# PHYSICAL REVIEW E

**For editorial and subscription correspondence, please see inside front cover**
**(ISSN: 1063-651X)**

**PERIODICALS**
**Postmaster send address changes to:**
**American Institute of Physics**
**Suite 1NO1**
**2 Huntington Quadrangle**
**Melville, NY 11747-4502**

**THIRD SERIES, VOLUME 65, NUMBER 3**
**PARTS 1, 2A, AND 2B**

***CONTENTS***

**MARCH 2002**

***The Table of Contents is a total listing of Parts 1, 2A, and 2B.***
***Part 2A consists of pages 035101–036232, and Part 2B pages 036301–039901.***

Announcement: Change in Printing Schedule to Synchronize Online and Print Journals . . . . . i

**PART 1**

**RAPID COMMUNICATIONS**

**Statistical physics of soft matter**

Random walks with absolute negative mobility *(4 pages)* . . . . . 030101(R)
B. Cleuren and C. Van den Broeck

**Granular materials**

Hydrodynamics of thermal granular convection *(4 pages)* . . . . . 030301(R)
Xiaoyi He, Baruch Meerson, and Gary Doolen

**Films, interfaces, and crystal growth**

Fluctuations in viscous fingering *(4 pages)* . . . . . 030601(R)
Mitchell G. Moore, Anne Juel, John M. Burgess, W. D. McCormick, and Harry L. Swinney

**Liquid crystals**

Dramatic effect of an additional $CH_2$ group on the temperature variation of the Sm-$C^*_\alpha$ short helical pitch *(4 pages)* . . . . . 030701(R)
A. Cady, D. A. Olson, X. F. Han, H. T. Nguyen, and C. C. Huang

Critical fluctuations near the smectic-hexatic phase transition with anticlinic structure *(4 pages)* . . . . . 030702(R)
Seiji Shibahara, Jun Yamamoto, Yoichi Takanishi, Ken Ishikawa, Hiroshi Yokoyama, and Hideo Takezoe

Observation of an electrostatic force between charged surfaces in liquid crystals *(4 pages)* . . . . . 030703(R)
K. Kočevar and I. Muševič

**Polymers**

Glassy behavior of a homopolymer from molecular dynamics simulations *(4 pages)* . . . . . 030801(R)
Nikolay V. Dokholyan, Estelle Pitard, Sergey V. Buldyrev, and H. Eugene Stanley

Phase diagram of a mixed polymer brush *(4 pages)* . . . . . 030802(R)
M. Müller

**Copyright 2002 by The American Physical Society**

*(Continued)*

1063-651X(200203)65:3:2:A;1-0

**PHYSICAL REVIEW E** **THIRD SERIES, VOLUME 65, NUMBER 3** **MARCH 2002**

**Biological physics**

Analytical solution of a model for complex food webs *(4 pages)* . . . . . 030901(R)
Juan Camacho, Roger Guimerà, and Luís A. Nunes Amaral
Effects of torsional strain on thermal denaturation of DNA *(3 pages)* . . . . . 030902(R)
Joseph Rudnick and Robijn Bruinsma

## REGULAR ARTICLES

**Statistical physics of soft matter**

Spatial behavior of anomalous transport *(11 pages)* . . . . . 031101
Gennady Margolin and Brian Berkowitz
Velocity correlations, diffusion, and stochasticity in a one-dimensional system *(9 pages)* . . . . . 031102
V. Balakrishnan, I. Bena, and C. Van den Broeck
Stabilization of metastable states *(3 pages)* . . . . . 031103
M. Gitterman
Diffusion in tilted periodic potentials: Enhancement, universality, and scaling *(16 pages)* . . . . . 031104
P. Reimann, C. Van den Broeck, H. Linke, P. Hänggi, J. M. Rubi, and A. Pérez-Madrid
Statistical properties of a class of nonlinear systems driven by colored multiplicative Gaussian noise *(13 pages)* . . . . . 031105
S. I. Denisov and Werner Horsthemke
Dynamic critical behavior of an extended reptation dynamics for self-avoiding walks *(15 pages)* . . . . . 031106
Sergio Caracciolo, Mauro Papinutto, and Andrea Pelissetto
Identification methods for nonlinear stochastic systems *(10 pages)* . . . . . 031107
Jose-Maria Fullana and Maurice Rossi
Probability distribution of the sizes of the largest erased loops in loop-erased random walks *(8 pages)* . . . . . 031108
Himanshu Agrawal and Deepak Dhar
Validity of the perturbation theory for hard particle systems with very-short-range attraction *(12 pages)* . . . . . 031109
Ph. Germain and S. Amokrane
Rotation number, stochastic resonance, and synchronization of coupled systems without periodic driving *(6 pages)* . . . . . 031110
Min Qian and Xue-Juan Zhang
Features of statistical dynamics in a finite system *(16 pages)* . . . . . 031111
Shiwei Yan, Fumihiko Sakata, and Yizhong Zhuo

**Equilibrium and linear transport properties of fluids**

Precise measurement of liquid viscosity and surface tension with an improved oscillating drop method *(3 pages)* . . . . . 031201
T. Matsumoto, T. Nakano, H. Fujii, M. Kamai, and K. Nogi
Nonlinear viscosity derived by means of Grad's moment method *(8 pages)* . . . . . 031202
Byung Chan Eu
Microscopic distribution functions, structure, and kinetic energy of liquid and solid neon: Quantum Monte Carlo simulations *(15 pages)* . . . . . 031203
Martin Neumann and Marco Zoppi
Correlation functions in classical gases at high frequency *(18 pages)* . . . . . 031204
Max Teubner
Inelastic x-ray scattering study of the collective dynamics in liquid sodium *(7 pages)* . . . . . 031205
T. Scopigno, U. Balucani, G. Ruocco, and F. Sette

*(Continued)*

**PHYSICAL REVIEW E** **THIRD SERIES, VOLUME 65, NUMBER 3** **MARCH 2002**

Fluid flow through nanometer-scale channels *(5 pages)* . . . . . 031206
J.-T. Cheng and N. Giordano

**Granular materials**

Simulations of a binary-sized mixture of inelastic grains in rapid shear flow *(9 pages)* . . . . . 031301
R. Clelland and C. M. Hrenya
Granular friction, Coulomb failure, and the fluid-solid transition for horizontally shaken granular materials *(15 pages)* . . . . . 031302
Guy Metcalfe, S. G. K. Tennakoon, L. Kondic, D. G. Schaeffer, and R. P. Behringer
Convective motion in a vibrated granular layer *(5 pages)* . . . . . 031303
A. Garcimartín, D. Maza, J. L. Ilquimiche, and I. Zuriguel
Geometry of frictionless and frictional sphere packings *(6 pages)* . . . . . 031304
Leonardo E. Silbert, Deniz Ertaş, Gary S. Grest, Thomas C. Halsey, and Dov Levine
Glassy dynamics in granular compaction: Sand on random graphs *(9 pages)* . . . . . 031305
Johannes Berg and Anita Mehta
Granular polymer solution *(4 pages)* . . . . . 031306
Jeffrey J. Prentis and Daniel R. Sisan
Urn model of separation of sand *(7 pages)* . . . . . 031307
Adam Lipowski and Michel Droz
Ratchet-induced segregation and transport of nonspherical grains *(7 pages)* . . . . . 031308
J. F. Wambaugh, C. Reichhardt, and C. J. Olson
Interface view of directed sandpile dynamics *(4 pages)* . . . . . 031309
Chun-Chung Chen and Marcel den Nijs
Basin of attraction of a bounded self-organized critical state *(5 pages)* . . . . . 031310
Fergal Dalton and David Corcoran
Finite width of shear zones *(7 pages)* . . . . . 031311
Bertrand Francois, Frédéric Lacombe, and Hans J. Herrmann

