PHYSICAL REVIEW E

For editorial and subscription correspondence, please see inside front cover
(ISSN: 1539-3755)

PERIODICALS
Postmaster send address changes to:
APS Subscription Services
Suite 1NO1
2 Huntington Quadrangle
Melville, NY 11747-4502

THIRD SERIES, VOLUME 78, NUMBER 1 *CONTENTS* **JULY 2008**

PART 1: STATISTICAL, SOFT MATTER, AND BIOLOGICAL PHYSICS

Physical Review E Editorial Policies . . . . . **iii**
Physical Review E Information for Contributors . . . . . **vii**
Guidelines for PRE Section Selection . . . . . **x**

RAPID COMMUNICATIONS

Equilibrium and linear transport properties of fluids

Shear-rate-dependent structural order and viscosity of a fluid with short-range attractions *(4 pages)* . . . . . 010201(R)
William P. Krekelberg, Venkat Ganesan, and Thomas M. Truskett

Granular materials

Influence of confinement on granular penetration by impact *(4 pages)* . . . . . 010301(R)
Antoine Seguin, Yann Bertho, and Philippe Gondret

Gaussian distributions of rotational velocities in a granular medium *(4 pages)* . . . . . 010302(R)
Malte Schmick and Mario Markus

Films, interfaces, and crystal growth

Defective ground states of toroidal crystals *(4 pages)* . . . . . 010601(R)
Luca Giomi and Mark J. Bowick

Biological physics

Decay times in turnover statistics of single enzymes *(4 pages)* . . . . . 010901(R)
Martin Lindén

Growth of lipid vesicle structures: From surface fractals to mass fractals *(4 pages)* . . . . . 010902(R)
Sándalo Roldán-Vargas, Ramon Barnadas-Rodríguez, Alberto Martín-Molina, Manuel Quesada-Pérez, Joan Estelrich, and José Callejas-Fernández

Copyright 2008 by The American Physical Society

(Continued)

1539-3755(200807)78:1:1;1-4

PHYSICAL REVIEW E THIRD SERIES, VOLUME 78, NUMBER 1 JULY 2008

ARTICLES

Statistical physics

Impact of composition of extended objects on percolation on a lattice *(7 pages)* 011101
Grzegorz Kondrat

Rectifying the thermal Brownian motion of three-dimensional asymmetric objects *(8 pages)* 011102
M. van den Broek and C. Van den Broeck

Generalized Mittag-Leffler relaxation: Clustering-jump continuous-time random walk approach *(8 pages)* 011103
Agnieszka Jurlewicz, Karina Weron, and Marek Teuerle

Transition between locked and running states for dimer motion induced by periodic external driving *(6 pages)* 011104
D. Hennig, S. Martens, and S. Fugmann

Diverging curvature correction to the interfacial tension in polymer solutions *(5 pages)* 011105
Mikhail A. Anisimov and Heather J. St. Pierre

Irreversible aggregation of flexible chainlike walkers without adherence *(4 pages)* 011106
Takashi Mashiko

Lower bounds on dissipation upon coarse graining *(11 pages)* 011107
A. Gomez-Marin, J. M. R. Parrondo, and C. Van den Broeck

Collective atomic recoil laser as a synchronization transition *(13 pages)* 011108
J. Javaloyes, M. Perrin, and A Politi

Influence of thermal fluctuations on the geometry of interfaces of the quenched Ising model *(12 pages)* 011109
Federico Corberi, Eugenio Lippiello, and Marco Zannetti

Universal dependence on disorder of two-dimensional randomly diluted and random-bond $\pm J$ Ising models *(13 pages)* 011110
Martin Hasenbusch, Francesco Parisen Toldin, Andrea Pelissetto, and Ettore Vicari

Minimal model for kinetic arrest *(4 pages)* 011111
P. Pal, C. S. O'Hern, J. Blawzdziewicz, E. R. Dufresne, and R. Stinchcombe

Efficient scheme for parametric fitting of data in arbitrary dimensions *(11 pages)* 011112
Ning-Ning Pang, Wen-Jer Tzeng, and Hisen-Ching Kao

Kuramoto model with asymmetric distribution of natural frequencies *(9 pages)* 011113
Lasko Basnarkov and Viktor Urumov

Random walks on complex trees *(9 pages)* 011114
Andrea Baronchelli, Michele Catanzaro, and Romualdo Pastor-Satorras

