

PHYSICAL REVIEW LETTERS

Contents

VOLUME 76, NUMBER 21

20 MAY 1996

General Physics

Entropy of the K -Satisfiability Problem Rémi Monasson and Riccardo Zecchina 3881

Gravitation and Astrophysics

Dispersion Velocity of Galactic Dark Matter Particles R. Cowsik, Charu Ratnam, and P. Bhattacharjee 3886

Elementary Particles and Fields

Massless String Theory Black Holes as Black Diholes and Quadruholes Tomás Ortín 3890

Electromagnetic Splittings and Light Quark Masses in Lattice QCD A. Duncan, E. Eichten, and H. Thacker 3894

Measurement of the Form Factors for $\bar{B}^0 \rightarrow D^{*+} \ell^- \bar{\nu}$ J. E. Duboscq *et al.* (CLEO Collaboration) 3898

Nuclear Physics

Matter Radii of Light Halo Nuclei J. S. Al-Khalili and J. A. Tostevin 3903

Strangelet Search in Pb-Pb Interactions at 158 GeV/c per Nucleon
..... G. Appelquist, C. Baglin, J. Beringer, C. Bohm, K. Borer, A. Bussière, F. Dittus, K. Elsener, D. Frei,
Ph. Gorodetzky, J. P. Guillaud, E. Hugentobler, R. Klingenberg, T. Lindén, K. D. Lohmann, U. Moser,
T. Pal, K. Pretzl, J. Schacher, B. Selldén, F. Stoffel, J. Tuominiemi, and Q. P. Zhang 3907

In-Plane Retardation of Collective Expansion in Au + Au Collisions S. Wang *et al.* (EOS Collaboration) 3911

Atomic, Molecular, and Optical Physics

High Resolution Measurements of Partial Photoionization Cross Sections in Hollow Lithium: A Critical Comparison
with Advanced Many-Body Calculations
S. Diehl, D. Cubaynes, J.-M. Bizau, L. Journel, B. Rouvellou, S. Al Moussalami, F. J. Wuilleumier, E. T. Kennedy,
N. Berrah, C. Blancard, T. J. Morgan, J. Bozek, A. S. Schlachter, L. VoKy, P. Faucher, and A. Hibbert 3915

Photoelectron Soft X-Ray Fluorescence Coincidence Spectroscopy on Free Molecules
..... J.-E. Rubensson, J. Lüning, M. Neeb, B. Küpper, S. Eisebitt, and W. Eberhardt 3919

Spin Polarized Auger Electrons: The Xe $M_{4,5}N_{4,5}N_{4,5}$ Case
..... G. Snell, M. Drescher, N. Müller, U. Heinzmann, U. Hergenhahn, J. Viefhaus, F. Heiser, U. Becker, and
N. B. Brookes 3923

Creating and Probing Electronic Wave Packets Using Half-Cycle Pulses R. R. Jones 3927

Fluorescence of Oriented Molecules in a Microcavity
..... M. D. Barnes, C.-Y. Kung, W. B. Whitten, J. M. Ramsey, S. Arnold, and S. Holler 3931

Experimental Demonstration of Enhanced Index of Refraction via Quantum Coherence in Rb
..... A. S. Zibrov, M. D. Lukin, L. Hollberg, D. E. Nikonov, M. O. Scully, H. G. Robinson, and V. L. Velichansky 3935

Is There a Unique Operator for the Phase Difference of Two Quantum Fields? J. R. Torgerson and L. Mandel 3939

Response of a Two-Level System Driven by Two Strong Fields
..... Neil B. Manson, Changjiang Wei, and John P. D. Martin 3943

Nonlinear Dynamics, Fluid Dynamics, Classical Optics, Etc.