**Colloidal dispersions, suspensions, and aggregates**

Orientational structure of dipolar hard-spherical colloids *(9 pages)* . . . . . 031401
O. Alarcón-Waess, E. Diaz-Herrera, and A. Gil-Villegas
Ordering and short-time orientational diffusion in dipolar hard-spherical colloids *(13 pages)* . . . . . 031402
O. Alarcón-Waess and E. Diaz-Herrera
Anisotropy of the structure factor of magnetic fluids under a field probed by small-angle neutron scattering *(15 pages)* . . . . . 031403
F. Gazeau, E. Dubois, J.-C. Bacri, F. Boué, A. Cebers, and R. Perzynski
Binding of biological effectors on magnetic nanoparticles measured by a magnetically induced transient birefringence experiment *(9 pages)* . . . . . 031404
C. Wilhelm, F. Gazeau, J. Roger, J. N. Pons, M. F. Salis, R. Perzynski, and J. C. Bacri
Constant bond breakup probability model for reversible aggregation processes *(8 pages)* . . . . . 031405
G. Odriozola, A. Schmitt, A. Moncho-Jordá, J. Callejas-Fernández, R. Martínez-García, R. Leone, and R. Hidalgo-Álvarez
Phase transition analogous to Bose-Einstein condensation in systems of noninteracting surfactant aggregates *(13 pages)* . . . . . 031406
José A. Cuesta and Richard P. Sear
Phase equilibria and glass transition in colloidal systems with short-ranged attractive interactions: Application to protein crystallization *(17 pages)* . . . . . 031407
Giuseppe Foffi, Gavin D. McCullagh, Aonghus Lawlor, Emanuela Zaccarelli, Kenneth A. Dawson, Francesco Sciortino, Piero Tartaglia, Davide Pini, and George Stell

*(Continued)*

**PHYSICAL REVIEW E** **THIRD SERIES, VOLUME 65, NUMBER 3** **MARCH 2002**

Thermodiffusion in magnetic colloids evidenced and studied by forced Rayleigh scattering experiments *(14 pages)* . . . . . 031408
J. Lenglet, A. Bourdon, J. C. Bacri, and G. Demouchy
Kinetics of macroion coagulation induced by multivalent counterions *(7 pages)* . . . . . 031409
T. T. Nguyen and B. I. Shklovskii

**Structured and complex fluids**

History-dependent rheology of a surfactant hexagonal phase *(10 pages)* . . . . . 031501
M. L. Sushko, J. M. Seddon, and R. H. Templer
Using patterned substrates to promote mixing in microchannels *(8 pages)* . . . . . 031502
Olga Kuksenok, J. M. Yeomans, and Anna C. Balazs
Real-coded lattice gas model for ternary amphiphilic fluids *(8 pages)* . . . . . 031503
Tomonori Sakai, Yu Chen, and Hirotada Ohashi
Glasslike relaxation of labyrinthine domain patterns *(4 pages)* . . . . . 031504
Bert Reimann, Reinhard Richter, and Ingo Rehberg
Inside the hysteresis loop: Multiplicity of internal states in confined fluids *(6 pages)* . . . . . 031505
Alexander V. Neimark, Peter I. Ravikovitch, and Aleksey Vishnyakov
Kinetics of formation of a phase with an arbitrary stoichiometric composition in a multicomponent solid solution *(13 pages)* . . . . . 031506
V. V. Slezov and J. Schmelzer
Electrorheological fluid under elongation, compression, and shearing *(5 pages)* . . . . . 031507
Y. Tian, Y. Meng, H. Mao, and S. Wen

**Films, interfaces, and crystal growth**

Anisotropic capillary interactions and jamming of colloidal particles trapped at a liquid-fluid interface *(4 pages)* . . . . . 031601
J.-B. Fournier and P. Galatola
Monte Carlo simulation of sinusoidally modulated superlattice growth *(5 pages)* . . . . . 031602
H. Jeong, B. Kahng, S. Lee, C. Y. Kwak, A.-L. Barabási, and J. K. Furdyna
Scaling laws in adsorption on bivariate surfaces *(7 pages)* . . . . . 031603
F. Bulnes, A. J. Ramirez-Pastor, and G. Zgrablich
Evidence for tip velocity oscillations in dendritic solidification *(6 pages)* . . . . . 031604
J. C. LaCombe, M. B. Koss, J. E. Frei, C. Giummarra, A. O. Lupulescu, and M. E. Glicksman
Wetting transitions at soft, sliding interfaces *(4 pages)* . . . . . 031605
A. Martin, J. Clain, A. Buguin, and F. Brochard-Wyart
Nonequilibrium self-assembly of metals on diblock copolymer templates *(14 pages)* . . . . . 031606
W. A. Lopes
Is a position-dependent stiffness relevant for the wetting phase diagram? *(7 pages)* . . . . . 031607
F. Clarysse and C. J. Boulter
Domain wall roughening in dipolar films in the presence of disorder *(11 pages)* . . . . . 031608
Jaime E. Santos, Erwin Frey, and Franz Schwabl

**Liquid crystals**

Ions and nematic surface energy: Beyond the exponential approximation for the electric field of ionic origin *(5 pages)* . . . . . 031701
G. Barbero and D. Olivero
Structural transitions in thin free-standing films of an antiferroelectric liquid crystal exhibiting the smectic-$C_\alpha^*$ phase in the bulk sample *(7 pages)* . . . . . 031702
P. V. Dolganov, Yoshiichi Suzuki, and Atsuo Fukuda

*(Continued)*

**PHYSICAL REVIEW E** **THIRD SERIES, VOLUME 65, NUMBER 3** **MARCH 2002**

Slow molecular dynamics of water in a lyotropic complex fluid studied by deuterium conventional and spin-lattice relaxometry NMR *(7 pages)* . . . . . 031703
C. R. Rodríguez, D. J. Pusiol, A. M. Figueiredo Neto, and R.-O. Seitter

Photopyroelectric ac calorimetric study of the nematic–smectic-*A* phase-transition line in binary liquid crystal mixtures with injected smectic-*A* phases *(7 pages)* . . . . . 031704
J. Caerels, C. Glorieux, and J. Thoen

Influence of electric fields on the smectic layer structure of ferroelectric and antiferroelectric liquid crystal devices *(9 pages)* . . . . . 031705
S. J. Watson, L. S. Matkin, L. J. Baylis, N. Bowring, H. F. Gleeson, M. Hird, and J. Goodby

Coupled-mode approach to the nonlinear dynamics induced by an elliptically polarized laser field in liquid crystals at normal incidence *(7 pages)* . . . . . 031706
A. Vella, B. Piccirillo, and E. Santamato

Lamellar phases confined in quasicylindrical pores: Lattice model results *(8 pages)* . . . . . 031707
M. Tasinkevych, A. Ciach, and M. M. Telo da Gama

Local self-consistent approach to the phase transition at the nematic liquid-crystal-wall interface *(4 pages)* . . . . . 031708
G. Barbero and L. R. Evangelista

Weak boundary anchoring, twisted nematic effect, and homeotropic to twisted-planar transition *(11 pages)* . . . . . 031709
Wei Zhao, Chen-Xu Wu, and Mitsumasa Iwamoto

Interaction of foreign macroparticles in a cholesteric liquid crystal *(4 pages)* . . . . . 031710
Jun-ichi Fukuda, Bohdan I. Lev, and Hiroshi Yokoyama

