

Optical (main) and scanning electron (inset) micrographs of a device composed of two double quantum dots coupled to a superconducting cavity. [S. Gu, *et al.*, Phys. Rev. Lett. **130**, 233602 (2023)]

NEWSPAPER

PHYSICAL REVIEW LETTERS

Contents

Articles published 3 June–9 June 2023

VOLUME 130, NUMBER 23 9 June 2023

Quantum Information, Science, and Technology

Contextuality without Incompatibility 230201
John H. Selby, David Schmid, Elie Wolfe, Ana Belén Sainz, Ravi Kunjwal, and Robert W. Spekkens
Collapse Dynamics Are Diffusive 230202
Sandro Donadi, Luca Ferialdi, and Angelo Bassi
Volume-Law to Area-Law Entanglement Transition in a Nonunitary Periodic Gaussian Circuit 230401
Etienne Granet, Carolyn Zhang, and Henrik Dreyer
Robust Oscillations and Edge Modes in Nonunitary Floquet Systems 230402
Vikram Ravindranath and Xiao Chen
Operator Relaxation and the Optimal Depth of Classical Shadows 230403
Matteo Ippoliti, Yaodong Li, Tibor Rakovszky, and Vedika Khemani
Symmetrized Liouvillian Gap in Markovian Open Quantum Systems 230404
Takashi Mori and Tatsuhiko Shirai

Cosmology, Astrophysics, and Gravitation

Wideband Direct Detection Constraints on Hidden Photon Dark Matter with the QUALIPHIDE Experiment 231001
K. Ramanathan, N. Klimovich, R. Basu Thakur, B. H. Eom, H. G. Leduc, S. Shu, A. D. Beyer, and P. K. Day
Mirage of Luminal Modified Gravitational-Wave Propagation 231401
Antonio Enea Romano and Mairi Sakellariadou

Particles and Fields

Emergent $\mathcal{N} = 4$ Supersymmetry from $\mathcal{N} = 1$ 231601
Monica Jinwoo Kang, Craig Lawrie, Ki-Hong Lee, and Jaewon Song
Search for an Invisible Z' in a Final State with Two Muons and Missing Energy at Belle II 231801
I. Adachi *et al.* (Belle II Collaboration)
First Measurement of Quasielastic Λ Baryon Production in Muon Antineutrino Interactions in the MicroBooNE Detector 231802
P. Abratenko *et al.* (MicroBooNE Collaboration)
Measurements of Normalized Differential Cross Sections of Inclusive π^0 and K_S^0 Production in e^+e^- Annihilation at Energies from 2.2324 to 3.6710 GeV 231901
M. Ablikim *et al.* (BESIII Collaboration)
Heavy Quark Diffusion from $2 + 1$ Flavor Lattice QCD with 320 MeV Pion Mass 231902
Luis Altenkort, Olaf Kaczmarek, Rasmus Larsen, Swagato Mukherjee, Peter Petreczky, Hai-Tao Shu, and Simon Stendebach (HotQCD Collaboration)

Nuclear Physics

β^+ Gamow-Teller Strengths from Unstable ^{14}O via the $(d, {}^2\mathrm{He})$ Reaction in Inverse Kinematics 232301
S. Giraud, J. C. Zamora, R. G. T. Zegers, D. Bazin, Y. Ayyad, S. Bacca, S. Beceiro-Novo, B. A. Brown, A. Carls, J. Chen, M. Cortesi, M. DeNudt, G. Hagen, C. Hultquist, C. Maher, W. Mittig, F. Ndayisabye, S. Noji, S. J. Novario, J. Pereira, Z. Rahman, J. Schmitt, M. Serikow, L. J. Sun, J. Surbrook, N. Watwood, and T. Wheeler

(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 2023 American Physical Society

0031-9007(20230609)130:23;1-9

Atomic, Molecular, and Optical Physics

Intermolecular Charge Transfer Induced Fragmentation of Formic Acid Dimers 233001
Jiaqi Zhou, Shaokui Jia, Xiaoqing Hu, Enliang Wang, Xiaorui Xue, Yong Wu, Jianguo Wang, Alexander Dorn, and Xueguang Ren

Plasmonic Resonant Intercluster Coulombic Decay 233201
Rasheed Shaik, Hari R. Varma, Mohamed El-Amine Madjet, Fulu Zheng, Thomas Frauenheim, and Himadri S. Chakraborty

Levitated Optomechanics with Meta-Atoms 233601
Sergei Lepeshov, Nadine Meyer, Patrick Maurer, Oriol Romero-Isart, and Romain Quidant

Probing Two Driven Double Quantum Dots Strongly Coupled to a Cavity 233602
Si-Si Gu, Sigmund Kohler, Yong-Qiang Xu, Rui Wu, Shun-Li Jiang, Shu-Kun Ye, Ting Lin, Bao-Chuan Wang, Hai-Ou Li, Gang Cao, and Guo-Ping Guo

