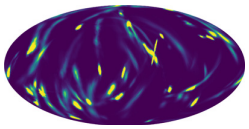

Combined sky localization map of binary black hole merger events from the third observation run of LIGO, Virgo, and KAGRA. [Y. Zheng *et al.*, Phys. Rev. Lett. **131**, 171403 (2023)]

NEWSPAPER

PHYSICAL REVIEW LETTERS

Contents

Articles published 21 October–27 October 2023

VOLUME 131, NUMBER 17 27 October 2023

Quantum Information, Science, and Technology

Resource-Efficient High-Dimensional Entanglement Detection via Symmetric Projections 170201
Simon Morelli, Marcus Huber, and Armin Tavakoli

Universal Quantum Computation in Globally Driven Rydberg Atom Arrays 170601
Francesco Cesa and Hannes Pichler

Experimental Quantum Channel Discrimination Using Metastable States of a Trapped Ion 170602
Kyle DeBry, Jasmine Sinanan-Singh, Colin D. Bruzewicz, David Reens, May E. Kim, Matthew P. Roychowdhury, Robert McConnell, Isaac L. Chuang, and John Chiaverini

Efficient Concatenated Bosonic Code for Additive Gaussian Noise 170603
Kosuke Fukui, Takaya Matsuura, and Nicolas C. Menicucci

Frequency Tunable, Cavity-Enhanced Single Erbium Quantum Emitter in the Telecom Band 170801
Yong Yu, Dorian Oser, Gaia Da Prato, Emanuele Urbinati, Javier Carrasco Ávila, Yu Zhang, Patrick Remy, Sara Marzban, Simon Gröblacher, and Wolfgang Tittel

Toward the Device-Independent Certification of a Quantum Memory 170802
Pavel Sekatski, Jean-Daniel Bancal, Marie Ioannou, Mikael Afzelius, and Nicolas Brunner

Cosmology, Astrophysics, and Gravitation

Second Data Release from the European Pulsar Timing Array: Challenging the Ultralight Dark Matter Paradigm 171001
Clemente Smarra *et al.* (European Pulsar Timing Array)

Titania Mixed with Silica: A Low Thermal-Noise Coating Material for Gravitational-Wave Detectors 171401
Graeme I. McGhee, Viola Spagnuolo, Nicholas Demos, Simon C. Tait, Peter G. Murray, Martin Chicoine, Paul Dabadie, Slawek Gras, Jim Hough, Guido Alex Iandolo, Ross Johnston, Valérie Martinez, Oli Patane, Sheila Rowan, François Schiettekatte, Joshua R. Smith, Lukas Terkowski, Liyuan Zhang, Matthew Evans, Iain W. Martin, and Jessica Steinlechner

Incompleteness Theorems for Observables in General Relativity 171402
Aristotelis Panagiotopoulos, George Sparling, and Marios Christodoulou

Angular Power Spectrum of Gravitational-Wave Transient Sources as a Probe of the Large-Scale Structure 171403
Yanyan Zheng, Nikolaos Kouvatsos, Jacob Golomb, Marco Cavaglià, Arianna I. Renzini, and Mairi Sakellariadou

First-Order Phase Transition Interpretation of Pulsar Timing Array Signal Is Consistent with Solar-Mass Black Holes 171404
Yann Gouttenoire

Particles and Fields

Conformal Bounds in Three Dimensions from Entanglement Entropy 171601
Pablo Bueno, Horacio Casini, Oscar Lasso Andino, and Javier Moreno

Coupling Fields to 3D Quantum Gravity via Chern-Simons Theory 171602
Alejandra Castro, Ioana Coman, Jackson R. Fliss, and Claire Zukowski

Generic Tests of CP Violation in High-p_T Multilepton Signals at the LHC and Beyond 171801
Yoav Afik, Shaouly Bar-Shalom, Kuntal Pal, Amarjit Soni, and Jose Wudka

(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(20231027)131:17;1-Q

Precision Measurement of CP Violation in the Penguin-Mediated Decay $B_s^0 \to \phi\phi$ 171802
R. Aaij *et al.* (LHCb Collaboration)
Precise Measurement of the D_s^+ Lifetime at Belle II 171803
I. Adachi *et al.* (Belle II Collaboration)
Observation of New Baryons in the $\Xi_b^- \pi^+ \pi^-$ and $\Xi_b^0 \pi^+ \pi^-$ Systems 171901
R. Aaij *et al.* (LHCb Collaboration)
Quantum and Classical Spin-Network Algorithms for q-Deformed Kogut-Susskind Gauge Theories 171902
Torsten V. Zache, Daniel González-Cuadra, and Peter Zoller

Nuclear Physics

Measurement of Suppression of Large-Radius Jets and Its Dependence on Substructure in Pb + Pb Collisions at $\sqrt{s_{NN}} = 5.02$ TeV with the ATLAS Detector 172301
G. Aad *et al.* (ATLAS Collaboration)
Strong Evidence for ^{9}N and the Limits of Existence of Atomic Nuclei 172501
R. J. Charity, J. Wylie, S. M. Wang, T. B. Webb, K. W. Brown, G. Cerizza, Z. Chajecki, J. M. Elson, J. Estee, D. E. M. Hoff, S. A. Kuvin, W. G. Lynch, J. Manfredi, N. Michel, D. G. McNeel, P. Morfouace, W. Nazarewicz, C. D. Pruitt, C. Santamaria, S. Sweany, J. Smith, L. G. Sobotka, M. B. Tsang, and A. H. Wuosmaa

