



Calculated strain energy distributions for two icosadeltahedral arrangements of particles that interact via a repulsive potential and are confined to the surface of a sphere; high strain: red; low strain: blue. See article 185502.

PHYSICAL REVIEW LETTERS

Contents

VOLUME 89, NUMBER 18

28 October 2002

General Physics

Ramsey Fringes in a Bose-Einstein Condensate between Atoms and Molecules	180401
S.J.J.M.F. Kokkelmans and M.J. Holland	
Thermodynamical Approach to Quantifying Quantum Correlations	180402
Jonathan Oppenheim, Michał Horodecki, Paweł Horodecki, and Ryszard Horodecki	
Mean-Field Theory of Feshbach-Resonant Interactions in ^{85}Rb Condensates	180403
Matt Mackie, Kalle-Antti Suominen, and Juha Javanainen	
Heat Conduction and Entropy Production in a One-Dimensional Hard-Particle Gas	180601
Peter Grassberger, Walter Nadler, and Lei Yang	
Theory of a Systematic Computational Error in Free Energy Differences	180602
Daniel M. Zuckerman and Thomas B. Woolf	

Elementary Particles and Fields

Broken Quantum Symmetry and Confinement Phases in Planar Physics	181601
F.A. Bais, B.J. Schroers, and J.K. Slingerland	
Approximate Bogomol'nyi-Prasad-Sommerfield States	181602
J.R. Hiller, S.S. Pinsky, and U. Trittman	

Nuclear Physics

Evolution of Nuclear Spectra with Nuclear Forces	182501
R.B. Wiringa and Steven C. Pieper	
Triple Point of Nuclear Deformations	182502
J. Jolie, P. Cejnar, R.F. Casten, S. Heinze, A. Linnemann, and V. Werner	
Perturbative Effective Theory in an Oscillator Basis?	182503
W.C. Haxton and T. Luu	

Atomic, Molecular, and Optical Physics

Coherent Rayleigh-Brillouin Scattering	183001
Xingguo Pan, Mikhail N. Shneider, and Richard B. Miles	
Molecular Photodetachment Microscopy	183002
Christian Delsart, Fabienne Goldfarb, and Christophe Blondel	
Barkas Effect for Antiproton Stopping in H_2	183201
E. Lodi Rizzini <i>et al.</i>	
Very Fast Hollow-Atom Decay Processes in Xe^{30+} - C_{60} Collisions	183401
S. Martin, R. Brédy, J. Bernard, J. Désesquelles, and L. Chen	
Charge Transfer and Dissociation in Collisions of Metal Clusters with Atoms	183402
C. Bréchnignac, Ph. Cahuzac, B. Concina, J. Leygnier, L.F. Ruiz, B. Zarour, P.A. Hervieux, J. Hanssen, M.F. Politis, and F. Martín	
Direct Experimental Evidence for a Negative Heat Capacity in the Liquid-to-Gas Phase Transition in Hydrogen Cluster Ions: Backbending of the Caloric Curve	183403
F. Gobet, B. Farizon, M. Farizon, M.J. Gaillard, J.P. Buchet, M. Carré, P. Scheier, and T.D. Märk	

(Continued on Third Cover)

Contents (Continued)