Structure and freezing of fluids interacting via the Gay-Berne $(n-6)$ potentials *(11 pages)* . . . . . 031711
Ram C. Singh, Jokhan Ram, and Yashwant Singh

Tilt order parameters, polarity, and inversion phenomena in smectic liquid crystals *(13 pages)* . . . . . 031712
P. K. Karahaliou, A. G. Vanakaras, and D. J. Photinos

Texture formation in carbonaceous mesophase fibers *(14 pages)* . . . . . 031713
J. Yan and A. D. Rey

Pretransitional scaling close to a double critical point in a potassium laurate, 1-decanol, and heavy water lyotropic liquid crystal *(4 pages)* . . . . . 031714
P. Licinio and M. B. L. Santos

Dislocation loops in overheated free-standing smectic films *(10 pages)* . . . . . 031715
A. N. Shalaginov and D. E. Sullivan

Phase equilibria in systems of hard disks with thickness polydispersity *(11 pages)* . . . . . 031716
H. H. Wensink and G. J. Vroege

Effective index of refraction, optical rotation, and circular dichroism in isotropic chiral liquid crystals *(11 pages)* . . . . . 031717
D. Lacoste, P. J. Collings, and T. C. Lubensky

Photoinduced effects in the vicinity of the smectic-$C^*_\alpha$–smectic-*A* transition *(4 pages)* . . . . . 031718
S. Krishna Prasad, K. L. Sandhya, and Y. S. Negi

Degree of disorder in cubic mesophases in thermotropics: Thermodynamic study of a liquid crystal showing two cubic mesophases *(7 pages)* . . . . . 031719
Kazuya Saito, Takashi Shinhara, Tadahiro Nakamoto, Shoichi Kutsumizu, Shinichi Yano, and Michio Sorai

Electro-optic response and switchable Bragg diffraction for liquid crystals in colloid-templated materials *(3 pages)* . . . . . 031720
P. Mach, P. Wiltzius, M. Megens, D. A. Weitz, Keng-hui Lin, T. C. Lubensky, and A. G. Yodh

*(Continued)*

**PHYSICAL REVIEW E** **THIRD SERIES, VOLUME 65, NUMBER 3** **MARCH 2002**

External electric-field effect on nematic anchoring energy *(6 pages)* . . . . . 031721
D. Olivero, L. R. Evangelista, and G. Barbero

**Polymers**

Area-constrained planar elastica *(14 pages)* . . . . . 031801
Guillermo Arreaga, Riccardo Capovilla, Chryssomalis Chryssomalakos, and Jemal Guven
Coexistence curve near the tricritical point in ternary polymer solutions *(4 pages)* . . . . . 031802
Toshiaki Dobashi, Toshiki Ujiie, Hiroto Matsumoto, Takao Yamamoto, and Mitsuo Nakata
Orientations of the lamellar phase of block copolymer melts under oscillatory shear flow *(3 pages)* . . . . . 031803
A. N. Morozov and J. G. E. M. Fraaije
Chain segment order in ultrathin polymer films: A deuterium NMR study *(4 pages)* . . . . . 031804
S. V. Primak, T. Jin, A. C. Dagger, D. Finotello, and E. K. Mann
Salt effect on volume phase transition of a gel *(8 pages)* . . . . . 031805
Masahiko Annaka, Yuko Amo, Shigeo Sasaki, Yasunori Tominaga, Keiko Motokawa, and Takayuki Nakahira
Viscosity of entangled polystyrene thin film melts: Film thickness dependence *(5 pages)* . . . . . 031806
Jean-Loup Masson and Peter F. Green
Stretched polymers in a poor solvent *(9 pages)* . . . . . 031807
Peter Grassberger and Hsiao-Ping Hsu

**Biological physics**

Quasispecies evolution on a fitness landscape with a fluctuating peak *(6 pages)* . . . . . 031901
Martin Nilsson and Nigel Snoad
Synchrony arising from a balanced synaptic plasticity in a network of heterogeneous neural oscillators *(5 pages)* . . . . . 031902
Jan Karbowski and G. Bard Ermentrout
Statistical mechanics of secondary structures formed by random RNA sequences *(22 pages)* . . . . . 031903
R. Bundschuh and T. Hwa
Model for stochastic-resonance-type behavior in sensory perception *(5 pages)* . . . . . 031904
Yunfan Gong, Nestor Matthews, and Ning Qian
Maximal force exerted by a molecular motor *(5 pages)* . . . . . 031905
Zbigniew Koza
Measurement of particle size distribution in multilayered skin phantoms using polarized light spectroscopy *(8 pages)* . . . . . 031906
Matthew Bartlett and Huabei Jiang
Correlation studies of open and closed state fluctuations in an ion channel: Analysis of ion current through a large-conductance locust potassium channel *(6 pages)* . . . . . 031907
Zuzanna Siwy, Marcel Ausloos, and Kristinka Ivanova
Photon-density waves in macroscopic and microscopic plane-parallel scattering samples *(7 pages)* . . . . . 031908
P. J. Peverly, R. E. Wagner, G. H. Rutherford, M. Marsalli, Q. Su, and R. Grobe
Stability and instability of polymorphic populations and the role of multiple breeding seasons in phase III of Wright's shifting balance theory *(7 pages)* . . . . . 031909
M. A. M. de Aguiar, H. Sayama, E. Rauch, Y. Bar-Yam, and M. Baranger
Convergence of sampling in protein simulations *(10 pages)* . . . . . 031910
Berk Hess
Asymmetric exclusion process and extremal statistics of random sequences *(19 pages)* . . . . . 031911
R. Bundschuh
Surface-induced conformational changes in lattice model proteins by Monte Carlo simulation *(8 pages)* . . . . . 031912
Victoria Castells, Shaoxiong Yang, and Paul R. Van Tassel

*(Continued)*

**PHYSICAL REVIEW E** **THIRD SERIES, VOLUME 65, NUMBER 3** **MARCH 2002**

Investigation of the electric potential near the DNA-solvent interface: Conclusions about the stability of B-DNA *(8 pages)* . . . . . 031913
D. Ouroushev

Initial state randomness improves sequence learning in a model hippocampal network *(15 pages)* . . . . . 031914
A. P. Shon, X. B. Wu, D. W. Sullivan, and W. B Levy

Simple model of epidemics with pathogen mutation *(9 pages)* . . . . . 031915
Michelle Girvan, Duncan S. Callaway, M. E. J. Newman, and Steven H. Strogatz

General random matrix approach to account for the effect of static disorder on the spectral properties of light harvesting systems *(12 pages)* . . . . . 031916
Melih K. Şener and Klaus Schulten

Single molecule statistics and the polynucleotide unzipping transition *(25 pages)* . . . . . 031917
David K. Lubensky and David R. Nelson

Dynamic analysis of a parasite population model *(9 pages)* . . . . . 031918
G. J. Sibona and C. A. Condat

Excitons in a photosynthetic light-harvesting system: A combined molecular dynamics, quantum chemistry, and polaron model study *(24 pages)* . . . . . 031919
Ana Damjanović, Ioan Kosztin, Ulrich Kleinekathöfer, and Klaus Schulten

Effects of ultraviolet radiation on the type-I collagen protein triple helical structure: A method for measuring structural changes through optical activity *(11 pages)* . . . . . 031920
Alexander J. Majewski, Martin Sanzari, Hong-Liang Cui, and Peter Torzilli

Correlation-dimension and autocorrelation fluctuations in epileptic seizure dynamics *(5 pages)* . . . . . 031921
Ying-Cheng Lai, Ivan Osorio, Mary Ann F. Harrison, and Mark G. Frei

