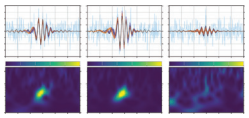

Gravitational-wave detection of the largest black hole merger observed to date. Columns depict the event as seen by LIGO Hanford, LIGO Livingston, and Virgo. Top: signal vs time; bottom: frequency vs time. Selected for a Viewpoint in *Physics* and an Editors' Suggestion. [R. Abbott *et al.*, Phys. Rev. Lett. **125**, 101102 (2020)]

NEWSPAPER

PHYSICAL REVIEW LETTERS

Contents

Articles published 29 August–4 September 2020

VOLUME 125, NUMBER 10 4 September 2020

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

Deep Reinforcement Learning Control of Quantum Cartpoles 100401
Zhikang T. Wang, Yuto Ashida, and Masahito Ueda

High-Precision Quantum-Enhanced Gravimetry with a Bose-Einstein Condensate 100402
Stuart S. Szigeti, Samuel P. Nolan, John D. Close, and Simon A. Haine

Nonequilibrium Phase Transitions in $(1+1)$-Dimensional Quantum Cellular Automata with Controllable Quantum Correlations 100403
Edward Gillman, Federico Carollo, and Igor Lesanovsky

Narrowing the Parameter Space of Collapse Models with Ultracold Layered Force Sensors 100404
A. Vinante, M. Carlesso, A. Bassi, A. Chiasera, S. Varas, P. Falferi, B. Margesin, R. Mezzena, and H. Ulbricht

Superresolution Limits from Measurement Crosstalk 100501
Manuel Gessner, Claude Fabre, and Nicolas Treps

Condition on the Rényi Entanglement Entropy under Stochastic Local Manipulation 100502
Hyukjoon Kwon, A. J. Paige, and M. S. Kim

Quantum Many-Body Dynamics in Two Dimensions with Artificial Neural Networks 100503
Markus Schmitt and Markus Heyl

Half-Integer Quantized Topological Response in Quasiperiodically Driven Quantum Systems 100601
P. J. D. Crowley, I. Martin, and A. Chandran

Finite-Time Landauer Principle 100602
Karel Proesmans, Jannik Ehrich, and John Bechhoefer

Gravitation and Astrophysics

Neutrino and Positron Constraints on Spinning Primordial Black Hole Dark Matter 101101
Basudeb Dasgupta, Ranjan Laha, and Anupam Ray

GW190521: A Binary Black Hole Merger with a Total Mass of 150 $M_\odot$ 101102
R. Abbott *et al.* (LIGO Scientific Collaboration and Virgo Collaboration)

Astrophysical Implications of GW190412 as a Remnant of a Previous Black-Hole Merger 101103
Davide Gerosa, Salvatore Vitale, and Emanuele Berti

Asymptotic Gravitational Charges 101301
Hadi Godazgar, Mahdi Godazgar, and Malcolm J. Perry

Elementary Particles and Fields

Studies of Charm Quark Diffusion inside Jets Using Pb-Pb and pp Collisions at $\sqrt{s_{\mathrm{NN}}} = 5.02$ TeV 102001
A. M. Sirunyan *et al.* (CMS Collaboration)

Nuclear Physics

Systematic Matter and Binding-Energy Distributions from a Dispersive Optical Model Analysis 102501
C. D. Pruitt, R. J. Charity, L. G. Sobotka, M. C. Atkinson, and W. H. Dickhoff

(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 2020 American Physical Society

0031-9007(20200904)125:10;1-G

Shape Coexistence at Zero Spin in ^{64}Ni Driven by the Monopole Tensor Interaction 102502
N. Mărginean *et al.*
Accessing the Single-Particle Structure of the Pygmy Dipole Resonance in ^{208}Pb 102503
M. Spieker, A. Heusler, B. A. Brown, T. Faestermann, R. Hertenberger, G. Potel, M. Scheck, N. Tsoneva, M. Weinert, H.-F. Wirth, and A. Zilges
Fission of ^{240}Pu with Symmetry-Restored Density Functional Theory 102504
P. Marević and N. Schunck
Emergent $\mathrm{Sp}(3,\mathbb{R})$ Dynamical Symmetry in the Nuclear Many-Body System from an *Ab Initio* Description 102505
Anna E. McCoy, Mark A. Caprio, Tomáš Dytrych, and Patrick J. Fasano

Atomic, Molecular, and Optical Physics

Resolving Anharmonic Lattice Dynamics in Molecular Crystals with X-Ray Diffraction and Terahertz Spectroscopy 103001
Martin Hutereau, Peter A. Banks, Ben Slater, J. Axel Zeitler, Andrew D. Bond, and Michael T. Ruggiero
Breathing Mode of a Bose-Einstein Condensate Immersed in a Fermi Sea 103401
Piotr T. Grochowski, Tomasz Karpiuk, Mirosław Brewczyk, and Kazimierz Rzążewski
Morphing Supermodes: A Full Characterization for Enabling Multimode Quantum Optics 103601
Élie Gouzien, Sébastien Tanzilli, Virginia D'Auria, and Giuseppe Patera
Controlling the Dipole Blockade and Ionization Rate of Rydberg Atoms in Strong Electric Fields 103602
Markus Stecker, Raphael Nold, Lea-Marina Steinert, Jens Grimmel, David Petrosyan, József Fortágh, and Andreas Günther
Partial Cloaking of a Gold Particle by a Single Molecule 103603
Johannes Zirkelbach, Benjamin Gmeiner, Jan Renger, Pierre Türschmann, Tobias Utikal, Stephan Götzinger, and Vahid Sandoghdar

Nonlinear Dynamics, Fluid Dynamics, Classical Optics, etc.