Atomic, Molecular, and Optical Physics

Tuning Photon-Mediated Interactions in a Multimode Cavity: From Supersolid to Insulating Droplets Hosting Phononic Excitations 173401
Natalia Masalaeva, Helmut Ritsch, and Farokh Mivehvar
Quasicrystalline Bose Glass in the Absence of Disorder and Quasidisorder 173402
Matteo Ciardi, Adriano Angelone, Fabio Mezzacapo, and Fabio Cinti
Emergence of a Spin Microemulsion in Spin-Orbit Coupled Bose-Einstein Condensates 173403
Ethan C. McGarrigle, Kris T. Delaney, Leon Balents, and Glenn H. Fredrickson
Attractive Solution of Binary Bose Mixtures: Liquid-Vapor Coexistence and Critical Point 173404
G. Spada, S. Pilati, and S. Giorgini
Intense Squeezed Light from Lasers with Sharply Nonlinear Gain at Optical Frequencies 173801
Linh Nguyen, Jamison Sloan, Nicholas Rivera, and Marin Soljačić

Plasma and Solar Physics, Accelerators and Beams

Generation of High-Density High-Polarization Positrons via Single-Shot Strong Laser-Foil Interaction 175101
Kun Xue, Ting Sun, Ke-Jia Wei, Zhong-Peng Li, Qian Zhao, Feng Wan, Chong Lv, Yong-Tao Zhao, Zhong-Feng Xu, and Jian-Xing Li

Condensed Matter and Materials

Drawing Dispersion Curves: Band Structure Customization via Nonlocal Phononic Crystals 176101
Arash Kazemi, Kshiteej J. Deshmukh, Fei Chen, Yunya Liu, Bolei Deng, Henry Chien Fu, and Pai Wang
Exact New Mobility Edges between Critical and Localized States 176401
Xin-Chi Zhou, Yongjian Wang, Ting-Fung Jeffrey Poon, Qi Zhou, and Xiong-Jun Liu
Making Topologically Trivial Non-Hermitian Systems Nontrivial via Gauge Fields 176402
W. B. Rui, Y. X. Zhao, and Z. D. Wang
Complete Crystalline Topological Invariants from Partial Rotations in $(2+1)$D Invertible Fermionic States and Hofstadter's Butterfly 176501
Yuxuan Zhang, Naren Manjunath, Ryohei Kobayashi, and Maissam Barkeshli
Many-Body Majorana Braiding without an Exponential Hilbert Space 176601
Eric Mascot, Themba Hodge, Dan Crawford, Jasmin Bedow, Dirk K. Morr, and Stephan Rachel
Electron-Photon Chern Number in Cavity-Embedded 2D Moiré Materials 176602
Danh-Phuong Nguyen, Geva Arwas, Zuzhang Lin, Wang Yao, and Cristiano Ciuti
Converging Periodic Boundary Conditions and Detection of Topological Gaps on Regular Hyperbolic Tessellations 176603
Fabian R. Lux and Emil Prodan

(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)

Loss and Decoherence at the Quantum Hall-Superconductor Interface 176604
Lingfei Zhao, Zubair Iftikhar, Trevyn F. Q. Larson, Ethan G. Arnault, Kenji Watanabe, Takashi Taniguchi, François Amet, and Gleb Finkelstein

Valley-Selective Phonon-Magnon Scattering in Magnetoelastic Superlattices 176701
Liyang Liao, Jorge Puebla, Kei Yamamoto, Junyeon Kim, Sadamichi Maekawa, Yunyoung Hwang, You Ba, and Yoshichika Otani

Graded Quasiperiodic Metamaterials Perform Fractal Rainbow Trapping 177001
B. Davies, G. J. Chaplain, T. A. Starkey, and R. V. Craster

Statistical Physics; Classical, Nonlinear, and Complex Systems

Traveling Perversion as Constant Torque Actuator 177201
Émilien Dilly, Sébastien Neukirch, Julien Derr, and Dražen Zanchi

Construction of Coarse-Grained Molecular Dynamics with Many-Body Non-Markovian Memory 177301
Liyao Lyu and Huan Lei

Polymers, Chemical Physics, Soft Matter, and Biological Physics

Electric Fields in Liquid Water Irradiated with Protons at Ultrahigh Dose Rates 178001
F. Gobet, P. Barberet, M.-H. Delville, G. Devès, T. Guérin, R. Liénard, H. N. Tran, C. Vecco-Garda, A. Würger, S. Zein, and H. Seznec

Strain-Controlled Critical Slowing Down in the Rheology of Disordered Networks 178201
Jordan L. Shivers, Abhinav Sharma, and Fred C. MacKintosh

Hamiltonian Dynamics and Structural States of Two-Dimensional Active Particles 178301
Yuval Shoham and Naomi Oppenheimer

Fluid-Glass-Jamming Rheology of Soft Active Brownian Particles 178302
Roland Wiese, Klaus Kroy, and Demian Levis

Lorentz Reciprocal Theorem in Fluids with Odd Viscosity 178303
Yuto Hosaka, Ramin Golestanian, and Andrej Vilfan

Spontaneous Demixing of Binary Colloidal Flocks 178304
Samadarshi Maity and Alexandre Morin

Bend or Twist? What Plectonemes Reveal about the Mysterious Motility of *Spiroplasma* 178401
Paul M. Ryan, Joshua W. Shaevitz, and Charles W. Wolgemuth

Critical Growth of Cerebral Tissue in Organoids: Theory and Experiments 178402
Egor I. Kiselev, Florian Pflug, and Arndt von Haeseler

Errata

Erratum: Exact Top-Quark Mass Dependence in Hadronic Higgs Production
[Phys. Rev. Lett. **127**, 162002 (2021)] 179901
M. Czakon, R. V. Harlander, J. Klappert, and M. Niggetiedt

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.