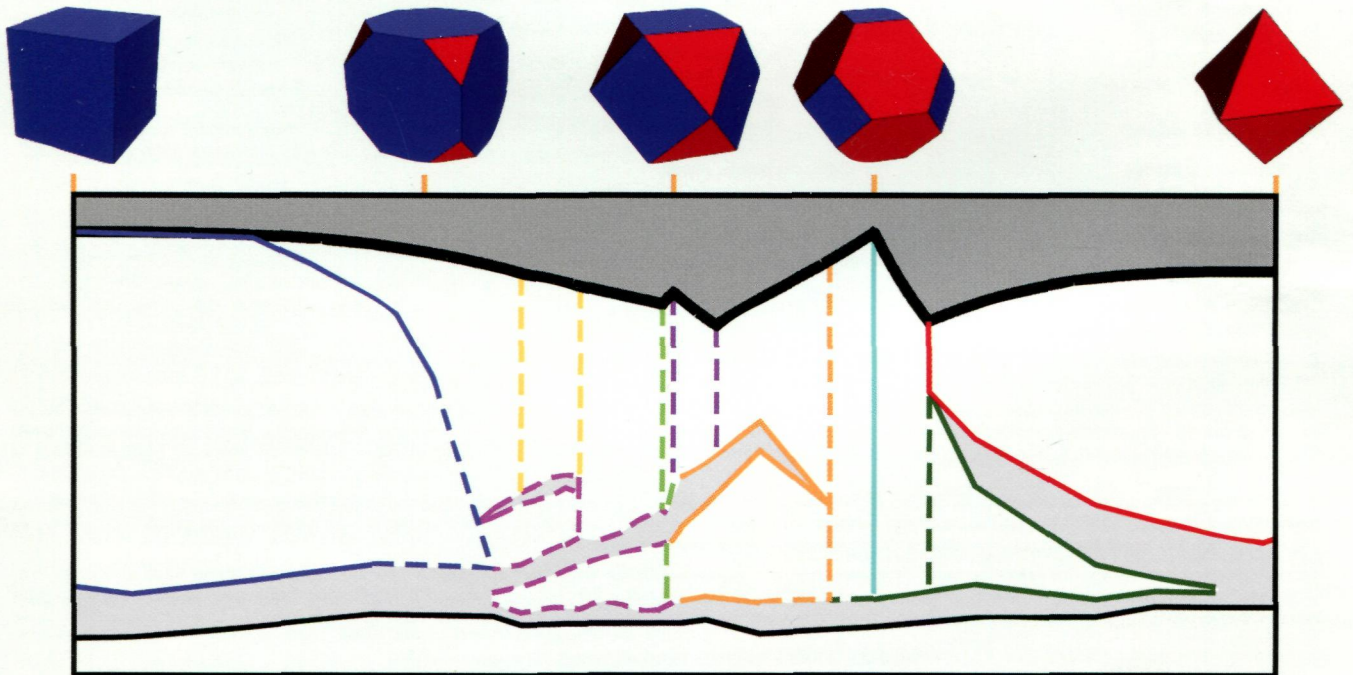


# PHYSICAL REVIEW LETTERS<sup>TM</sup>

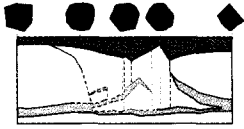
Articles published week ending 5 JULY 2013



Published by  
**American Physical Society<sup>TM</sup>**

**APS**  
physics

Volume 111, Number 1



The phase diagram for a family of truncated hard cubes, which are also experimentally realizable, shows a diversity of stable crystal structures and mesophases. Selected for an Editor's Suggestion [Anjan P. Gantapara, Joost de Graaf, René van Roij, and Marjolein Dijkstra, *Phys. Rev. Lett.* **111**, 015501 (2013)]