## BRIEF REPORTS

### Statistical physics of soft matter

Static phase and dynamic scaling in a deposition model with an inactive species *(3 pages)* . . . . . 032101
S. S. Botelho and F. D. A. Aarão Reis

Inertial effects in anomalous dielectric relaxation *(4 pages)* . . . . . 032102
W. T. Coffey, Yu. P. Kalmykov, and S. V. Titov

Self-consistent expansion for the molecular beam epitaxy equation *(4 pages)* . . . . . 032103
Eytan Katzav

### Structured and complex fluids

Anomalous slowing down in the metastable liquid of hard spheres *(4 pages)* . . . . . 032501
M. Dzugutov

Creep rupture of viscoelastic fiber bundles *(4 pages)* . . . . . 032502
Raul Cruz Hidalgo, Ferenc Kun, and Hans. J. Herrmann

### Liquid crystals

Elastic coupling of silica gel dynamics in a liquid-crystal–aerosil dispersion *(4 pages)* . . . . . 032701
Cornelia C. Retsch, Ian McNulty, and Germano S. Iannacchione

Exact calculations of the paranematic interaction energy for colloidal dispersions in the isotropic phase of a nematogenic material *(3 pages)* . . . . . 032702
J.-B. Fournier and P. Galatola

*(Continued)*

PHYSICAL REVIEW E THIRD SERIES, VOLUME 65, NUMBER 3 MARCH 2002

**Biological physics**

Linearity and scaling of a statistical model for the species abundance distribution *(4 pages)* . . . . . 032901
Hector Garcia Martin and Nigel Goldenfeld

**COMMENTS**

**Statistical physics of soft matter**

Comment on ''Monte Carlo simulations for a Lotka-type model with reactant diffusion and interactions'' *(3 pages)* . . . . . 033101
Vladimir P. Zhdanov
Reply to ''Comment on 'Monte Carlo simulations for a Lotka-type model with reactant surface diffusion and interactions' '' *(4 pages)* . . . . . 033102
V. N. Kuzovkov and G. Zvejnieks

**Equilibrium and linear transport properties of fluids**

Comment on ''nonlinear viscosity and Grad's method'' *(2 pages)* . . . . . 033201
Byang Chan Eu
Reply to ''Comment on Nonlinear viscosity and Grad's method '' *(3 pages)* . . . . . 033202
F. J. Uribe and L. S. García-Colín

**PART 2 A**

**Note to Reader** . . . . . i

**RAPID COMMUNICATIONS**

**General methods of statistical physics**

Nonuniversality of invasion percolation in two-dimensional systems *(4 pages)* . . . . . 035101(R)
Mark A. Knackstedt, Muhammad Sahimi, and Adrian P. Sheppard
First-order depinning transition of a driven interface in disordered media *(4 pages)* . . . . . 035102(R)
Kwangho Park, Sungbok Kwak, and In-mook Kim
Equivalence of stationary state ensembles *(3 pages)* . . . . . 035103(R)
H. J. Hilhorst and F. van Wijland
Statistics of multiple sign changes in a discrete non-Markovian sequence *(4 pages)* . . . . . 035104(R)
Satya N. Majumdar
Anomalous diffusion, stable processes, and generalized functions *(4 pages)* . . . . . 035105(R)
Barry D. Hughes
Multiparameter generalization of nonextensive statistical mechanics *(4 pages)* . . . . . 035106(R)
Fabio Sattin and Luca Salasnich
Crack propagation in thin glass plates caused by high velocity impact *(4 pages)* . . . . . 035107(R)
Toshihiko Kadono and Masahiko Arakawa
Epidemic dynamics in finite size scale-free networks *(4 pages)* . . . . . 035108(R)
Romualdo Pastor-Satorras and Alessandro Vespignani

**Chaos and pattern formation**

Diffusion resonances in action space for an atom optics kicked rotor with decoherence *(4 pages)* . . . . . 035201(R)
A. J. Daley, A. S. Parkins, R. Leonhardt, and S. M. Tan

*(Continued)*

PHYSICAL REVIEW E THIRD SERIES, VOLUME 65, NUMBER 3 MARCH 2002

Suppressing spatiotemporal disorder via local perturbations in an electrochemical cell *(4 pages)* . . . . . 035202(R)
P. Parmananda, B. J. Green, and J. L. Hudson
High-dimensional interior crisis in the Kuramoto-Sivashinsky equation *(4 pages)* . . . . . 035203(R)
A. C.-L. Chian, E. L. Rempel, E. E. Macau, R. R. Rosa, and F. Christiansen
Reconstructing embedding spaces of coupled dynamical systems from multivariate data *(4 pages)* . . . . . 035204(R)
S. Boccaletti, D.L. Valladares, Louis M. Pecora, Hite P. Geffert, and T. Carroll
Spatial forcing of spontaneous optical patterns *(4 pages)* . . . . . 035205(R)
R. Neubecker and A. Zimmermann
Rainbow transition in chaotic scattering *(4 pages)* . . . . . 035206(R)
Alessandro P. S. de Moura and Celso Grebogi
Effects of disorder on the wave front depinning transition in spatially discrete systems *(4 pages)* . . . . . 035207(R)
A. Carpio, L. L. Bonilla, and A. Luzón
Ehrenfest times for classically chaotic systems *(3 pages)* . . . . . 035208(R)
P. G. Silvestrov and C. W. J. Beenakker

**Nonlinear hydrodynamics and turbulence**

Scalar variance decay in chaotic advection and Batchelor-regime turbulence *(4 pages)* . . . . . 035301(R)
D. R. Fereday, P. H. Haynes, A. Wonhas, and J. C. Vassilicos
Three-lobe-shaped equilibrium states in magnetic liquid bridges *(4 pages)* . . . . . 035302(R)
A. G. Papathanasiou and A. G. Boudouvis

**Plasma physics**

Explosive energy release in magnetic shocks *(4 pages)* . . . . . 035401(R)
S. I. Vainshtein, R. Rosner, and R. Z. Sagdeev

**Classical physics, including nonlinear media and photonic materials**

Toroid moments in the momentum and angular momentum loss by a radiating arbitrary source *(3 pages)* . . . . 035601(R)
E. E. Radescu and G. Vaman
Statistical theory for incoherent light propagation in nonlinear media *(4 pages)* . . . . . 035602(R)
B. Hall, M. Lisak, D. Anderson, R. Fedele, and V. E. Semenov
Nematic liquid crystals: A suitable medium for self-confinement of coherent and incoherent light
*(4 pages)* . . . . . 035603(R)
Marco Peccianti and Gaetano Assanto

**Computational physics**

Rational approximation with multidimensional scattered data *(4 pages)* . . . . . 035701(R)
Xu-Guang Hu, Tak-San Ho, and Herschel Rabitz

## REGULAR ARTICLES

**General methods of statistical physics**

Generalized thermodynamics of $q$-deformed bosons and fermions *(5 pages)* . . . . . 036101
A. Lavagno and P. Narayana Swamy
Criticality and oscillatory behavior in non-Markovian contact process *(4 pages)* . . . . . 036102
Rouzbeh Gerami
Exact amplitude ratio and finite-size corrections for the $M \times N$ square lattice Ising model *(10 pages)* . . . . . 036103
N. Sh. Izmailian and Chin-Kun Hu
Immunization of complex networks *(8 pages)* . . . . . 036104
Romualdo Pastor-Satorras and Alessandro Vespignani