Superluminal *k*-Gap Solitons in Nonlinear Photonic Time Crystals 233801
Yiming Pan, Moshe-Ishay Cohen, and Mordechai Segev

Condensed Matter and Materials

Superconducting Transition Temperature of the Bose One-Component Plasma 236001
Chao Zhang, Barbara Capogrosso-Sansone, Massimo Boninsegni, Nikolay V. Prokof'ev, and Boris V. Svistunov

Vibrational Phenomena in Glasses at Low Temperatures Captured by Field Theory of Disordered Harmonic Oscillators 236101
Florian Vogel and Matthias Fuchs

Elastic Snap-Through Instabilities Are Governed by Geometric Symmetries 236102
Basile Radisson and Eva Kanso

Atomic-Scale Surface Segregation in Copper-Gold Nanoparticles 236201
Grégoire Breyton, Hakim Amara, Jaysen Nelayah, Jérôme Creuze, Hazar Guesmi, Damien Alloyeau, Guillaume Wang, and Christian Ricolleau

Anharmonicity in Thermal Insulators: An Analysis from First Principles 236301
Florian Knoop, Thomas A. R. Purcell, Matthias Scheffler, and Christian Carbogno

Transformer Variational Wave Functions for Frustrated Quantum Spin Systems 236401
Luciano Loris Viteritti, Riccardo Rende, and Federico Becca

Experimental Realization of a Three-Dimensional Dirac Semimetal Phase with a Tunable Lifshitz Transition in Au_2Pb 236402
J. Sánchez-Barriga, O. J. Clark, M. G. Vergniory, M. Krivenkov, A. Varykhalov, O. Rader, and L. M. Schoop

Power-Law Density of States in Organic Solar Cells Revealed by the Open-Circuit Voltage Dependence of the Ideality Factor 236403
Maria Saladina, Christopher Wöpke, Clemens Göhler, Ivan Ramirez, Olga Gerdes, Chao Liu, Ning Li, Thomas Heumüller, Christoph J. Brabec, Karsten Walzer, Martin Pfeiffer, and Carsten Deibel

Hofstadter Topology with Real Space Invariants and Reentrant Projective Symmetries 236601
Jonah Herzog-Arbeitman, Zhi-Da Song, Luis Elcoro, and B. Andrei Bernevig

Observation of Magnetic State Dependent Thermoelectricity in Superconducting Spin Valves 237001
César González-Ruano, Diego Caso, Jabir Ali Ouassou, Coriolan Tiusan, Yuan Lu, Jacob Linder, and Farkhad G. Aliev

Quantized Spin Pumping in Topological Ferromagnetic-Superconducting Nanowires 237002
V. Fernández Becerra, Mircea Trif, and Timo Hyart

Statistical Physics; Classical, Nonlinear, and Complex Systems

Stochastic Gradient Descent Introduces an Effective Landscape-Dependent Regularization Favoring Flat Solutions 237101
Ning Yang, Chao Tang, and Yuhai Tu

Cost of Diffusion: Nonlinearity and Giant Fluctuations 237102
Satya N. Majumdar, Francesco Mori, and Pierpaolo Vivo

(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)

On-Site Potential Creates Complexity in Systems with Disordered Coupling 237103
I. Gershenzon, B. Lacroix-A-Chez-Toine, O. Raz, E. Subag, and O. Zeitouni

Shockwavelike Behavior across Social Media 237401
Pedro D. Manrique, Frank Yingjie Huo, Sara El Oud, Minzhang Zheng, Lucia Illari, and Neil F. Johnson

Polymers, Chemical Physics, Soft Matter, and Biological Physics

Phase Separation Driven by Active Flows 238201
Saraswat Bhattacharyya and Julia M. Yeomans

Predicting Dynamic Heterogeneity in Glass-Forming Liquids by Physics-Inspired Machine Learning 238202
Gerhard Jung, Giulio Biroli, and Ludovic Berthier

Rectified Rotational Dynamics of Mobile Inclusions in Two-Dimensional Active Nematics 238301
Sattvic Ray, Jie Zhang, and Zvonimir Dogic

Errata

Erratum: Available Energy of Trapped Electrons and Its Relation to Turbulent Transport
[Phys. Rev. Lett. **128**, 175001 (2022)] 239901
R. J. J. Mackenbach, J. H. E. Proll, and P. Helander

Erratum: Search for Spontaneous Radiation from Wave Function Collapse in the MAJORANA DEMONSTRATOR
[Phys. Rev. Lett. **129**, 080401 (2022)] 239902
I. J. Arnquist *et al.* (MAJORANA Collaboration)

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.