic Cat States via Spontaneous Symmetry Breaking 120402
José Lebreuilly, Camille Aron, and Christophe Mora
Quantum Control and Sensing of Nuclear Spins by Electron Spins under Power Limitations 120403
Nati Aharon, Ilai Schwartz, and Alex Retzker
Universal N-Partite d-Level Pure-State Entanglement Witness Based on Realistic Measurement Settings 120501
Stefania Sciara, Christian Reimer, Michael Kues, Piotr Roztocki, Alfonso Cino, David J. Moss, Lucia Caspani, William J. Munro, and Roberto Morandotti
Scale-Invariant Continuous Entanglement Renormalization of a Chern Insulator 120502
Su-Kuan Chu, Guanyu Zhu, James R. Garrison, Zachary Eldredge, Ana Valdés Curiel, Przemyslaw Bienias, I. B. Spielman, and Alexey V. Gorshkov
Resource Theory of Entanglement with a Unique Multipartite Maximally Entangled State 120503
Patricia Contreras-Tejada, Carlos Palazuelos, and Julio I. de Vicente
Experimental Quantum Switching for Exponentially Superior Quantum Communication Complexity 120504
Kejin Wei, Nora Tischler, Si-Ran Zhao, Yu-Huai Li, Juan Miguel Arrazola, Yang Liu, Weijun Zhang, Hao Li, Lixing You, Zhen Wang, Yu-Ao Chen, Barry C. Sanders, Qiang Zhang, Geoff J. Pryde, Feihu Xu, and Jian-Wei Pan
Characterizing Multipartite Entanglement with Moments of Random Correlations 120505
Andreas Ketterer, Nikolai Wyderka, and Otfried Gühne
Maximum Entropy Principle in Statistical Inference: Case for Non-Shannonian Entropies 120601
Petr Jizba and Jan Korbel

Gravitation and Astrophysics

Positrons and 511 keV Radiation as Tracers of Recent Binary Neutron Star Mergers 121101
George M. Fuller, Alexander Kusenko, David Radice, and Volodymyr Takhistov
Unique Fingerprints of Alternatives to Inflation in the Primordial Power Spectrum 121301
Xingang Chen, Abraham Loeb, and Zhong-Zhi Xianyu

Elementary Particles and Fields

Landscape of Simple Superconformal Field Theories in 4D 121601
Kazunobu Maruyoshi, Emily Nardoni, and Jaewon Song
Analytic Result for a Two-Loop Five-Particle Amplitude 121602
D. Chicherin, T. Gehrmann, J. M. Henn, P. Wasser, Y. Zhang, and S. Zoia
Two-Loop Five-Point Amplitude in $\mathcal{N} = 4$ Super-Yang-Mills Theory 121603
Samuel Abreu, Lance J. Dixon, Enrico Herrmann, Ben Page, and Mao Zeng

(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 2019 American Physical Society

0031-9007(20190329)122:12;1-Z

Measurement of the Dynamics of the Decays $D_s^+ \to \eta^{(\prime)} e^+ \nu_e$ 121801
M. Ablikim *et al.* (BESIII Collaboration)
First Results from ABRACADABRA-10 cm: A Search for Sub-μeV Axion Dark Matter 121802
Jonathan L. Ouellet, Chiara P. Salemi, Joshua W. Foster, Reyco Henning, Zachary Bogorad, Janet M. Conrad, Joseph A. Formaggio, Yonatan Kahn, Joe Minervini, Alexey Radovinsky, Nicholas L. Rodd, Benjamin R. Safdi, Jesse Thaler, Daniel Winklehner, and Lindley Winslow
Combination of Searches for Higgs Boson Pair Production in Proton-Proton Collisions at $\sqrt{s} = 13$ TeV 121803
A. M. Sirunyan *et al.* (CMS Collaboration)
Nucleon Matrix Elements of the Antisymmetric Quark Tensor 122001
Martin Hoferichter, Bastian Kubis, Jacobo Ruiz de Elvira, and Peter Stoffer

