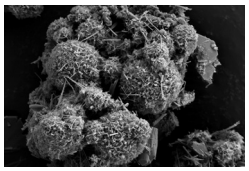

Scanning electron microscope image of fly-ash-based cement. [N. Robinson *et al.*, Phys. Rev. Lett. **130**, 126204 (2023)]

NEWSPAPER

PHYSICAL REVIEW LETTERS

Contents

Articles published 18 March–24 March 2023

VOLUME 130, NUMBER 12 24 March 2023

Quantum Information, Science, and Technology

Prethermal Fragmentation in a Periodically Driven Fermionic Chain 120401
Somsubhra Ghosh, Indranil Paul, and K. Sengupta

Controlling Entanglement at Absorbing State Phase Transitions in Random Circuits 120402
Piotr Sierant and Xhek Turkeshi

Discrete Time Crystal Enabled by Stark Many-Body Localization 120403
Shuo Liu, Shi-Xin Zhang, Chang-Yu Hsieh, Shengyu Zhang, and Hong Yao

Multipartite Entanglement in a Microwave Frequency Comb 120601
Shan W. Jolin, Gustav Andersson, J. C. Rivera Hernández, Ingrid Strandberg, Fernando Quijandría, José Aumentado, Riccardo Borgani, Mats O. Tholén, and David B. Haviland

Classical Cost of Transmitting a Qubit 120801
Martin J. Renner, Armin Tavakoli, and Marco Túlio Quintino

Full-Period Quantum Phase Estimation 120802
Li-Zheng Liu, Yue-Yang Fei, Yingqiu Mao, Yi Hu, Rui Zhang, Xu-Fei Yin, Xiao Jiang, Li Li, Nai-Le Liu, Feihu Xu, Yu-Ao Chen, and Jian-Wei Pan

Cosmology, Astrophysics, and Gravitation

Thermal Dark Matter from Freeze-Out of Inverse Decays 121001
Ronny Frumkin, Yonit Hochberg, Eric Kuflik, and Hitoshi Murayama

Dark Matter Dilution Mechanism through the Lens of Large-Scale Structure 121002
Miha Nemevšek and Yue Zhang

Massive Galaxy Clusters Like El Gordo Hint at Primordial Quantum Diffusion 121003
Jose María Ezquiaga, Juan García-Bellido, and Vincent Vennin

Pulsar Polarization Arrays 121401
Tao Liu, Xuzixiang Lou, and Jing Ren

Penrose Inequality as a Constraint on the Low Energy Limit of Quantum Gravity 121501
Åsmund Folkestad

Particles and Fields

Noninvertible Symmetries from Holography and Branes 121601
Fabio Apruzzi, Ibrahima Bah, Federico Bonetti, and Sakura Schäfer-Nameki

Self-Consistent Extraction of Spectroscopic Bounds on Light New Physics 121801
Cédric Delaunay, Jean-Philippe Karr, Teppei Kitahara, Jeroen C. J. Koelemeij, Yotam Soreq, and Jure Zupan

Observation of Three Charmoniumlike States with $J^{PC} = 1^{--}$ in $e^+e^- \to D^{*0}D^{*-}\pi^+$ 121901
M. Ablikim *et al.* (BESIII Collaboration)

(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(20230324)130:12;1-z

Nuclear Physics

Theoretical Study of the $d(d, p)^3$H and $d(d, n)^3$He Processes at Low Energies 122501
M. Viviani, L. Girlanda, A. Kievsky, D. Logoteta, and L. E. Marcucci

First Evidence of Axial Shape Asymmetry and Configuration Coexistence in ^{74}Zn: Suggestion for a Northern Extension of the $N = 40$ Island of Inversion 122502
M. Rocchini *et al.*

Direct Measurement of Hexacontatetrapole, $E6$ γ Decay from ^{53m}Fe 122503
T. Palazzo, A. J. Mitchell, G. J. Lane, A. E. Stuchbery, B. A. Brown, M. W. Reed, A. Akber, B. J. Coombes, J. T. H. Dowie, T. K. Eriksen, M. S. M. Gerathy, T. Kibédi, T. Tornyi, and M. O. de Vries