Statistics of work performed on a forced quantum oscillator *(11 pages)* 011115
Peter Talkner, P. Sekhar Burada, and Peter Hänggi

Unified approach to the derivation of work theorems for equilibrium and steady-state, classical and quantum Hamiltonian systems *(9 pages)* 011116
M. F. Gelin and D. S. Kosov

Transport in a Lévy ratchet: Group velocity and distribution spread *(9 pages)* 011117
B. Dybiec, E. Gudowska-Nowak, and I. M. Sokolov

(Continued)

PHYSICAL REVIEW E THIRD SERIES, VOLUME 78, NUMBER 1 JULY 2008

Statistics of forced thermally activated escape events out of a metastable state: Most probable escape force and escape-force moments *(6 pages)* 011118
Mykhaylo Evstigneev

Random walks with random velocities *(5 pages)* 011119
Vasily Zaburdaev, Michael Schmiedeberg, and Holger Stark

Slow relaxation, dynamic transitions, and extreme value statistics in disordered systems *(9 pages)* 011120
K. van Duijvendijk, G. Schehr, and F. van Wijland

Crossing intervals of non-Markovian Gaussian processes *(16 pages)* 011121
Clément Sire

Asymmetric simple exclusion process with periodic boundary driving *(10 pages)* 011122
Vladislav Popkov, Mario Salerno, and Gunter M. Schütz

Large deviation function for entropy production in driven one-dimensional systems *(4 pages)* 011123
Jakob Mehl, Thomas Speck, and Udo Seifert

Casimir energies: Temperature dependence, dispersion, and anomalies *(9 pages)* 011124
I. Brevik and K. A. Milton

Intelligent tit-for-tat in the iterated prisoner's dilemma game *(8 pages)* 011125
Seung Ki Baek (백승기) and Beom Jun Kim (김범준)

Occurrence and robustness of current reversals in overdamped deterministic ratchets under symmetric forcing *(13 pages)* 011126
R. Salgado-García, G. Martínez-Mekler, and M. Aldana

Short-time critical dynamics at perfect and imperfect surfaces *(9 pages)* 011127
S. Z. Lin and B. Zheng

Front propagation in $A+B \rightarrow 2A$ reaction under subdiffusion *(5 pages)* 011128
D. Froemberg, H. Schmidt-Martens, I. M. Sokolov, and F. Sagués

Equilibrium and linear transport properties of fluids

Coarse-grained single-particle dynamics in two-dimensional solids and liquids *(14 pages)* 011201
Jörg R. Silbermann, Martin Schoen, and Sabine H. L. Klapp

Granular materials

Sediment transport in the saltation regime *(7 pages)* 011301
F. Osanloo, M. R. Kolahchi, S. McNamara, and H. J. Herrmann

Self-assembling of dry and cohesive non-Brownian spheres *(7 pages)* 011302
O. Carvente and J. C. Ruiz-Suárez

Packing fraction of crystalline structures of binary hard spheres: A general equation and application to amorphization *(7 pages)* 011303
H. J. H. Brouwers

Approximate analytical solutions in a model for highly concentrated granular-fluid flows *(10 pages)* 011304
Diego Berzi and James T. Jenkins

Birth and growth of a granular jet *(14 pages)* 011305
John R. Royer, Eric I. Corwin, Bryan Conyers, Andrew Flior, Mark L. Rivers, Peter J. Eng, and Heinrich M. Jaeger

(Continued)

PHYSICAL REVIEW E THIRD SERIES, VOLUME 78, NUMBER 1 JULY 2008

Avalanche dynamics on a rough inclined plane *(15 pages)* 011306
Tamás Börzsönyi, Thomas C. Halsey, and Robert E. Ecke

Frictionless bead packs have macroscopic friction, but no dilatancy *(17 pages)* 011307
Pierre-Emmanuel Peyneau and Jean-Noël Roux

Unjamming due to local perturbations in granular packings with and without gravity *(11 pages)* 011308
M. Reza Shaebani, Tamás Unger, and János Kertész

Colloidal dispersions, suspensions, and aggregates

Degenerate ground-state lattices of membrane inclusions *(5 pages)* 011401
K. S. Kim, Tom Chou, and Joseph Rudnick

Viscous decoupling transitions for individually dragged particles in systems with quenched disorder *(4 pages)* 011402
C. J. Olson Reichhardt and C. Reichhardt

