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THIRD SERIES, VOLUME 67, NUMBER 2
PARTS 1 AND 2

CONTENTS

FEBRUARY 2003

The Table of Contents is a total listing of Parts 1 and 2.

PART 1

RAPID COMMUNICATIONS

Equilibrium and linear transport properties of fluids

Structure and phase diagram of high-density water: The role of interstitial molecules *(4 pages)* . . . . . 020201(R)
A. Marco Saitta and Frédéric Datchi

Colloidal dispersions, suspensions, and aggregates

Phase behavior and crystallization kinetics of poly-12-hydroxystearic-coated polymethylmethacrylate colloids *(4 pages)* . . . . . 020401(R)
S. Auer, W. C. K. Poon, and D. Frenkel

Liquid crystals

Two-stage surface freezing of a single top layer in a smectic-*A* membrane *(4 pages)* . . . . . 020701(R)
Wim H. de Jeu, Andrea Fera, Oleg Konovalov, and Boris I. Ostrovskii
Field-induced switching between states of opposite chirality in a liquid-crystalline phase *(3 pages)* . . . . . 020702(R)
A. Eremin, S. Diele, G. Pelzl, and W. Weissflog

REGULAR ARTICLES

Statistical physics of soft matter

Non-Hamiltonian equilibrium statistical mechanics *(7 pages)* 021101
Alessandro Sergi
Stochastic resonance for nonlinear sensors with saturation *(6 pages)* 021102
David Rousseau, Julio Rojas Varela, and François Chapeau-Blondeau
Some exact results for Boltzmann's annihilation dynamics *(7 pages)* 021103
François Coppex, Michel Droz, Jarosław Piasecki, Emmanuel Trizac, and Peter Wittwer
Stochastic resonance driven by two different kinds of colored noise in a bistable system *(13 pages)* 021104
Xiaoqin Luo and Shiqun Zhu
Homogeneous shear flow of a hard-sphere fluid: Analytic solutions *(11 pages)* 021105
Janka Petravic and Owen G. Jepps
Application of minimal subtraction renormalization to crossover behavior near the ^{3}He liquid-vapor critical point *(20 pages)* 021106
Fang Zhong, M. Barmatz, and Inseob Hahn

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(Continued)

1063-651X(200302)67:2:1;1-7

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 67, NUMBER 2** **FEBRUARY 2003**

Derivation of nonlinear Fokker-Planck equations by means of approximations to the master equation *(7 pages)* 021107
Evaldo M. F. Curado and Fernando D. Nobre
Self-consistent theory of collective Brownian dynamics: Theory versus simulation *(13 pages)* 021108
Laura Yeomans-Reyna, Heriberto Acuña-Campa, Felipe de Jesús Guevara-Rodríguez, and Magdaleno Medina-Noyola
Long-range correlations in the electric signals that precede rupture: Further investigations *(13 pages)* 021109
P. A. Varotsos, N. V. Sarlis, and E. S. Skordas
Anomalous diffusion in infinite horizon billiards *(7 pages)* 021110
Douglas N. Armstead, Brian R. Hunt, and Edward Ott
Fractional dynamics from the ordinary Langevin equation *(6 pages)* 021111
A. A. Stanislavsky
Continuous-time random-walk model for financial distributions *(10 pages)* 021112
Jaume Masoliver, Miquel Montero, and George H. Weiss
Noise-driven mechanism for pattern formation *(8 pages)* 021113
J. Buceta, M. Ibañes, J. M. Sancho, and Katja Lindenberg

Equilibrium and linear transport properties of fluids

Symmetric linear kinetic theory *(11 pages)* 021201
Adam Bednorz
Local density approach for modeling fluids with density-dependent interactions *(11 pages)* 021202
N. G. Almarza, E. Lomba, G. Ruiz, and C. F. Tejero
Theory of the lattice Boltzmann method: Three-dimensional model for linear viscoelastic fluids *(19 pages)* 021203
Pierre Lallemand, Dominique d'Humières, Li-Shi Luo, and Robert Rubinstein
Heat conductivity in linear mixing systems *(4 pages)* 021204
Baowen Li, Giulio Casati, and Jiao Wang
Bulk viscosity in the case of the interatomic potential depending on density *(7 pages)* 021205
Hisashi Okumura and Fumiko Yonezawa

Granular materials

Hard-sphere limit of soft-sphere model for granular materials: Stiffness dependence of steady granular flow *(8 pages)* 021301
Namiko Mitarai and Hiizu Nakanishi
Clustering transitions in vibrofluidized magnetized granular materials *(4 pages)* 021302
Daniel L. Blair and A. Kudrolli
Shearing of loose granular materials: A statistical mesoscopic model *(11 pages)* 021303
János Török, Supriya Krishnamurthy, János Kertész, and Stéphane Roux
Shock waves in two-dimensional granular flow: Effects of rough walls and polydispersity *(10 pages)* 021304
Sune Hørlück, Martin van Hecke, and P. Dimon
Model of coarsening and vortex formation in vibrated granular rods *(4 pages)* 021305
Igor S. Aranson and Lev S. Tsimring
Onset of thermal convection in a horizontal layer of granular gas *(6 pages)* 021306
Evgeniy Khain and Baruch Meerson
Velocity distribution of fluidized granular gases in the presence of gravity *(7 pages)* 021307
J. Javier Brey and M. J. Ruiz-Montero
Shear viscosity for a heated granular binary mixture at low density *(12 pages)* 021308
José María Montanero and Vicente Garzó