Atomic, Molecular, and Optical Physics

Probing the Degree of Coherence through the Full 1D to 3D Crossover 123401
R. Shah, T. J. Barrett, A. Colcelli, F. Oručević, A. Trombettoni, and P. Krüger

Pure Dephasing of Light-Matter Systems in the Ultrastrong and Deep-Strong Coupling Regimes 123601
Alberto Mercurio, Shilan Abo, Fabio Mauceri, Enrico Russo, Vincenzo Macrì, Adam Miranowicz, Salvatore Savasta, and Omar Di Stefano

Dissipative Pairing Interactions: Quantum Instabilities, Topological Light, and Volume-Law Entanglement 123602
Andrew Pocklington, Yu-Xin Wang, and A. A. Clerk

Deterministic Quantum Phase Estimation beyond N00N States 123603
Jens A. H. Nielsen, Jonas S. Neergaard-Nielsen, Tobias Gehring, and Ulrik L. Andersen

Metasurface-Based Solid Poincaré Sphere Polarizer 123801
Shuai Wang, Shun Wen, Zi-Lan Deng, Xiangping Li, and Yuanmu Yang

Physics of Fluids, Earth & Planetary Science, and Climate

Generalizing Monin-Obukhov Similarity Theory (1954) for Complex Atmospheric Turbulence 124001
Ivana Stiperski and Marc Calaf

Condensed Matter and Materials

Pair-Density-Wave and Chiral Superconductivity in Twisted Bilayer Transition Metal Dichalcogenides 126001
Yi-Ming Wu, Zhengzhi Wu, and Hong Yao

Fractional Quantum Hall Effect with Unconventional Pairing in Monolayer Graphene 126201
Anirban Sharma, Songyang Pu, Ajit C. Balram, and J. K. Jain

Many-Body Description of STM-Induced Fluorescence of Charged Molecules 126202
Song Jiang, Tomáš Neuman, Rémi Bretel, Alex Boeglin, Fabrice Scheurer, Eric Le Moal, and Guillaume Schull

Dimer Coupling Energies of the Si(001) Surface 126203
Christian Brand, Alfred Hucht, Giriraj Jnawali, Jonas D. Fortmann, Björn Sothmann, Hamid Mehdipour, Peter Kratzer, Ralf Schützhold, and Michael Horn-von Hoegen

NMR Surface Relaxivity in a Time-Dependent Porous System 126204
Neil Robinson, Razyq Nasharuddin, Einar O. Fridjonsson, and Michael L. Johns

Effect of Amorphous-Crystalline Phase Transition on Superlubric Sliding 126205
Ebru Cihan, Dirk Dietzel, Benedykt R. Jany, and André Schirmeisen

Valley-Tunable Even-Denominator Fractional Quantum Hall State in the Lowest Landau Level of an Anisotropic System 126301
Md. Shafayat Hossain, Meng K. Ma, Y. J. Chung, S. K. Singh, A. Gupta, K. W. West, K. W. Baldwin, L. N. Pfeiffer, R. Winkler, and M. Shayegan

Ultrafast Dynamics of Intrinsic Anomalous Hall Effect in the Topological Antiferromagnet Mn_3Sn 126302
Takuya Matsuda, Tomoya Higo, Takashi Koretsune, Natsuki Kanda, Yoshua Hirai, Hanyi Peng, Takumi Matsuo, Naotaka Yoshikawa, Ryo Shimano, Satoru Nakatsuji, and Ryusuke Matsunaga

(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)

Intrinsic Nonlinear Planar Hall Effect 126303
Yue-Xin Huang, Xiaolong Feng, Hui Wang, Cong Xiao, and Shengyuan A. Yang

Magnetic Breakdown and Topology in the Kagome Superconductor CsV_3Sb_5 under High Magnetic Field 126401
Ramakanta Chapai, Maxime Leroux, Vincent Oliviero, David Vignolles, Nicolas Bruyant, M. P. Smylie, D. Y. Chung, M. G. Kanatzidis, W.-K. Kwok, J. F. Mitchell, and Ulrich Welp