Nuclear Physics

Prescaling and Far-from-Equilibrium Hydrodynamics in the Quark-Gluon Plasma 122301
Aleksas Mazeliauskas and Jürgen Berges
Matching the Nonequilibrium Initial Stage of Heavy Ion Collisions to Hydrodynamics with QCD Kinetic Theory 122302
Aleksi Kurkela, Aleksas Mazeliauskas, Jean-François Paquet, Sören Schlichting, and Derek Teaney
First Observation of Unbound ^{11}O, the Mirror of the Halo Nucleus ^{11}Li 122501
T. B. Webb, S. M. Wang (王思敏), K. W. Brown, R. J. Charity, J. M. Elson, J. Barney, G. Cerizza, Z. Chajecki, J. Estee, D. E. M. Hoff, S. A. Kuvin, W. G. Lynch, J. Manfredi, D. McNeel, P. Morfouace, W. Nazarewicz, C. D. Pruitt, C. Santamaria, J. Smith, L. G. Sobotka, S. Sweany, C. Y. Tsang, M. B. Tsang, A. H. Wuosmaa, Y. Zhang, and K. Zhu
Quarkyonic Matter and Neutron Stars 122701
Larry McLerran and Sanjay Reddy

Atomic, Molecular, and Optical Physics

Stable Multiring and Rotating Solitons in Two-Dimensional Spin-Orbit-Coupled Bose-Einstein Condensates with a Radially Periodic Potential 123201
Yaroslav V. Kartashov and Dmitry A. Zezyulin
Continuous Loading of Ultracold Ground-State $^{85}Rb_2$ Molecules in a Dipole Trap Using a Single Light Beam 123401
Henry Fernandes Passagem, Ricardo Colín-Rodríguez, Jonathan Tallant, Paulo Cesar Ventura da Silva, Nadia Bouloufa-Maafa, Olivier Dulieu, and Luis Gustavo Marcassa
Cavity-Based 3D Cooling of a Levitated Nanoparticle via Coherent Scattering 123601
Dominik Windey, Carlos Gonzalez-Ballestero, Patrick Maurer, Lukas Novotny, Oriol Romero-Isart, and René Reimann
Cavity Cooling of a Levitated Nanosphere by Coherent Scattering 123602
Uroš Delić, Manuel Reisenbauer, David Grass, Nikolai Kiesel, Vladan Vuletić, and Markus Aspelmeyer
Simultaneous Measurement of Multiple Parameters of a Subwavelength Structure Based on the Weak Value Formalism 123603
Anthony Vella, Stephen T. Head, Thomas G. Brown, and Miguel A. Alonso
Multiphoton Jaynes-Cummings Model: Arbitrary Rotations in Fock Space and Quantum Filters 123604
Celso J. Villas-Boas and Daniel Z. Rossatto
Improved Test of Local Lorentz Invariance from a Deterministic Preparation of Entangled States 123605
Eli Megidish, Joseph Broz, Nicole Greene, and Hartmut Häffner
Versatile Control of $^9Be^+$ Ions Using a Spectrally Tailored UV Frequency Comb 123606
A.-G. Paschke, G. Zarantonello, H. Hahn, T. Lang, C. Manzoni, M. Marangoni, G. Cerullo, U. Morgner, and C. Ospelkaus
Direct Generation of Narrow-band Hyperentangled Photons 123607
Tian-Ming Zhao, Yong Sup Ihn, and Yoon-Ho Kim
Spectral Control of an X-Ray *L*-Edge Transition via a Thin-Film Cavity 123608
Johann Haber, Jakob Gollwitzer, Sonia Francoual, Martin Tolkiehn, Jörg Strempfer, and Ralf Röhlsberger

(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)

Nonlinear Dynamics, Fluid Dynamics, Classical Optics, etc.

Structured-Pump-Enabled Quantum Pattern Recognition 123901
Xiaodong Qiu, Dongkai Zhang, Wuhong Zhang, and Lixiang Chen

Dramatic Acceleration of Wave Condensation Mediated by Disorder in Multimode Fibers 123902
Adrien Fusaro, Josselin Garnier, Katarzyna Krupa, Guy Millot, and Antonio Picozzi

Valley Vortex States and Degeneracy Lifting via Photonic Higher-Band Excitation 123903
Daohong Song, Daniel Leykam, Jing Su, Xiuying Liu, Liqin Tang, Sheng Liu, Jianlin Zhao, Nikolaos K. Efremidis, Jingjun Xu, and Zhigang Chen

Upper Bound to the Orbital Angular Momentum Carried by an Ultrashort Pulse 123904
Miguel A. Porras

Time-Periodic Stiffness Modulation in Elastic Metamaterials for Selective Wave Filtering: Theory and Experiment 124301
Giuseppe Trainiti, Yiwei Xia, Jacopo Marconi, Gabriele Cazzulani, Alper Erturk, and Massimo Ruzzene