(Continued)

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 67, NUMBER 2** **FEBRUARY 2003**

Colloidal dispersions, suspensions, and aggregates

Diffusion-controlled growth: Theory and closure approximations *(11 pages)* 021401
R. C. Ball and E. Somfai
Field-induced structures in miscible ferrofluid suspensions with and without latex spheres *(8 pages)* 021402
M. F. Islam, K. H. Lin, D. Lacoste, T. C. Lubensky, and A. G. Yodh
Dielectrophoresis of charged colloidal suspensions *(7 pages)* 021403
J. P. Huang, Mikko Karttunen, K. W. Yu, and L. Dong
Phase-separation-induced fractionation in molar mass in aqueous mixtures of gelatin and dextran *(11 pages)* 021404
M. W. Edelman, R. H. Tromp, and E. van der Linden
Dynamics of yielding observed in a three-dimensional aqueous dry foam *(7 pages)* 021405
Florence Rouyer, Sylvie Cohen-Addad, Michèle Vignes-Adler, and Reinhard Höhler

Structured and complex fluids

Dynamics of supercooled liquids confined to the pores of sol-gel glass: A dynamic light scattering study *(8 pages)* 021501
A. Patkowski, T. Ruths, and E. W. Fischer
Effect of composition changes on the structural relaxation of a binary mixture *(14 pages)* 021502
W. Götze and Th. Voigtmann
Connectivity strategies to enhance the capacity of weight-bearing networks *(6 pages)* 021503
T. M. Janaki and Neelima Gupte
Scattering from dilute ferrofluid suspensions in soft polymer gels *(7 pages)* 021504
Alvaro V. Teixeira, Isabelle Morfin, Françoise Ehrburger-Dolle, Cyrille Rochas, Erik Geissler, Pedro Licinio, and Pierre Panine
Experimental studies of the *ortho*-toluidine glass transition *(8 pages)* 021505
G. Pratesi, P. Bartolini, D. Senatra, M. Ricci, R. Righini, F. Barocchi, and R. Torre[1,2,3]
Probes of heterogeneity in rotational dynamics: Application to supercooled liquid CS_2 *(12 pages)* 021506
Joohyun Kim, Wu-Xiong Li, and T. Keyes
Binary mixtures of magnetic fluids *(12 pages)* 021507
W. Fenz and R. Folk
Cohen-Grest model for the dynamics of supercooled liquids *(8 pages)* 021508
M. Paluch, R. Casalini, and C. M. Roland

Films, interfaces, and crystal growth

Grazing-incidence x-ray diffraction study of Langmuir films of amphiphilic monodendrons *(6 pages)* 021601
Wen-Jung Pao, Fan Zhang, Paul A. Heiney, Catherine Mitchell, Wook-Dong Cho, and Virgil Percec
Depinning of elastic manifolds *(4 pages)* 021602
Alberto Rosso, Alexander K. Hartmann, and Werner Krauth
Depinning with dynamic stress overshoots: A hybrid of critical and pseudohysteretic behavior *(35 pages)* 021603
J. M. Schwarz and Daniel S. Fisher
Influence of surface roughness on the adhesion of elastic films *(6 pages)* 021604
G. Palasantzas and J. Th. M. De Hosson
Nucleation probability in binary heterogeneous nucleation of water–*n*-propanol vapor mixtures on insoluble and soluble nanoparticles *(12 pages)* 021605
P. E. Wagner, D. Kaller, A. Vrtala, A. Lauri, M. Kulmala, and A. Laaksonen
Faceting of a growing crystal surface by surface diffusion *(16 pages)* 021606
T. V. Savina, A. A. Golovin, S. H. Davis, A. A. Nepomnyashchy, and P. W. Voorhees

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 67, NUMBER 2** **FEBRUARY 2003**

Nonequilibrium wetting transitions with short range forces *(8 pages)* 021607
F. de los Santos, M. M. Telo da Gama, and M. A. Muñoz
Topological defects and nonhomogeneous melting of large two-dimensional Coulomb clusters *(8 pages)* 021608
Minghui Kong, B. Partoens, and F. M. Peeters