## PHYSICAL REVIEW LETTERS™

### Contents

Articles published 29 June–5 July 2013

VOLUME 111, NUMBER 1

5 July 2013

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

- ☞ Canonical Thermal Pure Quantum State ..... 010401  
Sho Sugiura and Akira Shimizu
- ☞ Quantum Speed Limit for Non-Markovian Dynamics ..... 010402  
Sebastian Deffner and Eric Lutz
- ☞ Entanglement's Benefit Survives an Entanglement-Breaking Channel ..... 010501  
Zheshen Zhang, Maria Tengner, Tian Zhong, Franco N. Wong, and Jeffrey H. Shapiro
- ☞ Disentangling Sources of Anomalous Diffusion ..... 010601  
Felix Thiel, Franziska Flegel, and Igor M. Sokolov
- ☞ Imitating Chemical Motors with Optimal Information Motors ..... 010602  
Jordan M. Horowitz, Takahiro Sagawa, and Juan M. Parrondo
- ☞ Limits on the Dependence of the Fine-Structure Constant on Gravitational Potential from White-Dwarf Spectra ..... 010801  
J.C. Berengut, V.V. Flambaum, A. Ong, J.K. Webb, John D. Barrow, M.A. Barstow, S.P. Preval, and J.B. Holberg

#### Gravitation and Astrophysics

- ☞ Probe of the Solar Magnetic Field Using the "Cosmic-Ray Shadow" of the Sun ..... 011101  
M. Amenomori *et al.*
- ☞ Anisotropies in the Gravitational Wave Background from Preheating ..... 011301  
Laura Bethke, Daniel G. Figueroa, and Arttu Rajantie

#### Elementary Particles and Fields

- ☞ Universal Landau Pole ..... 011601  
A. A. Andrianov, D. Espriu, M. A. Kurkov, and F. Lizzi
- ☞ Determining Triple Gauge Boson Couplings from Higgs Data ..... 011801  
Tyler Corbett, O.J. Éboli, J. Gonzalez-Fraile, and M.C. Gonzalez-Garcia
- ☞ Luminosity-Independent Measurement of the Proton-Proton Total Cross Section at  $\sqrt{s} = 8$  TeV ..... 012001  
G. Antchev *et al.* (TOTEM Collaboration)

#### Nuclear Physics

- ☞ Photon Signals from Quarkyonic Matter ..... 012301  
Giorgio Torrieri, Sascha Vogel, and Bjørn Bäuchle
- ☞ Non-Gaussian Fluctuations and Non-Markovian Effects in the Nuclear Fusion Process: Langevin Dynamics Emerging from Quantum Molecular Dynamics Simulations ..... 012501  
Kai Wen, Fumihiko Sakata, Zhu-Xia Li, Xi-Zhen Wu, Ying-Xun Zhang, and Shan-Gui Zhou
- ☞ Constrained-Path Quantum Monte Carlo Approach for the Nuclear Shell Model ..... 012502  
J. Bonnard and O. Juillet

(Continued Inside)

☞ Selected for a Viewpoint in *Physics*. Please visit <http://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).



**Atomic, Molecular, and Optical Physics**

Accurate and Efficient Approximation to the Optimized Effective Potential for Exchange .....	013001
Ilya G. Ryabinkin, Alexei A. Kananenka, and Viktor N. Staroverov	
Precision Frequency Metrology of Helium $2^1S_0 \rightarrow 2^1P_1$ Transition .....	013002
Pei-Ling Luo, Jin-Long Peng, Jow-Tsong Shy, and Li-Bang Wang	
Ejection of Quasi-Free-Electron Pairs from the Helium-Atom Ground State by Single-Photon Absorption .....	013003
M.S. Schöffler, C. Stuck, M. Waitz, F. Trinter, T. Jahnke, U. Lenz, M. Jones, A. Belkacem, A.L. Landers, M.S. Pindzola, C.L. Cocke, J. Colgan, A. Kheifets, I. Bray, H. Schmidt-Böcking, R. Dörner, and Th. Weber	

**Nonlinear Dynamics, Fluid Dynamics, Classical Optics, etc.**

Intensity Fluctuations of Waves in Random Media: What Is the Semiclassical Limit? .....	013901
Jakob J. Metzger, Ragnar Fleischmann, and Theo Geisel	
Reviving Oscillations in Coupled Nonlinear Oscillators .....	014101
Wei Zou, D.V. Senthikumar, Meng Zhan, and Jürgen Kurths	
Capillary Deformations of Bendable Films .....	014301
R.D. Schroll, M. Adda-Bedia, E. Cerda, J. Huang, N. Menon, T.P. Russell, K.B. Toga, D. Vella, and B. Davidovitch	
Water Drops Dancing on Ice: How Sublimation Leads to Drop Rebound .....	014501
C. Antonini, I. Bernagozzi, S. Jung, D. Poulikakos, and M. Marengo	
Effect of a Marginal Inclination on Pattern Formation in a Binary Liquid Mixture under Thermal Stress .....	014502
Fabrizio Crocco, Frank Scheffold, and Alberto Vailati	