Quantum Chaos, Irreversible Classical Dynamics, and Random Matrix Theory
..... A. V. Andreev, O. Agam, B. D. Simons, and B. L. Altshuler 3947

(Continued on Third Cover)

Contents (Continued)

Generic Behavior of Grazing Impact Oscillators	John de Weger, Doug Binks, Jaap Molenaar, and Willem van de Water	3951
Optical Solitons in Presence of Kerr Dispersion and Self-Frequency Shift	K. Porsezian and K. Nakkeeran	3955
Dissipative Solitary States in Driven Surface Waves	O. Lioubashevski, H. Arbell, and J. Fineberg	3959
Scaling Behavior in Turbulence is Doubly Anomalous	Victor L'vov, Evgenii Podivilov, and Itamar Procaccia	3963
Prediction of Turbulent Velocity Profile in Couette and Poiseuille Flows from First Principles	V. Berdichevsky, A. Fridlyand, and V. Sutyurin	3967
Plasma and Beam Physics		
Chaotic Transport in Time-Dependent Symplectic Maps	Jicong Shi	3971
Relativistic Magnetic Self-Channeling of Light in Near-Critical Plasma: Three-Dimensional Particle-in-Cell Simulation	A. Pukhov and J. Meyer-ter-Vehn	3975
Condensed Matter: Structure, Etc.		
Low Energy Off-Axis Holography in Electron Microscopy	P. Morin, M. Pitaval, and E. Vicario	3979
^{14}N Nuclear Quadrupole Dips in the Proton Spin-Lattice Relaxation Dispersion in the Smectic-C Phase of HpAB	E. Anoardo and D.J. Pusiol	3983
Is Heteropolymer Freezing Well Described by the Random Energy Model?	Vijay S. Pande, Alexander Yu. Grosberg, Chris Joerg, and Toyochi Tanaka	3987
Landau-Ginzburg Theory of Self-Organized Criticality	L. Gil and D. Sornette	3991
Dynamics of Rough Ge(001) Surfaces at Low Temperatures	S. Jay Chey, Joseph E. Van Nostrand, and David G. Cahill	3995
Epitaxial Growth of Omega-Titanium on the (111) Surface of Alpha-Iron	Yang-Tse Cheng and Wen-Jin Meng	3999
Diffusive Spreading of Chainlike Molecules on Surfaces	T. Ala-Nissila, S. Herminghaus, T. Hjelt, and P. Leiderer	4003
Condensed Matter: Electronic Properties, Etc.		
1D Generalized Statistics Gas: A Gauge Theory Approach	Silvio J. Benetton Rabello	4007
Strongly Driven Quantum Wells: An Analytical Solution to the Time-Dependent Schrödinger Equation	Mathias Wagner	4010
Effects of Electron-Electron Interactions on the Integer Quantum Hall Transitions ...	Dung-Hai Lee and Ziqiang Wang	4014
Thermodynamics and Spin Polarizations of the Fractional Quantum Hall States	Tapash Chakraborty and P. Pietiläinen	4018
Vortex Dynamics in Two-Dimensional Amorphous $\text{Mo}_{77}\text{Ge}_{23}$ Films	M.C. Hellerqvist, D. Ephron, W.R. White, M.R. Beasley, and A. Kapitulnik	4022
ac Long-Range Phase-Coherent Effects in Mesoscopic Superconductor-Normal Metal Structures	Anatoly F. Volkov and Hideaki Takayanagi	4026
Universality of Flux Creep in Superconductors with Arbitrary Shape and Current-Voltage Law ...	Ernst Helmut Brandt	4030
Coincidence of Vortex-Lattice Melting and Loss of Vortex Correlation along the c Direction in Untwinned $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ Single Crystals	D. López, E.F. Righi, G. Nieva, and F. de la Cruz	4034
Phase Diagram of $S = 1$ Bond-Alternating XXZ Chains	Atsuhiko Kitazawa, Kiyohide Nomura, and Kiyomi Okamoto	4038
Commensurate to Incommensurate Charge Ordering and Its Real-Space Images in $\text{La}_{0.5}\text{Ca}_{0.5}\text{MnO}_3$	C.H. Chen and S-W. Cheong	4042
Unconventional Ferromagnetic Transition in $\text{La}_{1-x}\text{Ca}_x\text{MnO}_3$	J.W. Lynn, R.W. Erwin, J.A. Borchers, Q. Huang, A. Santoro, J-L. Peng, and Z.Y. Li	4046
Density Matrix Renormalization Group Applied to the Ground State of the XY Spin-Peierls System	L.G. Caron and S. Moukouri	4050
Resonant Inelastic X-Ray Scattering in Hexagonal Boron Nitride Observed by Soft-X-Ray Fluorescence Spectroscopy	J.J. Jia, T.A. Callcott, Eric L. Shirley, J.A. Carlisle, L.J. Terminello, A. Asfaw, D.L. Ederer, F.J. Himpsel, and R.C.C. Perera	4054