Liquid crystals

Mechanism of sign inversion of spontaneous polarization in ferroelectric SmC^* liquid crystals *(6 pages)* 021701
Yoshitaka Mieda, Hajime Hoshi, Yoichi Takanishi, Hideo Takezoe, and Boštjan Žekš
Experimental evidence for Sm-$C_G \rightarrow$Sm-CP polymorphism in fluorinated bent-shaped mesogens *(8 pages)* 021702
A. Eremin, S. Diele, G. Pelzl, H. Nádasi, and W. Weissflog
Effect of a quenched random field on a continuous symmetry breaking transition: Nematic to smectic-A transition in octyloxycyanobiphenyl-aerosil dispersions *(13 pages)* 021703
P. S. Clegg, C. Stock, R. J. Birgeneau, C. W. Garland, A. Roshi, and G. S. Iannacchione
Competition between the chiral smectic-C^* and hexatic phases *(12 pages)* 021704
I. Rychetský, M. Glogarová, and V. Novotná
Order parameter measurements of dichroic dyes dissolved in smectic liquid crystals that tilt without layer contraction *(8 pages)* 021705
Peter J. Collings, B. R. Ratna, and R. Shashidhar
Dynamics of electro-optical switching in the antiferroelectric B_2 phase of an achiral bent-core shape compound *(8 pages)* 021706
Lev M. Blinov, Mikhail I. Barnik, E. Soto Bustamante, Gerhard Pelzl, and Wolfgang Weissflog
Dependence of film tension on the thickness of smectic films *(7 pages)* 021707
R. Jaquet and F. Schneider
Interfaces of semi-infinite smectic liquid crystals and equations of state of infinite smectic stacks of semiflexible manifolds *(13 pages)* 021708
Lianghui Gao and Leonardo Golubović

Polymers

Effect of confinement on phase-separation processes in a polymer blend observed by laser scanning confocal microscopy *(7 pages)* 021801
Hiroshi Jinnai, Hitoshi Kitagishi, Kazuki Hamano, Yukihiro Nishikawa, and Masaoki Takahashi
Relaxation of a rubbed polystyrene surface *(10 pages)* 021802
Alexander D. Schwab and Ali Dhinojwala
Probing polyelectrolyte elasticity using radial distribution function *(14 pages)* 021803
Roya Zandi, Joseph Rudnick, and Ramin Golestanian
Fast growth in phase-separating A-B-copolymer ternary mixtures with a chemical reaction *(7 pages)* 021804
Yue-jin Zhu and Yu-qiang Ma
Compact phases of polymers with hydrogen bonding *(6 pages)* 021805
Antonio Trovato, Jesper Ferkinghoff-Borg, and Mogens H. Jensen
Intramolecular caging in polybutadiene due to rotational barriers *(7 pages)* 021806
S. Krushev and W. Paul
Dual-resolution coarse-grained simulation of the bisphenol-A-polycarbonate/nickel interface *(12 pages)* 021807
Cameron F. Abrams, Luigi Delle Site, and Kurt Kremer

Biological physics

Robustness and enhancement of neural synchronization by activity-dependent coupling *(4 pages)* 021901
V. P. Zhigulin, M. I. Rabinovich, R. Huerta, and H. D. I. Abarbanel

(Continued)

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 67, NUMBER 2** **FEBRUARY 2003**

Nonlinear dependence of the delayed luminescence yield on the intensity of irradiation in the framework of a correlated soliton model *(7 pages)* 021902

Larissa Brizhik, Francesco Musumeci, Agata Scordino, Maurizio Tedesco, and Antonio Triglia

Modeling oscillatory microtubule polymerization *(19 pages)* 021903

Martin Hammele and Walter Zimmermann

Energy resolution and dynamical heterogeneity effects on elastic incoherent neutron scattering from molecular systems *(8 pages)* 021904

Torsten Becker and Jeremy C. Smith

Enhanced migration and ionic transport through membranes *(5 pages)* 021905

Wilson Barros, Jr. and M. Engelsberg

Solution of epidemic models with quenched transients *(8 pages)* 021906

J. A. N. Filipe and C. A. Gilligan

Role of photonic-crystal-type structures in the thermal regulation of a Lycaenid butterfly sister species pair *(7 pages)* 021907

L. P. Biró, Zs. Bálint, K. Kertész, Z. Vértesy, G. I. Márk, Z. E. Horváth, J. Balázs, D. Méhn, I. Kiricsi, V. Lousse, and J.-P. Vigneron

Piecewise linear differential equations and integrate-and-fire neurons: Insights from two-dimensional membrane models *(16 pages)* 021908

Arnaud Tonnelier and Wulfram Gerstner

Size exclusion and diffusion of fluoresceinated probes within collagen fibrils *(7 pages)* 021909

A. Ekani-Nkodo and D. Kuchnir Fygenson

Theory of ac electrokinetic behavior of spheroidal cell suspensions with an intrinsic dispersion *(10 pages)* 021910

Lei Gao, J. P. Huang, and K. W. Yu

Interstrand distance distribution of DNA near melting *(6 pages)* 021911

M. Baiesi, E. Carlon, Y. Kafri, D. Mukamel, E. Orlandini, and A. L. Stella

Automated detection of a preseizure state based on a decrease in synchronization in intracranial electroencephalogram recordings from epilepsy patients *(10 pages)* 021912