Atomic-Vapor-Based High Efficiency Optical Detectors with Photon Number Resolution	183601
Daniel F.V. James and Paul G. Kwiat	
Nonlinear Dynamics, Fluid Dynamics, Classical Optics, etc.	
Left-Handed-Media Simulation and Transmission of EM Waves in Subwavelength Split-Ring-Resonator-Loaded Metallic Waveguides	183901
R. Marqués, J. Martel, F. Mesa, and F. Medina	
Pattern Formation in a Cavity Longer than the Coherence Length of the Light in It	183902
Tal Carmon, Marin Soljačić, and Mordechai Segev	
Shadowability of Statistical Averages in Chaotic Systems	184101
Ying-Cheng Lai, Zonghua Liu, Guo-Wei Wei, and Choy-Heng Lai	
Gap Bifurcations in Nonlinear Dynamical Systems	184102
F.B. Rizzato and R. Pakter	
Statistics of Branched Flow in a Weak Correlated Random Potential	184103
Lev Kaplan	
Hydrodynamic Model for a Dynamical Jammed-to-Flowing Transition in Gravity Driven Granular Media	184301
Lydéric Bocquet, Jalal Errami, and T.C. Lubensky	
Energy Spectrum of Quasigeostrophic Turbulence	184501
Peter Constantin	
Plume Statistics in Thermal Turbulence: Mixing of an Active Scalar	184502
Sheng-Qi Zhou and Ke-Qing Xia	
Plasma and Beam Physics	
Soliton Modulation of the Turbulence Envelope and Plasma Rotation	185001
F. Spineanu and M. Vlad	
Nonlinear Dynamics of a Zonal Flow near Marginal Stability	185002
V.S. Marchenko	
Guiding of High-Intensity Laser Pulses with a Hydrogen-Filled Capillary Discharge Waveguide	185003
A. Butler, D.J. Spence, and S.M. Hooker	
Condensed Matter: Structure, etc.	
Spin-Zero Sound in One- and Quasi-One-Dimensional ^3He	185301
E.S. Hernández	
Identification of Lattice Vacancies on the Two Sublattices of SiC	185501
A.A. Rempel, W. Sprengel, K. Blaurock, K.J. Reichle, J. Major, and H.-E. Schaefer	
Crystalline Order on a Sphere and the Generalized Thomson Problem	185502
M. Bowick, A. Cacciuto, D.R. Nelson, and A. Travesset	
Acoustic Emission from Paper Fracture	185503
L.I. Salminen, A.I. Tolvanen, and M.J. Alava	
Giant Magnetic Moments of Nitrogen-Doped Mn Clusters and their Relevance to Ferromagnetism in Mn-Doped GaN	185504
B.K. Rao and P. Jena	
Enhancement by Polydispersity of the Biaxial Nematic Phase in a Mixture of Hard Rods and Plates	185701
Yuri Martínez-Ratón and José A. Cuesta	
Rapid Transport of Gases in Carbon Nanotubes	185901
Anastasios I. Skoulidas, David M. Ackerman, J. Karl Johnson, and David S. Sholl	
Instability of Thin Liquid Films by Density Variations: A New Mechanism that Mimics Spinodal Dewetting	186101
Ashutosh Sharma and Jeetain Mittal	
Evidence of Registry at the Interface during Inorganic Nucleation at an Organic Template	186102
Jan Kmetko, Chungjong Yu, Guennadi Evmenenko, Sumit Kewalramani, and Pulak Dutta	
Condensed Matter: Electronic Properties, etc.	
Spin Coherence and Electromagnetically Induced Transparency via Exciton Correlations	186401
Mark Phillips and Hailin Wang	

(Continued on Preceding Page)

Contents (Continued)