(Continued on Preceding Page)

Contents (Continued)

Cross-Disciplinary Physics

Fractal Formation and Ordering in Random Sequential Adsorption	N. V. Brilliantov, Yu. A. Andrienko, P. L. Krapivsky, and J. Kurths	4058
Fingerlike Aggregates in Thin-Layer Electrodeposition	M.-Q. López-Salvans, P. P. Trigueros, S. Vallmitjana, J. Claret, and F. Sagués	4062
Probing Potential-Tuned Resonant Tunneling through Redox Molecules with Scanning Tunneling Microscopy	N. J. Tao	4066
Criterion that Determines the Foldability of Proteins	D. K. Klimov and D. Thirumalai	4070
Subthreshold Dynamics in Periodically Stimulated Squid Giant Axons	Daniel T. Kaplan, John R. Clay, Timothy Manning, Leon Glass, Michael R. Guevara, and Alvin Shrier	4074
Buckling Microtubules in Vesicles	Michael Elbaum, Deborah Kuchnir Fygenson, and Albert Libchaber	4078
Multifractal Structure of Auroral Electrojet Index Data	Giuseppe Consolini, Maria F. Marcucci, and Maurizio Candidi	4082

Comments

Comment on “Statistical Mechanics of Non-Abelian Chern-Simons Particles”	C. R. Hagen	4086
Comment on “Quantum Backreaction on ‘Classical’ Variables”	K. R. W. Jones	4087
Comment on “Quantum Backreaction on ‘Classical’ Variables”	Lajos Diósi	4088
Can Classical and Quantum Variables have a Consistent Mutual Interaction?	I. R. Senitzky	4089
Anderson Replies	Arlen Anderson	4090
Comment on “Direct Observation of Transition from Delayed Ionization to Direct Ionization for Free C ₆₀ and C ₇₀ : Thermionic Emission?”	C. E. Klotz and R. N. Compton	4092
Stuke and Zhang Reply	M. Stuke and Y. Zhang	4093
Comment on “Nature of Crossover between Ising-Like and Mean-Field Critical Behavior in Fluids and Fluid Mixtures”	C. Bagnuls and C. Bervillier	4094
Anisimov <i>et al.</i> Reply	M. A. Anisimov, A. A. Povodyrev, V. D. Kulikov, and J. V. Sengers	4095
Anomalous Tracer Diffusion on Surfaces	Joachim Krug and Harvey T. Dobbs	4096

Errata

Exact Solution of the Electrostatic Problem for a Single Electron Multijunction Trap [Phys. Rev. Lett. 74 , 1839 (1995)]	G. Y. Hu and R. F. O’Connell	4097
Chaos around a Hénon-Heiles-Inspired Exact Perturbation of a Black Hole [Phys. Rev. Lett. 76 , 1409 (1996)]	Werner M. Vieira and Patricio S. Letelier	4098
Anisotropic α -C:H from Compression of Polyacetylene [Phys. Rev. Lett. 76 , 2081 (1996)]	M. Bernasconi, M. Parrinello, G. L. Chiarotti, P. Focher, and E. Tosatti	4099
Baker and Kawashima Reply [Phys. Rev. Lett. 76 , 2403 (1996)]	George A. Baker, Jr. and Naoki Kawashima	4100