*(Continued)*

**PHYSICAL REVIEW E** **THIRD SERIES, VOLUME 65, NUMBER 3** **MARCH 2002**

Damage spreading in small world Ising models *(7 pages)* . . . . . 036105
Pontus Svenson and Desmond A. Johnston
Towards a macroscopic modeling of the complexity in traffic flow *(9 pages)* . . . . . 036106
Stephan Rosswog and Peter Wagner
Relation between structure and size in social networks *(7 pages)* . . . . . 036107
Luis López and Miguel A. F. Sanjuán
Universality class of the restricted solid-on-solid model with hopping *(8 pages)* . . . . . 036108
Su-Chan Park, Jeong-Man Park, and Doochul Kim
Random-cluster multihistogram sampling for the *q*-state Potts model *(11 pages)* . . . . . 036109
Martin Weigel, Wolfhard Janke, and Chin-Kun Hu
Numerical comparison of two approaches for the study of phase transitions in small systems *(9 pages)* . . . . . 036110
Nelson A. Alves, Jeaneti P. N. Ferrite, and Ulrich H. E. Hansmann
Molecular hydrodynamic approach to dynamical correlations in quantum liquids *(4 pages)* . . . . . 036111
Eran Rabani and David R. Reichman
Exact result on topology and phase transitions at any finite *N (4 pages)* . . . . . 036112
Lapo Casetti, E. G. D. Cohen, and Marco Pettini
Nonequilibrium precursor model for the onset of percolation in a two-phase system *(4 pages)* . . . . . 036113
Marcelo Gleiser, Rafael C. Howell, and Rudnei O. Ramos
Noise-enhanced temporal association in neural networks *(6 pages)* . . . . . 036114
Y. Shim, H. Hong, and M. Y. Choi
Three-state cyclic voter model extended with Potts energy *(7 pages)* . . . . . 036115
György Szabó and Attila Szolnoki
Diffusion in disordered media with long-range correlations: Anomalous, Fickian, and superdiffusive transport and log-periodic oscillations *(8 pages)* . . . . . 036116
M. Saadatfar and Muhammad Sahimi
Fracture in mode I using a conserved phase-field model *(10 pages)* . . . . . 036117
L. O. Eastgate, J. P. Sethna, M. Rauscher, T. Cretegny, C.-S. Chen, and C. R. Myers
Experimental study of the dimensionality of black-eye patterns *(5 pages)* . . . . . 036118
Chaoxian Zhou, Hongyu Guo, and Qi Ouyang
Slow dynamics and aging in a nonrandomly frustrated spin system *(13 pages)* . . . . . 036119
Hui Yin and Bulbul Chakraborty
Capacity drop due to the traverse of pedestrians *(5 pages)* . . . . . 036120
Rui Jiang, Qingsong Wu, and Xiaobai Li
Extended phase-space dynamics for the generalized nonextensive thermostatistics *(5 pages)* . . . . . 036121
J. S. Andrade, Jr., M. P. Almeida, A. A. Moreira, and G. A. Farias
Correlation effects in a simple model of a small-world network *(5 pages)* . . . . . 036122
V. Karimipour and A. Ramzanpour
Highly clustered scale-free networks *(5 pages)* . . . . . 036123
Konstantin Klemm and Víctor M. Eguíluz
Multifractal properties of resistor diode percolation *(19 pages)* . . . . . 036124
Olaf Stenull and Hans-Karl Janssen
Light-induced evaporation and condensation growth of aerosol particles *(8 pages)* . . . . . 036125
V. G. Chernyak and O. V. Klitenik
Heterogeneous interfacial failure between two elastic blocks *(7 pages)* . . . . . 036126
G. George Batrouni, Alex Hansen, and Jean Schmittbuhl
Extreme value statistics and traveling fronts: Application to computer science *(15 pages)* . . . . . 036127
Satya N. Majumdar and P. L. Krapivsky
Duality in nonextensive statistical mechanics *(4 pages)* . . . . . 036128
Iliya V. Karlin, Miroslav Grmela, and Alexander N. Gorban

*(Continued)*

**PHYSICAL REVIEW E** **THIRD SERIES, VOLUME 65, NUMBER 3** **MARCH 2002**

Influence of boundary conditions on statistical properties of ideal Bose-Einstein condensates *(5 pages)* . . . . . 036129
Martin Holthaus, Kishore T. Kapale, and Marlan O. Scully
Effect of disorder on critical short-time dynamics *(7 pages)* . . . . . 036130
Guang-Ping Zheng and Mo Li
Anomalous scaling and Lee-Yang zeros in self-organized criticality *(18 pages)* . . . . . 036131
B. Cessac and J. L. Meunier
Dynamic model for the popularity of websites *(6 pages)* . . . . . 036132
Chang-Yong Lee and Seungwhan Kim
Global exponential stability of continuous-time interval neural networks *(9 pages)* . . . . . 036133
Sanqing Hu and Jun Wang
Pseudospectral method for the Kardar-Parisi-Zhang equation *(11 pages)* . . . . . 036134
Lorenzo Giada, Achille Giacometti, and Maurice Rossi
Effect of the subsurface oxygen diffusion on the Ziff-Gulari-Barshad catalytic reaction model *(7 pages)* . . . . . 036135
B. C. S. Grandi and W. Figueiredo
Kink production in the presence of impurities *(5 pages)* . . . . . 036136
T. Dobrowolski
Numerical confirmation of late-time $t^{1/2}$ growth in three-dimensional phase ordering *(6 pages)* . . . . . 036137
Gregory Brown and Per Arne Rikvold
Model for glass transition in a binary fluid from a mode coupling approach *(12 pages)* . . . . . 036138
Upendra Harbola and Shankar P. Das
Generalized Young's equation for rough and heterogeneous substrates: A microscopic proof *(4 pages)* . . . . . 036139
Joël De Coninck, Jean Ruiz, and Salvador Miracle-Solé
Towards a variational principle for motivated vehicle motion *(5 pages)* . . . . . 036140
Ihor Lubashevsky, Sergey Kalenkov, and Reinhard Mahnke
Conformal map modeling of the pinning transition in Laplacian growth *(8 pages)* . . . . . 036141
H. G. E Hentschel, M. N. Popescu, and F. Family
Log-periodic route to fractal functions *(19 pages)* . . . . . 036142
S. Gluzman and D. Sornette
Thermodynamics of ionic microgels *(6 pages)* . . . . . 036143
Yan Levin, Alexandre Diehl, A. Fernández-Nieves, and A. Fernández-Barbero
Universality class of discrete solid-on-solid limited mobility nonequilibrium growth models for kinetic surface roughening *(7 pages)* . . . . . 036144
S. Das Sarma, P. Punyindu Chatraphorn, and Z. Toroczkai
Quantum refrigeration cycles using spin-$\frac{1}{2}$ systems as the working substance *(8 pages)* . . . . . 036145
Jizhou He, Jincan Chen, and Ben Hua
Entropy of electromagnetic polarization *(5 pages)* . . . . . 036146
Y. Zimmels
Self-organized critical system with no stationary attractor state *(5 pages)* . . . . . 036147
Simon F. Nørrelykke and Per Bak

**Chaos and pattern formation**

Semiclassical spatial correlations in chaotic wave functions *(13 pages)* . . . . . 036201
Fabricio Toscano and Caio H. Lewenkopf
Transition from intermittency to periodicity in lag synchronization in coupled Rössler oscillators *(5 pages)* . . . . . 036202
Meng Zhan, G. W. Wei, and C.-H. Lai
Spatiotemporal stability and control of one-way open coupled Lorenz systems *(7 pages)* . . . . . 036203
Keiji Konishi
Lotka-Volterra system in a random environment *(6 pages)* . . . . . 036204
Mikhail F. Dimentberg