Frustrated Bearings 104301
R. S. Pires, A. A. Moreira, H. J. Herrmann, and J. S. Andrade
Singular Measures and Information Capacity of Turbulent Cascades 104501
Michal Shavit and Gregory Falkovich
Steady and Unsteady Buckling of Viscous Capillary Jets and Liquid Bridges 104502
Jingxuan Tian, Neil M. Ribe, Xiaoxiao Wu, and Ho Cheung Shum

Plasma and Beam Physics

Effects of the Transverse Instability and Wave Breaking on the Laser-Driven Thin Foil Acceleration 104801
Y. Wan, I. A. Andriyash, W. Lu, W. B. Mori, and V. Malka
Species Separation and Hydrogen Streaming upon Shock Release from Polystyrene under Inertial Confinement Fusion Conditions 105001
Shuai Zhang and S. X. Hu
Turbulence Suppression by Energetic Particle Effects in Modern Optimized Stellarators 105002
A. Di Siena, A. Bañón Navarro, and F. Jenko

Condensed Matter: Structure, etc.

Anharmonicity and Universal Response of Linear Carbon Chain Mechanical Properties under Hydrostatic Pressure 105501
Keshav Sharma, Nathalia L. Costa, Yoong Ahm Kim, Hiroyuki Muramatsu, Newton M. Barbosa Neto, Luiz G. P. Martins, Jing Kong, Alexandre Rocha Paschoal, and Paulo T. Araujo
Asymmetric Damage Avalanche Shape in Quasibrittle Materials and Subavalanche (Aftershock) Clusters 105502
Chi-Cong Vu and Jérôme Weiss
Hydration of NH_4^+ in Water: Bifurcated Hydrogen Bonding Structures and Fast Rotational Dynamics 106001
Jianqing Guo, Liying Zhou, Andrea Zen, Angelos Michaelides, Xifan Wu, Enge Wang, Limei Xu, and Ji Chen
Weak Dimensionality Dependence and Dominant Role of Ionic Fluctuations in the Charge-Density-Wave Transition of $NbSe_2$ 106101
Raffaello Bianco, Lorenzo Monacelli, Matteo Calandra, Francesco Mauri, and Ion Errea

(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)

Surfactant-Mediated Epitaxial Growth of Single-Layer Graphene in an Unconventional Orientation on SiC 106102
F. C. Bocquet, Y.-R. Lin (林又容), M. Franke, N. Samiseresht, S. Parhizkar, S. Soubatch, T.-L. Lee (李天麟), C. Kumpf, and F. S. Tautz

Condensed Matter: Electronic Properties, etc.

Floquet Topological Phase of Nondriven *p*-Wave Nonequilibrium Excitonic Insulators 106401
E. Perfetto and G. Stefanucci

Observation of the Magneto-Thomson Effect 106601
Ken-ichi Uchida, Masayuki Murata, Asuka Miura, and Ryo Iguchi

Shot Noise of a Temperature-Biased Tunnel Junction 106801
Samuel Larocque, Edouard Pinsolle, Christian Lupien, and Bertrand Reulet

Dynamic Nuclear Spin Polarization Induced by the Edelstein Effect at Bi(111) Surfaces 106802
Zijian Jiang, V. Soghomonian, and J. J. Heremans

Spin-Orbit-Parity-Coupled Superconductivity in Topological Monolayer WTe_2 107001
Ying-Ming Xie, Benjamin T. Zhou, and K. T. Law

Controlling the Superconducting Transition by Rotation of an Inversion Symmetry-Breaking Axis 107002
Lina G. Johnsen, Kristian Svalland, and Jacob Linder

Entropy-reduced Retention Times in Magnetic Memory Elements: A Case of the Meyer-Neldel Compensation Rule 107201
Louise Desplat and Joo-Von Kim

Exciton-Phonon Interaction and Relaxation Times from First Principles 107401
Hsiao-Yi Chen, Davide Sangalli, and Marco Bernardi

Coherent Electron Optics with Ballistically Coupled Quantum Point Contacts 107701
J. Freudenfeld, M. Geier, V. Umansky, P. W. Brouwer, and S. Ludwig

Anisotropic Spin-Acoustic Resonance in Silicon Carbide at Room Temperature 107702
A. Hernández-Mínguez, A. V. Poshakinskiy, M. Hollenbach, P. V. Santos, and G. V. Astakhov

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

Finite Dimensional Vestige of Spinodal Criticality above the Dynamical Glass Transition 108001
Ludovic Berthier, Patrick Charbonneau, and Joyjit Kundu

Programming Impulsive Deformation with Mechanical Metamaterials 108002
Xudong Liang and Alfred J. Crosby

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.