Florian Mormann, Ralph G. Andrzejak, Thomas Kreuz, Christoph Rieke, Peter David, Christian E. Elger, and Klaus Lehnertz

Evolution equation of population genetics: Relation to the density-matrix theory of quasiparticles with general dispersion laws *(10 pages)* 021913

V. Bezák

Statistical physics of RNA folding *(17 pages)* 021914

M. Müller

Modeling postshock evolution of large electropores *(12 pages)* 021915

John C. Neu and Wanda Krassowska

(Continued)

PHYSICAL REVIEW E THIRD SERIES, VOLUME 67, NUMBER 2 FEBRUARY 2003

BRIEF REPORTS

Statistical physics of soft matter

Markovian approximation and dynamic density functional theory for classical dense liquids *(4 pages)* 022101
Toyonori Munakata

Biological physics

Stationary transmission distribution of random spike trains by dynamical synapses *(4 pages)* 022901
Richard H. R. Hahnloser
Electromagnetic optimization of light-harvesting proteins *(4 pages)* 022902
P. Etchegoin and R. C. Maher
Correlated noise in a logistic growth model *(3 pages)* 022903
Bao-Quan Ai, Xian-Ju Wang, Guo-Tao Liu, and Liang-Gang Liu

COMMENTS

Comment on ''Cylindrical phase of block copolymers: Stability of circular configuration to elliptical distortions and thin film morphologies'' *(2 pages)* 023801
M. W. Matsen
Reply to ''Comment on 'Cylindrical phase of block copolymers: Stability of circular configuration to elliptical distortions and thin film morphologies' '' *(3 pages)* 023802
G. G. Pereira

PART 2

RAPID COMMUNICATIONS

General methods of statistical physics

Truncation and reset process on the dynamics of Parrondo's games *(4 pages)* . . . . . 025101(R)
Cheng-Hung Chang and Tian Yow Tsong
Edwards-Wilkinson equation from lattice transition rules *(4 pages)* . . . . . 025102(R)
Dimitri D. Vvedensky

Chaos and pattern formation

Non-Gaussian random-matrix ensembles with banded spectra *(4 pages)* . . . . . 025201(R)
Saugata Ghosh, Akhilesh Pandey, Sanjay Puri, and Rajdeep Saha
Parametric statistics of individual energy levels in random Hamiltonians *(4 pages)* . . . . . 025202(R)
I. E. Smolyarenko and B. D. Simons
Self-organized superlattice patterns with two slightly differing wave numbers *(4 pages)* . . . . . 025203(R)
E. Große Westhoff, R. Herrero, T. Ackemann, and W. Lange
Hypersensitivity to perturbations of quantum-chaotic wave-packet dynamics *(4 pages)* . . . . . 025204(R)
P. G. Silvestrov, J. Tworzydło, and C. W. J. Beenakker

Plasma physics

Structural transitions in one-dimensionally confined one-component plasmas *(4 pages)* . . . . . 025401(R)
O. Bystrenko

(Continued)

PHYSICAL REVIEW E THIRD SERIES, VOLUME 67, NUMBER 2 FEBRUARY 2003

Classical physics, including nonlinear media and photonic materials

Dark and gray strong dispersion-managed solitons *(4 pages)* . . . . . 025601(R)
Mark J. Ablowitz and Ziad H. Musslimani
Electromagnetic waves focused by a negative-index planar lens *(4 pages)* . . . . . 025602(R)
P. F. Loschialpo, D. L. Smith, D. W. Forester, F. J. Rachford, and J. Schelleng
Modulational instability arising from collective Rayleigh scattering *(4 pages)* . . . . . 025603(R)
G. R. M. Robb and B. W. J. McNeil
Hilbert phase analysis of the dynamics of a semiconductor laser with optical feedback *(4 pages)* . . . . . 025604(R)
Wing-Shun Lam, Parvez N. Guzdar, and Rajarshi Roy

Computational physics

Lattice Boltzmann model for photonic band gap materials *(4 pages)* . . . . . 025701(R)
Zhifang Lin, Haiping Fang, Jianjun Xu, Jian Zi, and Xiangdong Zhang