*(Continued)*

**PHYSICAL REVIEW E** **THIRD SERIES, VOLUME 65, NUMBER 3** **MARCH 2002**

Second moment of the Husimi distribution as a measure of complexity of quantum states *(10 pages)* . . . . . 036205
Ayumu Sugita and Hirokazu Aiba
Peculiarities of the relaxation to an invariant probability measure of nonhyperbolic chaotic attractors in the presence of noise *(10 pages)* . . . . . 036206
Vadim S. Anishchenko, Tatjana E. Vadivasova, Andrey S. Kopeikin, Jürgen Kurths, and Galina I. Strelkova
Asymmetric unimodal maps at the edge of chaos *(7 pages)* . . . . . 036207
Ugur Tirnakli, Constantino Tsallis, and Marcelo L. Lyra
General relation between quantum ergodicity and fidelity of quantum dynamics *(5 pages)* . . . . . 036208
Tomaž Prosen
Lyapunov instability for a periodic Lorentz gas thermostated by deterministic scattering *(11 pages)* . . . . . 036209
K. Rateitschak and R. Klages
Self-similar organization of Gavrilov-Silnikov-Newhouse sinks *(9 pages)* . . . . . 036210
Binoy Krishna Goswami and Sourish Basu
Phase relationships between two or more interacting processes from one-dimensional time series. I. Basic theory *(12 pages)* . . . . . 036211
N. B. Janson, A. G. Balanov, V. S. Anishchenko, and P. V. E. McClintock
Phase relationships between two or more interacting processes from one-dimensional time series. II. Application to heart-rate-variability data *(7 pages)* . . . . . 036212
N. B. Janson, A. G. Balanov, V. S. Anishchenko, and P. V. E. McClintock
Inhibition of chaotic escape from a potential well by incommensurate escape-suppressing excitations *(7 pages)* . . . . . 036213
R. Chacón and J. A. Martínez
Parallel computing with extended dynamical systems *(7 pages)* . . . . . 036214
Sudeshna Sinha, Toshinori Munakata, and William L. Ditto
Quantum localization for a kicked rotor with accelerator mode islands *(9 pages)* . . . . . 036215
A. Iomin, S. Fishman, and G. M. Zaslavsky
Flexible parallel implementation of logic gates using chaotic elements *(9 pages)* . . . . . 036216
Sudeshna Sinha, Toshinori Munakata, and William L. Ditto
Coherent oscillations and incoherent tunneling in a one-dimensional asymmetric double-well potential *(7 pages)* . . . . . 036217
V. A. Benderskii and E. I. Kats
Naturally invariant measure of chaotic attractors and the conditionally invariant measure of embedded chaotic repellers *(9 pages)* . . . . . 036218
Hrvoje Buljan and Vladimir Paar
Nonperturbative and perturbative parts of energy eigenfunctions: A three-orbital schematic shell model *(9 pages)* . . . . . 036219
Wen-ge Wang
Shadowing breakdown and large errors in dynamical simulations of physical systems *(5 pages)* . . . . . 036220
Timothy D. Sauer
Pseudointegrable Andreev billiard *(5 pages)* . . . . . 036221
Jan Wiersig
Experimental observation of the characteristic relations of type-I intermittency in the presence of noise *(7 pages)* . . . . . 036222
Jin-Hang Cho, Myung-Suk Ko, Young-Jai Park, and Chil-Min Kim
Turbulence in small-world networks *(6 pages)* . . . . . 036223
M. G. Cosenza and K. Tucci
Pattern formation in two-frequency forced parametric waves *(29 pages)* . . . . . 036224
H. Arbell and J. Fineberg

*(Continued)*

**PHYSICAL REVIEW E** **THIRD SERIES, VOLUME 65, NUMBER 3** **MARCH 2002**

Synchronization: Stability and duration time *(6 pages)* . . . . . 036225
Paul Woafo and Roberto A. Kraenkel
Synchronization of chaotic systems with different order *(7 pages)* . . . . . 036226
Ricardo Femat and Gualberto Solís-Perales
Controlling dynamics in spatially extended systems *(9 pages)* . . . . . 036227
Nita Parekh and Somdatta Sinha
Microscopic chaos from Brownian motion in a one-dimensional anharmonic oscillator chain *(5 pages)* . . . . . 036228
M. Romero-Bastida and E. Braun
Achronal generalized synchronization in mutually coupled semiconductor lasers *(5 pages)* . . . . . 036229
J. K. White, M. Matus, and J. V. Moloney
Bifurcations of synchronized responses in synaptically coupled Bonhöffer–van der Pol neurons *(9 pages)* . . . 036230
Kunichika Tsumoto, Tetsuya Yoshinaga, and Hiroshi Kawakami
Arithmetical signatures of the dynamics of the Hénon map *(11 pages)* . . . . . 036231
Antônio Endler and Jason A. C. Gallas
Amplitude envelope synchronization in coupled chaotic oscillators *(10 pages)* . . . . . 036232
J. M. Gonzalez-Miranda

**PART 2 B**

**Note to Reader** . . . . . i

**Nonlinear hydrodynamics and turbulence**

Scaling of structure functions in homogeneous shear-flow turbulence *(6 pages)* . . . . . 036301
J. Qian
Circulation-strain sum rule in stochastic magnetohydrodynamics *(8 pages)* . . . . . 036302
L. Moriconi and F. A. S. Nobre
Magnetic fluctuations with a zero mean field in a random fluid flow with a finite correlation time and a small magnetic diffusion *(7 pages)* . . . . . 036303
Nathan Kleeorin, Igor Rogachevskii, and Dmitry Sokoloff
Continuum description of rarefied gas dynamics. III. The structures of shock waves *(7 pages)* . . . . . 036304
Xinzhong Chen, Edward A. Spiegel, and Hongling Rao
Critical ''dimension'' in shell model turbulence *(5 pages)* . . . . . 036305
Paolo Giuliani, Mogens H. Jensen, and Victor Yakhot
Flow pattern exchange in the Taylor-Couette system with a very small aspect ratio *(7 pages)* . . . . . 036306
Hiroyuki Furukawa, Takashi Watanabe, Yorinobu Toya, and Ikuo Nakamura
Stability analysis of boundary layer flow due to the presence of a small hole on a surface *(7 pages)* . . . . . 036307
R. Fernandez-Feria
Nonlinear wave dynamics in Faraday instabilities *(6 pages)* . . . . . 036308
Peilong Chen
Nonhydrodynamic modes and *a priori* construction of shallow water lattice Boltzmann equations *(12 pages)* . . . . . 036309
Paul J. Dellar
Nonlinear effects due to gravity in a conical Hele-Shaw cell *(8 pages)* . . . . . 036310
José A. Miranda
Nonlinear states of the screw dynamo *(13 pages)* . . . . . 036311
Wolfgang Dobler, Anvar Shukurov, and Axel Brandenburg
Flow paths in wetting unsaturated flow: Experiments and simulations *(9 pages)* . . . . . 036312
Eirik G. Flekkøy, Jean Schmittbuhl, Finn Løvholt, Unni Oxaal, Knut Jørgen Måløy, and Per Aagaard
Memory effects in a turbulent dynamo: Generation and propagation of a large-scale magnetic field *(5 pages)* . . . . . 036313
Sergei Fedotov, Alexey Ivanov, and Andrey Zubarev

*(Continued)*

**PHYSICAL REVIEW E** **THIRD SERIES, VOLUME 65, NUMBER 3** **MARCH 2002**

Energy and structure of inertial range turbulence deduced from an evolution of fluid impulse *(9 pages)* . . . . . 036314
D. M. Summers
Growth of binary fluid convection: Role of the concentration field *(18 pages)* . . . . . 036315
C. Fütterer and M. Lücke
Experiments on free decay of quasi-two-dimensional turbulent flows *(8 pages)* . . . . . 036316
S. Danilov, F. V. Dolzhanskii, V. A. Dovzhenko, and V. A. Krymov
Vortex filament motion under the localized induction approximation in terms of Weierstrass elliptic functions *(12 pages)* . . . . . 036317
H. J. Shin
Lattice Boltzmann simulation of chemical dissolution in porous media *(8 pages)* . . . . . 036318
Qinjun Kang, Dongxiao Zhang, Shiyi Chen, and Xiaoyi He