**Plasma and Beam Physics**

Hardening and Termination of Long-Duration $\gamma$ Rays Detected Prior to Lightning .....	015001
H. Tsuchiya, T. Enoto, K. Iwata, S. Yamada, T. Yuasa, T. Kitaguchi, M. Kawaharada, K. Nakazawa, M. Kokubun, H. Kato, M. Okano, T. Tamagawa, and K. Makishima	
Ideal Gas Behavior of a Strongly Coupled Complex (Dusty) Plasma .....	015002
Neil P. Oxtoby, Elias J. Griffith, Céline Durniak, Jason F. Ralph, and Dmitry Samsonov	
Generating High-Brightness Electron Beams via Ionization Injection by Transverse Colliding Lasers in a Plasma-Wakefield Accelerator .....	015003
F. Li, J.F. Hua, X.L. Xu, C.J. Zhang, L.X. Yan, Y.C. Du, W.H. Huang, H.B. Chen, C.X. Tang, W. Lu, C. Joshi, W.B. Mori, and Y.Q. Gu	
Induced Emission of Alfvén Waves in Inhomogeneous Streaming Plasma: Implications for Solar Corona Heating and Solar Wind Acceleration .....	015004
V.L. Galinsky and V.I. Shevchenko	
dc-Magnetic-Field Generation in Unmagnetized Shear Flows .....	015005
T. Grismayer, E.P. Alves, R.A. Fonseca, and L.O. Silva	
Ion Runaway in Lightning Discharges .....	015006
T. Fülöp and M. Landreman	

**Condensed Matter: Structure, etc.**


Phase Diagram and Structural Diversity of a Family of Truncated Cubes: Degenerate Close-Packed Structures and Vacancy-Rich States .....	015501
Anjan P. Gantapara, Joost de Graaf, René van Roij, and Marjolein Dijkstra	
Highly Ordered Noncrystalline Metallic Phase .....	015502
Gabrielle G. Long, Karena W. Chapman, Peter J. Chupas, Leonid A. Bendersky, Lyle E. Levine, Frédéric Mompiau, Judith K. Stalick, and John W. Cahn	
Direct Observation of Interstitial Dislocation Loop Coarsening in $\alpha$ -Iron .....	015503
S. Moll, T. Jourdan, and H. Lefaix-Jeuland	
Rheology across the Zero-Temperature Jamming Transition .....	015701
José Paredes, Matthias A. Michels, and Daniel Bonn	
Reverse Epitaxy of Ge: Ordered and Faceted Surface Patterns .....	016101
Xin Ou, Adrian Keller, Manfred Helm, Jürgen Fassbender, and Stefan Facsko	

(Continued on Preceding Page)