REGULAR ARTICLES

General methods of statistical physics

Rejection-free Monte Carlo algorithms for models with continuous degrees of freedom *(4 pages)* 026101
J. D. Muñoz, M. A. Novotny, and S. J. Mitchell
Competing tunneling trajectories in a two-dimensional potential with variable topology as a model for quantum bifurcations *(10 pages)* 026102
V. A. Benderskii, E. V. Vetoshkin, E. I. Kats, and H. P. Trommsdorff
Fractal dimension of 3-blocks in four-, five-, and six-dimensional percolation systems *(4 pages)* 026103
Gerald Paul and H. Eugene Stanley
Small-world effects in the majority-vote model *(4 pages)* 026104
Paulo R. A. Campos, Viviane M. de Oliveira, and F. G. Brady Moreira
Exotic trees *(15 pages)* 026105
Z. Burda, J. Erdmann, B. Petersson, and M. Wattenberg
Constructing a statistical mechanics for Beck-Cohen superstatistics *(5 pages)* 026106
Constantino Tsallis and Andre M. C. Souza
Network-induced nonequilibrium phase transition in the ''game of Life'' *(6 pages)* 026107
Sheng-You Huang, Xian-Wu Zou, Zhi-Jie Tan, and Zhun-Zhi Jin
Slow relaxation due to optimization and restructuring: Solution on a hierarchical lattice *(11 pages)* 026108
János Török, Supriya Krishnamurthy, János Kertész, and Stéphane Roux
Self-similar factor approximants *(13 pages)* 026109
S. Gluzman, V. I. Yukalov, and D. Sornette
Scaling properties in the packing of crumpled wires *(8 pages)* 026110
C. C. Donato, M. A. F. Gomes, and R. E. de Souza
Duality relation for frustrated spin models *(5 pages)* 026111
D.-H. Lee and F. Y. Wu
Hierarchical organization in complex networks *(7 pages)* 026112
Erzsébet Ravasz and Albert-László Barabási
Time-dependent fluctuation theorem *(5 pages)* 026113
Emil Mittag and Denis J. Evans
Generic features of fluctuations in critical systems *(4 pages)* 026114
B. Zheng
Persistence in *q*-state Potts model: A mean-field approach *(9 pages)* 026115
G. Manoj

(Continued)

PHYSICAL REVIEW E THIRD SERIES, VOLUME 67, NUMBER 2 FEBRUARY 2003

Metastable configurations on the Bethe lattice *(10 pages)* 026116
A. Pagnani, G. Parisi, and M. Ratiéville
Interface dynamics and solute trapping in alloy solidification with density change *(12 pages)* 026117
Massimo Conti and Marco Fermani
Star-graph expansions for bond-diluted Potts models *(9 pages)* 026118
Meik Hellmund and Wolfhard Janke
Magnetization reversal times in the two-dimensional Ising model *(8 pages)* 026119
Kevin Brendel, G. T. Barkema, and Henk van Beijeren
Nonequilibrium transitions in complex networks: A model of social interaction *(6 pages)* 026120
Konstantin Klemm, Víctor M. Eguíluz, Raúl Toral, and Maxi San Miguel
Measuring nonequilibrium temperature of forced oscillators *(6 pages)* 026121
Takahiro Hatano and David Jou
Phase behavior of confined symmetric binary mixtures *(12 pages)* 026122
Dirk Woywod and Martin Schoen
Critical phenomena in networks *(5 pages)* 026123
A. V. Goltsev, S. N. Dorogovtsev, and J. F. F. Mendes
Random series and discrete path integral methods: The Lévy-Ciesielski implementation *(19 pages)* 026124
Cristian Predescu and J. D. Doll
Introducing small-world network effects to critical dynamics *(12 pages)* 026125
Jian-Yang Zhu and Han Zhu
Mixing patterns in networks *(13 pages)* 026126
M. E. J. Newman
Classical nucleation theory revisited *(12 pages)* 026127
Yannis Drossinos and Panayotis G. Kevrekidis
Subdiffusion and localization in the one-dimensional trap model *(20 pages)* 026128
E. M. Bertin and J.-P. Bouchaud

Chaos and pattern formation

Controlling chaos to solutions with complex eigenvalues *(4 pages)* 026201
Oh-Jong Kwon and Hoyun Lee
Synchronization and desynchronization under the influence of quasiperiodic forcing *(15 pages)* 026202
Eireen Neumann, Irina Sushko, Yuri Maistrenko, and Ulrike Feudel
Statistics and characteristics of spatiotemporally rare intense events in complex Ginzburg-Landau models *(6 pages)* 026203
Jong-Won Kim and Edward Ott
Exceptional points and double poles of the *S* matrix *(5 pages)* 026204
I. Rotter
Estimating topological entropy via a symbolic data compression technique *(13 pages)* 026205
Yoshito Hirata and Alistair I. Mees
Stadium billiard with moving walls *(14 pages)* 026206
Doron Cohen and Diego A. Wisniacki
Chaotic communications that are difficult to detect *(6 pages)* 026207
T. L. Carroll
Measuring billiard eigenfunctions with arbitrary trajectories *(4 pages)* 026208
Debabrata Biswas
General stability analysis of synchronized dynamics in coupled systems *(4 pages)* 026209
Yonghong Chen, Govindan Rangarajan, and Mingzhou Ding
Noise-induced unstable dimension variability and transition to chaos in random dynamical systems *(17 pages)* 026210
Ying-Cheng Lai, Zonghua Liu, Lora Billings, and Ira B. Schwartz

(Continued)

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 67, NUMBER 2** **FEBRUARY 2003**