**Plasma physics**

Steady ion momentum in nonlinear plasma waves *(8 pages)* . . . . . 036401
L. M. Gorbunov, P. Mora, and R. R. Ramazashvili
Theory of $K\alpha$ generation by femtosecond laser-produced hot electrons in thin foils *(5 pages)* . . . . . 036402
D. Salzmann, Ch. Reich, I. Uschmann, E. Förster, and P. Gibbon
Spatiotemporal characteristics of the collisionless rf sheath and the ion energy distributions arriving at rf-biased electrodes *(7 pages)* . . . . . 036403
Zhong-Ling Dai, You-Nian Wang, and Teng-Cai Ma
Two-dimensional collision of probe photons with relativistic ionization fronts *(6 pages)* . . . . . 036404
J. M. Dias, N. C. Lopes, L. O. Silva, G. Figueira, and J. T. Mendonça
Energetics of electromagnetic wave transformation in a time-varying magnetoplasma medium *(10 pages)* . . . . . 036405
M. I. Bakunov and I. S. Grachev
Stopping power of nonideal, partially ionized plasmas *(14 pages)* . . . . . 036406
D. O. Gericke, M. Schlanges, and Th. Bornath
Unified formulation for inhomogeneity-driven instabilities in the lower-hybrid range *(11 pages)* . . . . . 036407
O. J. G. Silveira, L. F. Ziebell, R. Gaelzer, and Peter H. Yoon
Quasilinear diffusion as a result of modulational instability in the pulsar plasma *(6 pages)* . . . . . 036408
G. Z. Machabeli, Q. Luo, S. V. Vladimirov, and D. B. Melrose
Injection of electron beam into a toroidal trap using chaotic orbits near magnetic null *(6 pages)* . . . . . 036409
C. Nakashima, Z. Yoshida, H. Himura, M. Fukao, J. Morikawa, and H. Saitoh
Spatially resolved x-ray spectroscopy investigation of femtosecond laser irradiated Ar clusters *(9 pages)* . . . . 036410
G. C. Junkel-Vives, J. Abdallah , Jr., T. Auguste, P. D'Oliveira, S. Hulin, P. Monot, S. Dobosz, A. Ya. Faenov, A. I. Magunov, T. A. Pikuz, I. Yu. Skobelev, A. S. Boldarev, and V. A. Gasilov
Theory of wave propagation along a waveguide filled with moving magnetized plasma *(8 pages)* . . . . . 036411
Liu Shenggang, Yan Yang, Mao Jie, and Dennis M. Manos
Electric microfield distributions in electron-ion plasmas *(12 pages)* . . . . . 036412
Alexander Y. Potekhin, Gilles Chabrier, and Dominique Gilles
Observation of neutron spectrum produced by fast deuterons via ultraintense laser plasma interactions *(10 pages)* . . . . . 036413
N. Izumi, Y. Sentoku, H. Habara, K. Takahashi, F. Ohtani, T. Sonomoto, R. Kodama, T. Norimatsu, H. Fujita, Y. Kitagawa, K. Mima, K. A. Tanaka, and T. Yamanaka
Harmonic generation of ultraintense laser pulses in underdense plasma *(6 pages)* . . . . . 036414
Hai Lin, Li-Ming Chen, and J. C. Kieffer
Oblique electrostatic modes in self-gravitating dusty plasmas *(4 pages)* . . . . . 036415
Frank Verheest and Victoria V. Yaroshenko
Axisymmetric relativistic self-channeling of laser light in plasmas *(10 pages)* . . . . . 036416
A. Kim, M. Tushentsov, F. Cattani, D. Anderson, and M. Lisak

*(Continued)*

**PHYSICAL REVIEW E** **THIRD SERIES, VOLUME 65, NUMBER 3** **MARCH 2002**

Shear Alfvén waves in turbulent plasmas *(4 pages)* . . . . . 036417
Manuel Núñez
Dense plasma temperature equilibration in the binary collision approximation *(5 pages)* . . . . . 036418
D. O. Gericke, M. S. Murillo, and M. Schlanges

**Physics of beams**

Parametric and resonant transition radiation in periodic stratified structures *(9 pages)* . . . . . 036501
B. Pardo and J.-M. André
Approximate solutions of two-way diffusion equations *(6 pages)* . . . . . 036502
F. Andersson, P. Helander, D. Anderson, H. Smith, and M. Lisak
Phase and gain measurements in a distributed-loss cyclotron-resonance maser amplifier *(6 pages)* . . . . . 036503
Amit Kesar and Eli Jerby
Analytical description of stripping foil extraction from isochronous cyclotrons *(6 pages)* . . . . . 036504
Stanko S. Tomić and Eugene V. Samsonov
Experimental observation of short-pulse upshifted frequency microwaves from a laser-created overdense plasma *(5 pages)* . . . . . 036505
Noboru Yugami, Toshihiko Niiyama, Takeshi Higashiguchi, Hong Gao, Shigeo Sasaki, Hiroaki Ito, and Yasushi Nishida

**Classical physics, including nonlinear media and photonic materials**

Theory of acoustic scattering by supported ridges at a solid-liquid interface *(7 pages)* . . . . . 036601
A. Khelif, J. O. Vasseur, Ph. Lambin, B. Djafari-Rouhani, and P. A. Deymier
Interferometric methods in diagnostics of polarization singularities *(5 pages)* . . . . . 036602
Oleg V. Angelsky, Igor I. Mokhun, Alexey I. Mokhun, and Marat S. Soskin
Electromigration-induced propagation of nonlinear surface waves *(6 pages)* . . . . . 036603
R. Mark Bradley
Time delay distribution in Bragg gratings *(13 pages)* . . . . . 036604
Fabio Ghiringhelli and Mikhail N. Zervas
Multichannel pulse dynamics in a stabilized Ginzburg-Landau system *(12 pages)* . . . . . 036605
H. E. Nistazakis, D. J. Frantzeskakis, J. Atai, B. A. Malomed, N. Efremidis, and K. Hizanidis
Suppression of Manakov soliton interference in optical fibers *(10 pages)* . . . . . 036606
Jianke Yang
Purely imaginary eigenvalues of Zakharov-Shabat systems *(5 pages)* . . . . . 036607
M. Klaus and J. K. Shaw
Anomalous dispersion and superluminal group velocity in a coaxial photonic crystal: Theory and experiment *(6 pages)* . . . . . 036608
A. Haché and L. Poirier
Spatial optical solitons in nonlinear photonic crystals *(14 pages)* . . . . . 036609
Andrey A. Sukhorukov and Yuri S. Kivshar
Polarization patterns and vectorial defects in type-II optical parametric oscillators *(14 pages)* . . . . . 036610
M. Santagiustina, E. Hernandez-Garcia, M. San-Miguel, A. J. Scroggie, and G.-L. Oppo
Collective behavior of parametric oscillators *(18 pages)* . . . . . 036611
I. Bena, C. Van den Broeck, R. Kawai, Mauro Copelli, and Katja Lindenberg
Optical absorption for parallel cylinder arrays *(5 pages)* . . . . . 036612
P. Robles, R. Rojas, and F. Claro
Trapping of vibrational energy in crumpled sheets *(11 pages)* . . . . . 036613
Ajay Gopinathan, T. A. Witten, and S. C. Venkataramani
Increased damping of irregular resonators *(10 pages)* . . . . . 036614
S. Russ and B. Sapoval