Kinetic study of coupled field-induced aggregation and sedimentation processes arising in magnetic fluids *(9 pages)* 011403
F. Martínez-Pedrero, A. El-Harrak, J. C. Fernández-Toledano, M. Tirado-Miranda, J. Baudry, A. Schmitt, J. Bibette, and J. Callejas-Fernández

Elasticity of a polydisperse hard-sphere crystal *(7 pages)* 011404
Mingcheng Yang and Hongru Ma

Theoretical model of viscous friction inside steadily sheared foams and concentrated emulsions *(18 pages)* . . . 011405
S. Tcholakova, N. D. Denkov, K. Golemanov, K. P. Ananthapadmanabhan, and A. Lips

Structured and complex fluids

Broadband dielectric study on the water-concentration dependence of the primary and secondary processes for triethyleneglycol-water mixtures *(7 pages)* 011501
Seiichi Sudo, Naoki Shinyashiki, Yuki Arima, and Shin Yagihara

Dynamics of charge transport in planar devices *(15 pages)* 011502
F. Beunis, F. Strubbe, M. Marescaux, J. Beeckman, K. Neyts, and A. R. M. Verschueren

Ergodicity and slowing down in glass-forming systems with soft potentials: No finite-temperature singularities *(10 pages)* 011503
Jean-Pierre Eckmann and Itamar Procaccia

From elementary steps to structural relaxation: A continuous-time random-walk analysis of a supercooled liquid *(4 pages)* 011504
Oliver Rubner and Andreas Heuer

Dynamical heterogeneity in a glass-forming ideal gas *(11 pages)* 011505
Patrick Charbonneau, Chinmay Das, and Daan Frenkel

Negative differential mobility of weakly driven particles in models of glass formers *(9 pages)* 011506
Robert L. Jack, David Kelsey, Juan P. Garrahan, and David Chandler

Concentration dependence of shape and structure fluctuations of droplet microemulsions investigated by neutron spin echo spectroscopy *(10 pages)* 011507
Michihiro Nagao and Hideki Seto

(Continued)

PHYSICAL REVIEW E THIRD SERIES, VOLUME 78, NUMBER 1 JULY 2008

Films, interfaces, and crystal growth

Transition between two dendritic growth mechanisms in electrodeposition *(5 pages)* 011601
Graciela González, Michel Rosso, and Elisabeth Chassaing

Liquid-to-hexatic phase transition in a quasi-two-dimensional colloid system *(6 pages)* 011602
Xinliang Xu and Stuart A. Rice

Modification of the classical nucleation theory based on molecular simulation data for surface tension, critical nucleus size, and nucleation rate *(9 pages)* 011603
Martin Horsch, Jadran Vrabec, and Hans Hasse

Phase-field model for multiphase systems with preserved volume fractions *(7 pages)* 011604
Britta Nestler, Frank Wendler, Michael Selzer, Björn Stinner, and Harald Garcke

Growth directions of microstructures in directional solidification of crystalline materials *(13 pages)* 011605
J. Deschamps, M. Georgelin, and A. Pocheau

Liquid crystals

Flexoelectricity in nematic domain walls *(7 pages)* 011701
Steve J. Elston

Structural changes in the 6CHBT liquid crystal doped with spherical, rodlike, and chainlike magnetic particles *(5 pages)* 011702
Peter Kopčanský, Natália Tomašovičová, Martina Koneracká, Vlasta Závišová, Milan Timko, Anežka Džarová, Adriana Šprincová, Nándor Éber, Katalin Fodor-Csorba, Tibor Tóth-Katona, Aniko Vajda, and Jan Jadzyn

Smectic-*A* elastomers with weak director anchoring *(9 pages)* 011703
J. M. Adams, Mark Warner, Olaf Stenull, and T. C. Lubensky

Landau–de Gennes theory of biaxial nematics reexamined *(11 pages)* 011704
David Allender and Lech Longa

Polar steric interactions for V-shaped molecules *(8 pages)* 011705
Fulvio Bisi, Riccardo Rosso, Epifanio G. Virga, and Georges E. Durand

Regular and chaotic states in a local map description of sheared nematic liquid crystals *(6 pages)* 011706
S. M. Kamil, Sudeshna Sinha, and Gautam I. Menon

Statistical analysis of random lasing emission properties in nematic liquid crystals *(6 pages)* 011707
Sameh Ferjani, Luca Sorriso-Valvo, Antonio De Luca, Valentin Barna, Rossana De Marco, and Giuseppe Strangi