Imprinting Spatial Helicity Structure of Vector Vortex Beam on Spin Texture in Semiconductors 126701
Jun Ishihara, Takachika Mori, Takuya Suzuki, Sota Sato, Ken Morita, Makoto Kohda, Yuzo Ohno, and Kensuke Miyajima

Distinct Magnetic Gaps between Antiferromagnetic and Ferromagnetic Orders Driven by Surface Defects in the Topological Magnet $MnBi_2Te_4$ 126702
Hengxin Tan and Binghai Yan

Large Anomalous Frequency Shift in Perpendicular Standing Spin Wave Modes in BiYIG Films Induced by Thin Metallic Overlayers 126703
Byung Hun Lee, Takian Fakhrul, Caroline A. Ross, and Geoffrey S. D. Beach

Prominent Size Effects without a Depolarization Field Observed in Ultrathin Ferroelectric Oxide Membranes 126801
Haoying Sun, Jiahui Gu, Yongqiang Li, Tula R. Paudel, Di Liu, Jierong Wang, Yipeng Zang, Chengyi Gu, Jiangfeng Yang, Wenjie Sun, Zhengbin Gu, Evgeny Y. Tsymbal, Junming Liu, Houbing Huang, Di Wu, and Yuefeng Nie

Electronuclear Transition into a Spatially Modulated Magnetic State in $YbRh_2Si_2$ 126802
J. Knapp, L. V. Levitin, J. Nyéki, A. F. Ho, B. Cowan, J. Saunders, M. Brando, C. Geibel, K. Kliemt, and C. Krellner

Coupling of MoS_2 Excitons with Lattice Phonons and Cavity Vibrational Phonons in Hybrid Nanobeam Cavities 126901
Chenjiang Qian, Viviana Villafañe, Marko M. Petrić, Pedro Soubelet, Andreas V. Stier, and Jonathan J. Finley

Terahertz-Driven Local Dipolar Correlation in a Quantum Paraelectric 126902
Bing Cheng, Patrick L. Kramer, Zhi-Xun Shen, and Matthias C. Hoffmann

Statistical Physics; Classical, Nonlinear, and Complex Systems

Soliton Shielding of the Focusing Nonlinear Schrödinger Equation 127201
Marco Bertola, Tamara Grava, and Giuseppe Orsatti

Polymers, Chemical Physics, Soft Matter, and Biological Physics

Defect Line Coarsening and Refinement in Active Nematics 128101
Nika Kralj, Miha Ravnik, and Žiga Kos

Soft Deployable Structures via Core-Shell Inflatables 128201
Trevor J. Jones, Thomas Dupuis, Etienne Jambon-Puillet, Joel Marthelot, and P.-T. Brun

Collective Motion and Pattern Formation in Phase-Synchronizing Active Fluids 128202
Brato Chakrabarti, Michael J. Shelley, and Sebastian Fürthauer

Tuning Nucleation Kinetics via Nonequilibrium Chemical Reactions 128203
Yongick Cho and William M. Jacobs

Modeling the Transition between Localized and Extended Deposition in Flow Networks through Packings of Glass Beads 128204
Gess Kelly, Navid Bizmark, Bulbul Chakraborty, Sujit S. Datta, and Thomas G. Fai

Enzyme-Enriched Condensates Show Self-Propulsion, Positioning, and Coexistence 128401
Leonardo Demarchi, Andriy Goychuk, Ivan Maryshev, and Erwin Frey

(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)

Errata

Expression of Concern: Colossal Density-Driven Resistance Response in the Negative Charge Transfer Insulator MnS_2
[Phys. Rev. Lett. **127**, 016401 (2021)] 129901
Randall D. Kamien

Erratum: Quantifying and Controlling Entanglement in the Quantum Magnet Cs_2CoCl_4
[Phys. Rev. Lett. **127**, 037201 (2021)] 129902
Pontus Laurell, Allen Scheie, Chiron J. Mukherjee, Michael M. Koza, Mechtild Enderle, Zbigniew Tylczynski, Satoshi Okamoto, Radu Coldea, D. Alan Tennant, and Gonzalo Alvarez

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.