**Condensed Matter: Electronic Properties, etc.**

Ultrafast Charge Recombination in a Photoexcited Mott-Hubbard Insulator .....	016401
Zala Lenarčič and Peter Prelovšek	
Competing Topological and Kondo Insulator Phases on a Honeycomb Lattice .....	016402
Xiao-Yong Feng, Jianhui Dai, Chung-Hou Chung, and Qimiao Si	
Suppression of the Hanle Effect in Organic Spintronic Devices .....	016601
Z. G. Yu	
Topological Magnetoelectric Effect Decay .....	016801
D. A. Pesin and A. H. MacDonald	
Organic $\pi$ -Conjugated Copolymers as Molecular Charge Qubits .....	016802
C. A. Mujica-Martinez, P. Nalbach, and M. Thorwart	
RKKY Interaction and Intrinsic Frustration in Non-Fermi-Liquid Metals .....	017001
Jian-Huang She and A. R. Bishop	
Universal Behavior of the Shannon Mutual Information of Critical Quantum Chains .....	017201
F. C. Alcaraz and M. A. Rajabpour	
MnSb <sub>2</sub> O <sub>6</sub> : A Polar Magnet with a Chiral Crystal Structure .....	017202
R. D. Johnson, K. Cao, L. C. Chapon, F. Fabrizi, N. Perks, P. Manuel, J. J. Yang, Y. S. Oh, S.-W. Cheong, and P. G. Radaelli	
Morphotropic Phase Boundaries in Ferromagnets: Tb <sub>1-x</sub> Dy <sub>x</sub> Fe <sub>2</sub> Alloys .....	017203
Richard Bergstrom, Jr., Manfred Wuttig, James Cullen, Peter Zavalij, Robert Briber, Cindi Dennis, V. Ovidiu Garlea, and Mark Laver	
Lifetimes of Antiferromagnetic Magnons in Two and Three Dimensions: Experiment, Theory, and Numerics .....	017204
S. P. Bayrakci, D. A. Tennant, Ph. Leininger, T. Keller, M. C. Gibson, S. D. Wilson, R. J. Birgeneau, and B. Keimer	
Formation of Isolated Zn Vacancies in ZnO Single Crystals by Absorption of Ultraviolet Radiation: A Combined Study Using Positron Annihilation, Photoluminescence, and Mass Spectroscopy .....	017401
Enamul H. Khan, Marc H. Weber, and Matthew D. McCluskey	

**Soft Matter, Biological, and Interdisciplinary Physics**

 Energy Dissipation in Driven Granular Matter in the Absence of Gravity .....	018001
Achim Sack, Michael Heckel, Jonathan E. Kollmer, Fabian Zimmer, and Thorsten Pöschel	
Li <sup>+</sup> Transport in Poly(Ethylene Oxide) Based Electrolytes: Neutron Scattering, Dielectric Spectroscopy, and Molecular Dynamics Simulations .....	018301
Changwoo Do, Peter Lunkenheimer, Diddo Diddens, Marion Götz, Matthias Weiß, Alois Loidl, Xiao-Guang Sun, Jürgen Allgaier, and Michael Ohl	

**Comments**

Comment on “Observation of the Deexcitation of the <sup>229m</sup> Th Nuclear Isomer” .....	018901
Ekkehard Peik and Kai Zimmermann	
Comment on “Intense Superradiant X Rays from a Compact Source Using a Nanocathode Array and Emittance Exchange” .....	019401
G. Stupakov, A. Zholents, and M. S. Zolotarev	
Graves <i>et al.</i> Reply .....	019402
W. S. Graves, F. X. Kärtner, D. E. Moncton, and P. Piot	

**Errata**

Publisher’s Note: Study of $e^+e^- \rightarrow \pi^+\pi^-J/\psi$ and Observation of a Charged Charmoniumlike State at Belle [Phys. Rev. Lett. <b>110</b> , 252002 (2013)] .....	019901
Z. Q. Liu (Belle Collaboration)	
Erratum: Large Tensor-to-Scalar Ratio in Small-Field Inflation [Phys. Rev. Lett. <b>110</b> , 231101 (2013)] .....	019902
Takeshi Kobayashi and Tomo Takahashi	
Erratum: Universality in the Three-Dimensional Random-Field Ising Model [Phys. Rev. Lett. <b>110</b> , 227201 (2013)] .....	019903
Nikolaos G. Fytas and Victor Martín-Mayor	

(Continued on Preceding Page)



Selected for a Viewpoint in *Physics*. Please visit <http://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).

Contents (Continued)

Erratum: Pressure-Induced Structural Transition in $\text{LuFe}_2\text{O}_4$ : Towards a New Charge Ordered State [Phys. Rev. Lett. <b>105</b> , 237203 (2010)] .....	019904
J. Rouquette, J. Haines, A. Al-Zein, Ph. Papet, F. Damay, J. Bourgeois, T. Hammouda, F. Dore, A. Maignan, M. Hervieu, and C. Martin	



Selected for a Viewpoint in *Physics*. Please visit <http://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).



The American Physical Society's free online publication, *Physics* (<http://physics.aps.org/>), provides thought-provoking analysis and spotlights exceptional research.