*(Continued)*

**PHYSICAL REVIEW E** **THIRD SERIES, VOLUME 65, NUMBER 3** **MARCH 2002**

Body versus surface forces in continuum mechanics: Is the Maxwell stress tensor a physically objective Cauchy stress? *(14 pages)* . . . . . 036615
Carlos Rinaldi and Howard Brenner

Spatially resolved photonic transfer through mesoscopic heterowires *(4 pages)* . . . . . 036616
R. Quidant, J.-C. Weeber, A. Dereux, D. Peyrade, Ch. Girard, and Y. Chen

Coherent interaction effects in pulses propagating through a doped nonlinear dispersive medium *(6 pages)* . . . . . 036617
D. P. Caetano, Solange B. Cavalcanti, and J. Miguel Hickmann

Topological solitons in nondegenerate one-component chains *(22 pages)* . . . . . 036618
Leonid I. Manevitch, Grigori M. Sigalov, and Alexander V. Savin

Slow light, induced dispersion, enhanced nonlinearity, and optical solitons in a resonator-array waveguide *(4 pages)* . . . . . 036619
John E. Heebner, Robert W. Boyd, and Q-Han Park

Pattern formation via symmetry breaking in nonlinear weakly correlated systems *(9 pages)* . . . . . 036620
Suzanne M. Sears, Marin Soljačić, Demetrios N. Christodoulides, and Mordechai Segev

Propagation of classical waves in nonperiodic media: Scaling properties of an optical Cantor filter *(8 pages)* . . . . . 036621
A. V. Lavrinenko, S. V. Zhukovsky, K. S. Sandomirski, and S. V. Gaponenko

Numerical studies of left-handed materials and arrays of split ring resonators *(8 pages)* . . . . . 036622
P. Markoš and C. M. Soukoulis

**Computational physics**

Polarization state of the optical near field *(8 pages)* . . . . . 036701
Gaëtan Lévêque, Gérard Colas des Francs, Christian Girard, Jean Claude Weeber, Christophe Meier, Cécile Robilliard, Renaud Mathevet, and John Weiner

Lyapunov spectrum from time series using moving boxes *(10 pages)* . . . . . 036702
N. N. Oiwa and N. Fiedler-Ferrara

Real-space renormalization-group approach to field evolution equations *(8 pages)* . . . . . 036703
Andreas Degenhard and Javier Rodríguez-Laguna

Kinetic Monte Carlo simulations with minimal searching *(3 pages)* . . . . . 036704
T. P. Schulze

Efficient method for simulating quantum electron dynamics under the time-dependent Kohn-Sham equation *(6 pages)* . . . . . 036705
Naoki Watanabe and Masaru Tsukada

Computer simulations of a two-dimensional system with competing interactions *(15 pages)* . . . . . 036706
Antitsa D. Stoycheva and Sherwin J. Singer

Improvements on the application of convergence accelerators for the evaluation of some three-electron atomic integrals *(11 pages)* . . . . . 036707
Paul J. Pelzl, Gregory J. Smethells, and Frederick W. King

Taylor-series expansion and least-squares-based lattice Boltzmann method: Two-dimensional formulation and its applications *(13 pages)* . . . . . 036708
C. Shu, X. D. Niu, and Y. T. Chew

Self-referential method for calculation of the free energy of crystals by Monte Carlo simulation *(9 pages)* . . . . . 036709
C. Daniel Barnes and David A. Kofke

Lattice-switch Monte Carlo method: Application to soft potentials *(12 pages)* . . . . . 036710
A. N. Jackson, A. D. Bruce, and G. J. Ackland

*(Continued)*

PHYSICAL REVIEW E THIRD SERIES, VOLUME 65, NUMBER 3 MARCH 2002

Thermal treatment of the minority game *(8 pages)* . . . . . 036711
E. Burgos, Horacio Ceva, and R. P. J. Perazzo

## BRIEF REPORTS

### General methods of statistical physics

Computer simulation study of irreversible adsorption: Coverage fluctuations *(4 pages)* . . . . . 037101
Jordi Faraudo and Javier Bafaluy
Interband spectrum of weakly coupled stochastic lattice Ginzburg-Landau models *(3 pages)* . . . . . 037102
Paulo A. Faria da Veiga, Michael O'Carroll, and Ricardo Schor
Exact solution for single-scale Gaussian random transport *(4 pages)* . . . . . 037103
James P. Gleeson
Theory for competing reactions with initially separated components *(4 pages)* . . . . . 037104
Misha Sinder
Energetics of rocked inhomogeneous ratchets *(4 pages)* . . . . . 037105
Debasis Dan and A. M. Jayannavar
Fractional Langevin model of memory in financial time series *(3 pages)* . . . . . 037106
Bruce J. West and Sergio Picozzi

### Chaos and pattern formation

Pernicious effect of physical cutoffs in fractal analysis *(4 pages)* . . . . . 037201
M. Ciccotti and F. Mulargia
Targeting unknown and unstable periodic orbits *(4 pages)* . . . . . 037202
B. Doyon and L. J. Dubé
Low-dimensional chaos in zero-Prandtl-number Bénard–Marangoni convection *(4 pages)* . . . . . 037203
Thomas Boeck and Nikolay K. Vitanov

### Nonlinear hydrodynamics and turbulence

Density relaxation of a near-critical fluid in response to local heating and low frequency vibration in microgravity *(4 pages)* . . . . . 037301
Arnaud Jounet
Spiral-defect chaos: Swift-Hohenberg model versus Boussinesq equations *(3 pages)* . . . . . 037302
Rainer Schmitz, Werner Pesch, and Walter Zimmermann
Fluid motions in the Earth's core inferred from time spectral features of the geomagnetic field *(4 pages)* . . . . 037303
Giuseppe Consolini, Paola De Michelis, and Antonio Meloni

### Plasma physics

Collisionless damping of nonlinear dust ion acoustic wave due to dust charge fluctuation *(4 pages)* . . . . . 037401
Samiran Ghosh, Tushar K. Chaudhuri, Susmita Sarkar, Manoranjan Khan, and M. R. Gupta
Electron anisotropic scattering in gases: A formula for Monte Carlo simulations *(4 pages)* . . . . . 037402
A. Okhrimovskyy, A. Bogaerts, and R. Gijbels

### Classical physics, including nonlinear media and photonic materials

Simple stochastic model for optical tunneling *(3 pages)* . . . . . 037601
A. Ranfagni, R. Ruggeri, P. Sandri, and A. Agresti

*(Continued)*

PHYSICAL REVIEW E THIRD SERIES, VOLUME 65, NUMBER 3 MARCH 2002

**Computational physics**

Fast algorithm for generating long self-affine profiles *(4 pages)* . . . . . 037701
Ingve Simonsen and Alex Hansen
Calculation of the Coulomb energy in quasi-two-dimensional systems *(4 pages)* . . . . . 037702
Oleksiy V. Bystrenko

**COMMENT**

Comment on ''Symmetric path integrals for stochastic equations with multiplicative noise'' *(3 pages)* . . . . . 038101
H. Calisto and E. Tirapegui

**ERRATA**

Erratum: Dipole radiation in a one-dimensional photonic crystal: TE polarization [Phys. Rev. E **63**, 056613 (2001)] *(2 pages)* . . . . . 039901(E)
I. Alvarado-Rodriguez, P. Halevi, and Adán S. Sánchez

**Cumulative Author Index** . . . . . iii