Density of states for vibrations of fractal drums *(13 pages)* 026211
Steven Homolya, Charles F. Osborne, and Imants D. Svalbe
Chaotic-time-series reconstruction by the Bayesian paradigm: Right results by wrong methods *(6 pages)* 026212
Kevin Judd
Chaotic sound waves in a regular billiard *(7 pages)* 026213
K. Schaadt, A. P. B. Tufaile, and C. Ellegaard
Optimization and stability boundaries for the synchronization of semiconductor lasers with external optical feedback *(6 pages)* 026214
Y. Chembo Kouomou and P. Woafo
Is the concept of the non-Hermitian effective Hamiltonian relevant in the case of potential scattering? *(16 pages)* 026215
Dmitry V. Savin, Valentin V. Sokolov, and Hans-Jürgen Sommers
Synchronization of coupled rotators: Josephson junction ladders and the locally coupled Kuramoto model *(14 pages)* 026216
B. C. Daniels, S. T. M. Dissanayake, and B. R. Trees
Information capacity and pattern formation in a tent map network featuring statistical periodicity *(5 pages)* 026217
C. Hauptmann, H. Touchette, and M. C. Mackey
Parametrically forced surface wave with a nonmonotonic dispersion relation *(5 pages)* 026218
Hee-kyoung Ko, Kyoung J. Lee, and Jysoo Lee
Two-degree-of-freedom Hamiltonian for the time-symmetric two-body problem of the relativistic action-at-a-distance electrodynamics *(15 pages)* 026219
Efrain Buksman Hollander and Jayme De Luca
Dual synchronization of chaos in one-way coupled microchip lasers *(8 pages)* 026220
A. Uchida, S. Kinugawa, T. Matsuura, and S. Yoshimori
Wave-particle dualism of spiral waves dynamics *(9 pages)* 026221
I. V. Biktasheva and V. N. Biktashev
Improvement of time-delayed feedback control by periodic modulation: Analytical theory of Floquet mode control scheme *(10 pages)* 026222
Wolfram Just, Svitlana Popovich, Andreas Amann, Nilüfer Baba, and Eckehard Schöll
Detecting generalized synchrony: An improved approach *(4 pages)* 026223
Daihai He, Zhigang Zheng, and Lewi Stone
Diffusive transport and self-consistent dynamics in coupled maps *(11 pages)* 026224
Guido Boffetta, Diego del-Castillo-Negrete, Cristóbal López, Giuseppe Pucacco, and Angelo Vulpiani

Nonlinear hydrodynamics and turbulence

Simple potential-flow model of Rayleigh-Taylor and Richtmyer-Meshkov instabilities for all density ratios *(5 pages)* 026301
Sung-Ik Sohn
Surface roughness and effective stick-slip motion *(12 pages)* 026302
I. V. Ponomarev and A. E. Meyerovich
Stable nonspherical bubble collapse including period doubling in sonoluminescence *(14 pages)* 026303
Jeppe Seidelin Dam, Mogens T. Levinsen, and Martin Skogstad
Large-scale features of rotating forced turbulence *(10 pages)* 026304
José Gaite, David Hochberg, and Carmen Molina-París
Intermittency and exponent field dynamics in developed turbulence *(10 pages)* 026305
Hirokazu Fujisaka and Yasuya Nakayama
Competition of spiral-defect chaos and rolls in Rayleigh-Bénard convection under shear flow *(7 pages)* 026306
Y. Shiwa

(Continued)

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 67, NUMBER 2** **FEBRUARY 2003**

High initial amplitude and high Mach number effects on the evolution of the single-mode Richtmyer-Meshkov instability *(8 pages)* 026307
A. Rikanati, D. Oron, O. Sadot, and D. Shvarts
Experiment and simulation of laminar and turbulent ferrofluid pipe flow in an oscillating magnetic field *(11 pages)* 026308
Kristopher R. Schumacher, Inga Sellien, G. Stuart Knoke, Tahir Cader, and Bruce A. Finlayson
Lattice Boltzmann simulation of fluid flow in fracture networks with rough, self-affine surfaces *(12 pages)* 026309
Mahyar Madadi and Muhammad Sahimi
Stabilization of hydrodynamic flows by small viscosity variations *(11 pages)* 026310
Rama Govindarajan, Victor S. L'vov, Itamar Procaccia, and A. Sameen
Dynamics of low-energy helium vapor pulses *(12 pages)* 026311
A. Wynveen, K. A. Lidke, M. C. Williams, C. F. Giese, and J. W. Halley
Scaling exponents in anisotropic hydrodynamic turbulence *(9 pages)* 026312
Victor S. L'vov, Itamar Procaccia, and Vasil Tiberkevich
Mode-coupling approach to non-Newtonian Hele-Shaw flow *(9 pages)* 026313
Magdalena Constantin, Michael Widom, and José A. Miranda
Anomalous transport of particle tracers in multidimensional cellular flows *(8 pages)* 026314
W. L. Vargas, L. E. Palacio, and D. M. Dominguez
Simulations of two-dimensional turbulent convection in a density-stratified fluid *(6 pages)* 026315
Tamara M. Rogers, Gary A. Glatzmaier, and S. E. Woosley
Roles of convection, pressure, and dissipation in three-dimensional turbulence *(14 pages)* 026316
Tohru Nakano, Toshiyuki Gotoh, and Daigen Fukayama
Spectral intermode coupling in a model of isotropic turbulence *(18 pages)* 026317
T. Nakano, W. D. McComb, and B. J. Geurts
Spiral and Taylor vortex fronts and pulses in axial through flow *(15 pages)* 026318
A. Pinter, M. Lücke, and Ch. Hoffmann
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Karnig O. Mikaelian
Alternative method to deduce bubble dynamics in single-bubble sonoluminescence experiments *(7 pages)* . . . 026320
G. Simon and M. T. Levinsen
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Nathan Kleeorin and Igor Rogachevskii
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Nikolay K. Vitanov