Amplitude and Phase of Wave Packets in a Linear Potential 124302
Georgi Gary Rozenman, Matthias Zimmermann, Maxim A. Efremov, Wolfgang P. Schleich, Lev Shemer, and Ady Arie

Electroconvection in a Viscoelastic Electrolyte 124501
Gaojin Li, Lynden A. Archer, and Donald L. Koch

Is the Zero Reynolds Number Approximation Valid for Ciliary Flows? 124502
Da Wei, Parviz Ghoddoosi Dehnavi, Marie-Eve Aubin-Tam, and Daniel Tam

Critical-Layer Structures and Mechanisms in Elastoinertial Turbulence 124503
Ashwin Shekar, Ryan M. McMullen, Sung-Ning Wang, Beverley J. McKeon, and Michael D. Graham

Power fluctuations in turbulence 124504
Wouter J. T. Bos and Rémi Zamansky

Condensed Matter: Structure, etc.

Broadband-Enhanced Transmission through Symmetric Diffusive Slabs 125501
Élie Chéron, Simon Félix, and Vincent Pagneux

Anharmonic and Anomalous Trends in the High-Pressure Phase Diagram of Silicon 125701
R. Paul, S. X. Hu, and V. V. Karasiev

Size Dependence of Grain Boundary Migration in Metals under Mechanical Loading 126101
Xin Zhou, Xiuyan Li, and K. Lu

Linear Complexions: Metastable Phase Formation and Coexistence at Dislocations 126102
Vladyslav Turlo and Timothy J. Rupert

Controlling Grain Boundaries by Magnetic Fields 126103
R. Backofen, K. R. Elder, and A. Voigt

Condensed Matter: Electronic Properties, etc.

Charge-Lattice Coupling in Hole-Doped $LuFe_2O_{4+\delta}$: The Origin of Second-Order Modulation 126401
Shiqing Deng, Lijun Wu, Hao Cheng, Jin-Cheng Zheng, Shaobo Cheng, Jun Li, Wenbin Wang, Jian Shen, Jing Tao, Jing Zhu, and Yimei Zhu

Second-Order Topological Superconductivity in π-Junction Rashba Layers 126402
Yanick Volpez, Daniel Loss, and Jelena Klinovaja

Coexistence of Two Types of Spin Splitting Originating from Different Symmetries 126403
Koichiro Yaji, Anton Visikovskiy, Takushi Iimori, Kenta Kuroda, Singo Hayashi, Takashi Kajiwara, Satoru Tanaka, Fumio Komori, and Shik Shin

Temperature-Driven Gapless Topological Insulator 126601
Miguel Gonçalves, Pedro Ribeiro, Rubem Mondaini, and Eduardo V. Castro

Benefits of Weak Disorder in One-Dimensional Topological Superconductors 126801
Arbel Haim and Ady Stern

Tunneling into a Finite Luttinger Liquid Coupled to Noisy Capacitive Leads 126802
Antonio Štrkalj, Michael S. Ferguson, Tobias M. R. Wolf, Ivan Levkivskyi, and Oded Zilberberg

(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)

Pressure-Induced Collapse of the Charge Density Wave and Higgs Mode Visibility in $2H$-TaS_2 127001
Romain Grasset, Yann Gallais, Alain Sacuto, Maximilien Cazayous, Samuel Mañas-Valero, Eugenio Coronado, and Marie-Aude Méasson

Higgs Mode of Planar Coupled Spin Ladders and its Observation in $C_9H_{18}N_2CuBr_4$ 127201
T. Ying, K. P. Schmidt, and S. Wessel

Kinetic Theory of Spin Diffusion and Superdiffusion in XXZ Spin Chains 127202
Sarang Gopalakrishnan and Romain Vasseur

Low Magnetic Damping of Ferrimagnetic GdFeCo Alloys 127203
Duck-Ho Kim, Takaya Okuno, Se Kwon Kim, Se-Hyeok Oh, Tomoe Nishimura, Yuushou Hirata, Yasuhiro Futakawa, Hiroki Yoshikawa, Arata Tsukamoto, Yaroslav Tserkovnyak, Yoichi Shiota, Takahiro Moriyama, Kab-Jin Kim, Kyung-Jin Lee, and Teruo Ono

Simultaneous Observation of the Er- and Fe-Sublattice Magnetization of Ferrimagnetic $Er_3Fe_5O_{12}$ in High Magnetic Fields Using X-Ray Magnetic Circular Dichroism at the Er $L_{2,3}$ Edges 127204
C. Strohm, P. van der Linden, O. Mathon, and S. Pascarelli