High-resolution calorimetric study of a liquid crystalline organo-siloxane tetrapode with a biaxial nematic phase *(5 pages)* 011708
George Cordoyiannis, Daniela Apreutesei, Georg H. Mehl, Christ Glorieux, and Jan Thoen

Polymers

Fluidic trapping of deformable polymers in microflows *(6 pages)* 011801
Nobuhiko Watari, Masao Doi, and Ronald G. Larson

Biological physics

Solitary waves in twist-opening models of DNA dynamics *(9 pages)* 011901
Giuseppe Gaeta and Laura Venier

(Continued)

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 78, NUMBER 1** **JULY 2008**

Indeterminacy of spatiotemporal cardiac alternans *(11 pages)* 011902
Xiaopeng Zhao

Unzipping of two random heteropolymers: Ground-state energy and finite-size effects *(12 pages)* 011903
M. V. Tamm and S. K. Nechaev

Prisoner's dilemma on a stochastic nongrowth network evolution model *(9 pages)* 011904
Vasilis Hatzopoulos and Henrik Jeldtoft Jensen

Dynamical origin of spectrally rich vocalizations in birdsong *(6 pages)* 011905
J. D. Sitt, A. Amador, F. Goller, and G. B. Mindlin

Deterministic walks with inverse-square power-law scaling are an emergent property of predators that use chemotaxis to locate randomly distributed prey *(5 pages)* 011906
A. M. Reynolds

Force-induced stretched state: Effects of temperature *(5 pages)* 011907
Sanjay Kumar and Garima Mishra

Counterion-dependent microrheological properties of *F*-actin solutions across the isotropic-nematic phase transition *(10 pages)* 011908
Jun He, Michael Mak, Yifeng Liu, and Jay X. Tang

Thermal denaturation of a native protein via spinodal decomposition in the framework of first-passage-time analysis *(10 pages)* 011909
Y. S. Djikaev and Eli Ruckenstein

Information capacity of genetic regulatory elements *(17 pages)* 011910
Gašper Tkačik, Curtis G. Callan, Jr., and William Bialek

Mechanochemical action of the dynamin protein *(16 pages)* 011911
Martin Lenz, Jacques Prost, and Jean-François Joanny

Effective potential of longitudinal interactions between microtubule protofilaments *(9 pages)* 011912
M. Neek-Amal, N. Hamedani Radja, and M. R. Ejtehadi

Effect of sensory blind zones on milling behavior in a dynamic self-propelled particle model *(5 pages)* 011913
Jonathan P. Newman and Hiroki Sayama

Spike-triggered averages for passive and resonant neurons receiving filtered excitatory and inhibitory synaptic drive *(12 pages)* 011914
Laurent Badel, Wulfram Gerstner, and Magnus J. E. Richardson

Fluctuation theorem and large deviation function for a solvable model of a molecular motor *(14 pages)* 011915
D. Lacoste, A. W.C. Lau, and K. Mallick

Packing defects and the width of biopolymer bundles *(5 pages)* 011916
Nir S. Gov

Motion by stopping: Rectifying Brownian motion of nonspherical particles *(5 pages)* 011917
Susan Sporer, Christian Goll, and Klaus Mecke

Errors in estimation of the input signal for integrate-and-fire neuronal models *(10 pages)* 011918
Enrico Bibbona, Petr Lansky, Laura Sacerdote, and Roberta Sirovich

Modeling the cardiovascular system using a nonlinear additive autoregressive model with exogenous input *(9 pages)* 011919
M. Riedl, A. Suhrbier, H. Malberg, T. Penzel, G. Bretthauer, J. Kurths, and N. Wessel

(Continued)

PHYSICAL REVIEW E THIRD SERIES, VOLUME 78, NUMBER 1 JULY 2008

Demonstration that the shear force required to separate short double-stranded DNA does not increase significantly with sequence length for sequences longer than 25 base pairs *(4 pages)* 011920
K. Hatch, C. Danilowicz, V. Coljee, and M. Prentiss

Hofmeister effect and the phase diagram of lysozyme *(6 pages)* 011921
S. Lettieri, Xiaofei Li, and J. D. Gunton

Long-range interaction effects on calcium-wave propagation *(7 pages)* 011922
W. D. Kepseu and P. Woafo

BRIEF REPORTS

Statistical physics

Radial density distribution of the metastable supersaturated vapor via restricted ensemble simulations *(4 pages)* 012101
Chu Nie and W. H. Marlow

Complementary expressions for the entropy-from-work theorem *(2 pages)* 012102
Michele Campisi