Plasma physics

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Karl-Heinz Rädler and Axel Brandenburg
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T. A. Davydova, A. I. Yakimenko, and Yu. A. Zaliznyak
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Takashi Nakamura and Shigeo Kawata
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Tadashi Ikegawa and Katsunobu Nishihara

(Continued)

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 67, NUMBER 2** **FEBRUARY 2003**

Vlasov-Maxwell kinetic simulations of radio-frequency-driven ion flows in magnetized plasmas *(9 pages)* . . . 026405
Chiara Marchetto, Francesco Califano, and Maurizio Lontano
Magnetic line trapping and effective transport in stochastic magnetic fields *(12 pages)* 026406
M. Vlad, F. Spineanu, J. H. Misguich, and R. Balescu
Quasilinear theory of Cherenkov-drift instability *(8 pages)* 026407
David Shapakidze, George Machabeli, George Melikidze, and David Khechinashvili
Propagation of hot electrons through high-density plasmas *(6 pages)* 026408
H. Teng, J. Zhang, Z. L. Chen, Y. T. Li, K. Li, X. Y. Peng, and J. X. Ma
Advanced spectroscopic analysis of 0.8—1.0-MA Mo *x* pinches and the influence of plasma electron beams on *L*-shell spectra of Mo ions *(9 pages)* 026409
A. S. Shlyaptseva, S. B. Hansen, V. L. Kantsyrev, D. A. Fedin, N. Ouart, K. B. Fournier, and U. I. Safronova
Interchange mode in the presence of dust *(11 pages)* 026410
J. Vranješ, M. Y. Tanaka, M. Kono, and S. Poedts
Energy loss of ions in a magnetized plasma: Conformity between linear response and binary collision treatments *(11 pages)* 026411
H. B. Nersisyan, G. Zwicknagel, and C. Toepffer
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G. Gregori, S. H. Glenzer, W. Rozmus, R. W. Lee, and O. L. Landen
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H. Isliker and L. Vlahos
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S. D. Bergeson and R. L. Spencer
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Th. Müller, B. K. Sinha, and K. P. Rohr
Electron acceleration by few-cycle laser pulses with single-wavelength spot size *(7 pages)* 026416
G. I. Dudnikova, V. Yu. Bychenkov, A. Maksimchuk, G. Mourou, J. Nees, S. G. Bochkarev, and V. A. Vshivkov

Physics of beams

Steady state of a fully detuned storage-ring free-electron laser *(8 pages)* 026501
G. De Ninno, C. Bruni, D. Nutarelli, D. Garzella, C. Thomas, and M. E. Couprie
Relativistic nonlinear Thomson scattering as attosecond x-ray source *(7 pages)* 026502
K. Lee, Y. H. Cha, M. S. Shin, B. H. Kim, and D. Kim
Chaotic behavior of the radiation field in the magnetically insulated transmission line oscillator *(6 pages)* . . . 026503
Hao Jianhong and Ding Wu

Classical physics, including nonlinear media and photonic materials

Resonant phenomena in classical dynamics of three-body Coulomb systems *(9 pages)* 026601
A. P. Itin
Influence of higher-order dispersion on modulational instability and pulse broadening of partially incoherent light *(5 pages)* 026602
L. Helczynski, M. Lisak, and D. Anderson
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Zhiyong Xu, Lu Li, Zhonghao Li, and Guosheng Zhou
Excitation of phase patterns and spatial solitons via two-frequency forcing of a 1:1 resonance *(4 pages)* 026604
Germán J. de Valcárcel and Kestutis Staliunas
Minkowskian description of polarized light and polarizers *(8 pages)* 026605
Juan Antonio Morales and Emilio Navarro

(Continued)