Microscopic Nature of the First-Order Field-Induced Phase Transition in the Strongly Anisotropic Ferrimagnet $HoFe_5Al_7$ 127205
D. I. Gorbunov, C. Strohm, M. S. Henriques, P. van der Linden, B. Pedersen, N. V. Mushnikov, E. V. Rosenfeld, V. Petříček, O. Mathon, J. Wosnitza, and A. V. Andreev

Defect-Induced Orbital Polarization and Collapse of Orbital Order in Doped Vanadium Perovskites 127206
Adolfo Avella, Andrzej M. Oleś, and Peter Horsch

Observation of a Magnetopiezoelectric Effect in the Antiferromagnetic Metal $EuMnBi_2$ 127207
Y. Shiomi, H. Watanabe, H. Masuda, H. Takahashi, Y. Yanase, and S. Ishiwata

Zeeman-Induced Valley-Sensitive Photocurrent in Monolayer MoS_2 127401
Xiao-Xiao Zhang, You Lai, Emma Dohner, Seongphill Moon, Takashi Taniguchi, Kenji Watanabe, Dmitry Smirnov, and Tony F. Heinz

Collective Modes in Excitonic Magnets: Dynamical Mean-Field Study 127601
D. Geffroy, J. Kaufmann, A. Hariki, P. Gunacker, A. Hausoel, and J. Kuneš

Interaction Effects and Charge Quantization in Single-Particle Quantum Dot Emitters 127701
Glenn Wagner, Dung X. Nguyen, Dmitry L. Kovrizhin, and Steven H. Simon

Polymer, Soft Matter, Biological, Climate, and Interdisciplinary Physics

Topological Waves in Fluids with Odd Viscosity 128001
Anton Souslov, Kinjal Dasbiswas, Michel Fruchart, Suriyanarayanan Vaikuntanathan, and Vincenzo Vitelli

Emerging Attractor in Wavy Poiseuille Flows Triggers Sorting of Biological Cells 128002
Matthias Laumann, Winfried Schmidt, Alexander Farutin, Diego Kienle, Stephan Förster, Chaouqi Misbah, and Walter Zimmermann

Generalized Flory Theory for Rotational Symmetry Breaking of Complex Macromolecules 128003
Josh Kelly, Alexander Y. Grosberg, and Robijn Bruinsma

Crystallinelike Ordering of Confined Liquids at the Moving Contact Line 128004
Kumar Nanjundiah, Anish Kurian, Sukhmanjot Kaur, Saranshu Singla, and Ali Dhinojwala

Complex Crystals from Size-Disperse Spheres 128005
Praveen K. Bommineni, Nydia Roxana Varela-Rosales, Marco Klement, and Michael Engel

Jamming as a Multicritical Point 128006
Danilo B. Liarte, Xiaoming Mao, Olaf Stenull, and T. C. Lubensky

Contrasting Dielectric Properties of Electrolyte Solutions with Polar and Polarizable Solvents 128007
Douglas J. Grzetic, Kris T. Delaney, and Glenn H. Fredrickson

Directing Liquid Crystalline Self-Organization of Rodlike Particles through Tunable Attractive Single Tips 128008
Andrii Repula, Mariana Oshima Menegon, Cheng Wu, Paul van der Schoot, and Eric Grelet

Diffusiophoresis in Cells: A General Nonequilibrium, Nonmotor Mechanism for the Metabolism-Dependent Transport of Particles in Cells 128101
Richard P. Sear

(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)

Random Language Model 128301
E. DeGiuli

Errata

Erratum: Emittance Preservation in an Aberration-Free Active Plasma Lens [Phys. Rev. Lett. **121**, 194801 (2018)] 129901
C. A. Lindstrøm, E. Adli, G. Boyle, R. Corsini, A. E. Dyson, W. Farabolini, S. M. Hooker, M. Meisel, J. Osterhoff, J.-H. Röckemann, L. Schaper, and K. N. Sjobak

Publisher's Note: Experimental Neutron Capture Rate Constraint Far from Stability [Phys. Rev. Lett. **116**, 242502 (2016)] 129902
S. N. Liddick, A. Spyrou, B. P. Crider, F. Naqvi, A. C. Larsen, M. Guttormsen, M. Mumpower, R. Surman, G. Perdikakis, D. L. Bleuel, A. Couture, L. Crespo Campo, A. C. Dombos, R. Lewis, S. Mosby, S. Nikas, C. J. Prokop, T. Renstrom, B. Rubio, S. Siem, and S. J. Quinn

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.