Pulling Monatomic Gold Wires with Single Molecules: An <i>Ab Initio</i> Simulation	186402
Daniel Krüger, Harald Fuchs, Roger Rousseau, Dominik Marx, and Michele Parrinello	
Non-Fermi-Liquid Behavior of Electron-Spin Fluctuations in an Elemental Paramagnet	186403
J.R. Stewart, B.D. Rainford, R.S. Eccleston, and R. Cywinski	
Femtosecond Laser-Induced Damage and Filamentary Propagation in Fused Silica	186601
L. Sudrie, A. Couairon, M. Franco, B. Lamouroux, B. Prade, S. Tzortzakis, and A. Mysyrowicz	
Localization and Waveguiding of Surface Plasmon Polaritons in Random Nanostructures	186801
Sergey I. Bozhevolnyi, Valentyn S. Volkov, and Kristjan Leosson	
Spectrally Resolved Dynamics of Energy Transfer in Quantum-Dot Assemblies: Towards Engineered Energy Flows in Artificial Materials	186802
S.A. Crooker, J.A. Hollingsworth, S. Tretiak, and V.I. Klimov	
Metastability and Uniqueness of Vortex States at Depinning	187001
Mahesh Chandran, R.T. Scalettar, and G.T. Zimányi	
Two-Band Superconductivity in MgB_2	187002
M. Iavarone, G. Karapetrov, A.E. Koshelev, W.K. Kwok, G.W. Crabtree, D.G. Hinks, W.N. Kang, Eun-Mi Choi, Hyun Jung Kim, Hyeong-Jin Kim, and S.I. Lee	
Vortex Imaging in the π Band of Magnesium Diboride	187003
M.R. Eskildsen, M. Kugler, S. Tanaka, J. Jun, S.M. Kazakov, J. Karpinski, and Ø. Fischer	
Oscillations of the Superconducting Critical Current in Nb-Cu-Ni-Cu-Nb Junctions	187004
Y. Blum, A. Tsukernik, M. Karpovski, and A. Palevski	
Skyrmion Strings and the Anomalous Hall Effect in CrO_2	187201
H. Yanagihara and M.B. Salamon	
Triple- $\vec{q}$ Octupolar Ordering in NpO_2	187202
J.A. Paixão, C. Detlefs, M.J. Longfield, R. Caciuffo, P. Santini, N. Bernhoeft, J. Rebizant, and G.H. Lander	
Relaxation and Dephasing of Multiexcitons in Semiconductor Quantum Dots	187401
P. Borri, W. Langbein, S. Schneider, U. Woggon, R.L. Sellin, D. Ouyang, and D. Bimberg	
Cyclic Cluster Growth in Ferroelectric Perovskites	187601
Doru C. Lupascu and Ute Rabe	
Ferroelectricity and Isotope Effects in Hydrogen-Bonded KDP Crystals	187602
S. Koval, J. Kohanoff, R.L. Migoni, and E. Tosatti	
Interdisciplinary Physics: Biological Physics, Quantum Information, etc.	
Single Photon Quantum Cryptography	187901
Alexios Beveratos, Rosa Brouri, Thierry Gacoin, André Villing, Jean-Philippe Poizat, and Philippe Grangier	
Deterministic Secure Direct Communication Using Entanglement	187902
Kim Boström and Timo Felbinger	
Quantum Computation with Trapped Ions in an Optical Cavity	187903
Giannis Pachos and Herbert Walther	
Evolution of Protein Synthesis in a Lattice Model of Replicators	188101
A. Rosas, C.P. Ferreira, and J.F. Fontanari	
Noise-Driven Manifestation of Learning in Mature Neural Networks	188102
Christopher Monterola and Caesar Saloma	
Trapping of DNA by Thermophoretic Depletion and Convection	188103
Dieter Braun and Albert Libchaber	
Quantum Computing by an Optimal Control Algorithm for Unitary Transformations	188301
José P. Palao and Ronnie Kosloff	
Screened Hydrodynamic Interaction in a Narrow Channel	188302
Bianxiao Cui, Haim Diamant, and Binhua Lin	
Fractal Scattering of Microwaves from Soils	188501
K. Oleschko, G. Korvin, A.S. Balankin, R.V. Khachaturov, L. Flores, B. Figueroa, J. Urrutia, and F. Brambila	

(Continued on Preceding Page)

Contents (Continued)

Comments

Does the Reverse Brazil Nut Problem Exist?	189601
G. A. Canul-Chay, P. A. Belmont, Y. Nahmad-Molinari, and J. C. Ruiz-Suárez	
Quinn, Hong, and Luding Reply	189602
Paul V. Quinn, Daniel C. Hong, and Stefan Luding	
Comment on “Reverse Brazil Nut Problem: Competition between Percolation and Condensation”	189603
H. Walliser	
Quinn, Hong, and Luding Reply	189604
Paul V. Quinn, Daniel C. Hong, and Stefan Luding	

Errata

Publisher’s Note: Diffusion and Reactions of Hydrogen in F ₂ -Laser-Irradiated SiO ₂ Glass [Phys. Rev. Lett. 89 , 135507 (2002)]	189901
Koichi Kajihara, Linards Skuja, Masahiro Hirano, and Hideo Hosono	
Publisher’s Note: Interlayer Magnetic Coupling Interactions of Two Ferromagnetic Layers by Spin Polarized Tunneling [Phys. Rev. Lett. 89 , 107206 (2002)]	189902
J. Faure-Vincent, C. Tiusan, C. Bellouard, E. Popova, M. Hehn, F. Montaigne, and A. Schuhl	