PHYSICAL REVIEW E THIRD SERIES, VOLUME 67, NUMBER 2 FEBRUARY 2003

Discrete Ginzburg-Landau solitons *(5 pages)* 026606
Nikolaos K. Efremidis and Demetrios N. Christodoulides
Gap solitons and soliton trains in finite-sized two-dimensional periodic and quasiperiodic photonic crystals *(5 pages)* 026607
Ping Xie, Zhao-Qing Zhang, and Xiangdong Zhang
Interaction of a soliton with a localized gain in a fiber Bragg grating *(15 pages)* 026608
William C. K. Mak, Boris A. Malomed, and Pak L. Chu
Soliton dynamics in a random Toda chain *(10 pages)* 026609
J. Garnier and F. Kh. Abdullaev
Duality relation for the Maxwell system *(8 pages)* 026610
F. Zolla and S. Guenneau
$(2+1)$-dimensional soliton formation in photorefractive $Bi_{12}SiO_{20}$ crystals *(8 pages)* 026611
E. Fazio, W. Ramadan, A. Belardini, A. Bosco, M. Bertolotti, A. Petris, and V. I. Vlad
Degeneracy analysis for a supercell of a photonic crystal and its application to the creation of band gaps *(10 pages)* 026612
Liang Wu, Fie Zhuang, and Sailing He
Universality of electromagnetic-field correlations within homogeneous and isotropic sources *(9 pages)* 026613
T. Setälä, K. Blomstedt, M. Kaivola, and A. T. Friberg

Computational physics

Numerical simulation of natural convection in a concentric annulus between a square outer cylinder and a circular inner cylinder using the Taylor-series-expansion and least-squares-based lattice Boltzmann method *(6 pages)* 026701
Y. Peng, Y. T. Chew, and C. Shu
Nonequilibrium relaxation analysis of Kosterlitz-Thouless phase transition *(5 pages)* 026702
Yukiyasu Ozeki, Keita Ogawa, and Nobuyasu Ito
Numerical approximation of breathers in lattices with nearest-neighbor interactions *(10 pages)* 026703
J. M. Bergamin
Vlasov model using kinetic phase point trajectories *(16 pages)* 026704
F. Kazeminezhad, S. Kuhn, and A. Tavakoli
Smoothed dissipative particle dynamics *(12 pages)* 026705
Pep Español and Mariano Revenga
Convergence of reinforcement learning algorithms and acceleration of learning *(12 pages)* 026706
A. Potapov and M. K. Ali
Simulation of wave packet tunneling of interacting identical particles *(9 pages)* 026707
Yu. E. Lozovik, A. V. Filinov, and A. S. Arkhipov
Bilinear diffusion quantum Monte Carlo methods *(10 pages)* 026708
F. Arias de Saavedra and M. H. Kalos

BRIEF REPORTS

General methods of statistical physics

Computational complexity arising from degree correlations in networks *(4 pages)* 027101
Alexei Vázquez and Martin Weigt
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A. D. Araújo, A. A. Moreira, R. N. Costa Filho, and J. S. Andrade, Jr.
Morphologies resulting from the directional propagation of fractures *(4 pages)* 027103
L. Pauchard, M. Adda-Bedia, C. Allain, and Y. Couder

(Continued)

PHYSICAL REVIEW E THIRD SERIES, VOLUME 67, NUMBER 2 FEBRUARY 2003

Equivalence of ensembles in creation-annihilation nonequilibrium models *(4 pages)* 027104
Mário J. de Oliveira

Chaos and pattern formation

Noise-induced synchronization in realistic models *(3 pages)* 027201
Daihai He, Pengliang Shi, and Lewi Stone
Saddle-node ghost-induced low-frequency fluctuations in an external-cavity laser diode *(4 pages)* 027202
F. Rogister, P. Mégret, and M. Blondel
Breaking time for the quantum chaotic attractor *(4 pages)* 027203
A. Iomin and G. M. Zaslavsky
Synchronization-based approach for estimating all model parameters of chaotic systems *(4 pages)* 027204
Rahul Konnur
Correlation between Kolmogorov-Sinai entropy and self-diffusion coefficient in simple fluids *(4 pages)* 027205
Dongchul Ihm, Young-Han Shin, Jae-Weon Lee, and Eok Kyun Lee

Nonlinear hydrodynamics and turbulence

Direct measurements of the energy of intense vorticity filaments in turbulence *(4 pages)* 027301
J. H. C. Titon and O. Cadot
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Frank Stefani and Gunter Gerbeth
Oscillatory Rayleigh-Marangoni convection in a layer heated from above: Numerical simulations with an undeformable free surface *(4 pages)* 027303
Thomas Boeck, Matthias Jurgk, and Ute Bahr

Plasma physics

Octupolar perturbation of a single ion in a Penning trap *(4 pages)* 027401
Martín Lara and J. Pablo Salas
Model of nonlinear kinetic Alfvén waves with dissipation and acceleration of energetic electrons *(4 pages)* 027402
D. J. Wu

Classical physics, including nonlinear media and photonic materials

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Grant Lythe and Franz G. Mertens
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A. Agresti, A. Ranfagni, R. Ruggeri, and P. Sandri

ERRATA

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Mihai Piscureanu and Doina Manaila-Maximean
Publisher's Note: Fast growth in phase-separating *A-B*-copolymer ternary mixtures with a chemical reaction [Phys. Rev. E **67**, 021804 (2003)] *(1 page)* . . . . . 029902(E)
Yue-jin Zhu and Yu-qiang Ma

Selected Abstracts From Other Physical Review Journals i

Cumulative Author Index ii

(Continued)