Liquid crystals

Optical imaging of the effect of in-plane fields on cholesteric liquid crystals *(4 pages)* 012701
S. A. Jewell and J. R. Sambles

Biological physics

Formation of fast spirals on heterogeneities of an excitable medium *(4 pages)* 012901
G. B. Makkes van der Deijl and A. V. Panfilov

Continuous-time formulation of reaction-diffusion processes on heterogeneous metapopulations *(4 pages)* 012902
Joan Saldaña

Nonlinear stability of vortex formation in swarms of interacting particles *(3 pages)* 012903
Mohamed H. Mabrouk and Colin R. McInnes

COMMENTS

Comment on "Steady-state properties of a totally asymmetric exclusion process with periodic structure" *(3 pages)* 013101
Rui Jiang, Mao-Bin Hu, and Qing-Song Wu

Comment on "General equilibrium shape equations of polymer chains" *(5 pages)* 013901
Ngamta Thamwattana and James M. Hill

PHYSICAL REVIEW E

For editorial and subscription correspondence, please see inside front cover
(ISSN: 1539-3755)

PERIODICALS
Postmaster send address changes to:
APS Subscription Services
Suite 1NO1
2 Huntington Quadrangle
Melville, NY 11747-4502

THIRD SERIES, VOLUME 78, NUMBER 1 *CONTENTS* **JULY 2008**

PART 2: NONLINEAR AND PLASMA PHYSICS, FLUID DYNAMICS, AND RELATED TOPICS

RAPID COMMUNICATIONS

Interdisciplinary physics

Maximum likelihood: Extracting unbiased information from complex networks *(4 pages)* . . . . . 015101(R)
Diego Garlaschelli and Maria I. Loffredo

Chaos and pattern formation

Observation-based control of rare intense events in the complex Ginzburg-Landau equation *(4 pages)* . . . . . 015201(R)
Lin Du, Qingfei Chen, Ying-Cheng Lai, and Wei Xu

Geometric phases and quantum phase transitions in open systems *(4 pages)* . . . . . 015202(R)
Alexander I. Nesterov and S. G. Ovchinnikov

Fluid dynamics

Slip coefficient in nanoscale pore flow *(4 pages)* . . . . . 015301(R)
Vlad P. Sokhan and Nicholas Quirke

Reduction of velocity fluctuations in a turbulent flow of gallium by an external magnetic field *(4 pages)* . . . . . 015302(R)
Michael Berhanu, Basile Gallet, Nicolas Mordant, and Stéphan Fauve

Limitations and failures of the Layzer model for hydrodynamic instabilities *(4 pages)* . . . . . 015303(R)
Karnig O. Mikaelian

Bifurcation of standing waves into a pair of oppositely traveling waves with oscillating amplitudes caused by a three-mode interaction *(4 pages)* . . . . . 015304(R)
A. Pinter, M. Lücke, and Ch. Hoffmann

Computational physics

Coherent structures in dissipative particle dynamics simulations of the transition to turbulence in compressible shear flows *(4 pages)* . . . . . 015701(R)
Jan-Willem van de Meent, Alexander Morozov, Ellák Somfai, Eric Sultan, and Wim van Saarloos

Copyright 2008 by The American Physical Society

(Continued)

1539-3755(200807)78:1:2;1-3

PHYSICAL REVIEW E THIRD SERIES, VOLUME 78, NUMBER 1 JULY 2008

ARTICLES

Interdisciplinary physics

Path integral approach to closed-form option pricing formulas with applications to stochastic volatility and interest rate models *(8 pages)* 016101
D. Lemmens, M. Wouters, J. Tempere, and S. Foulon

Breakup of propagating waves through the development of a transient unexcitable regime *(6 pages)* 016102
Vince Ruisi and Jichang Wang

Coevolutionary networks with homophily and heterophily *(7 pages)* 016103
Daichi Kimura and Yoshinori Hayakawa

Coevolutionary dynamics of opinions and networks: From diversity to uniformity *(4 pages)* 016104
Feng Fu and Long Wang

Enhancing synchronizability of weighted dynamical networks using betweenness centrality *(5 pages)* 016105
Mahdi Jalili, Ali Ajdari Rad, and Martin Hasler

Relaxation of synchronization on complex networks *(7 pages)* 016106
Seung-Woo Son, Hawoong Jeong, and Hyunsuk Hong

Evolving complex networks with conserved clique distributions *(6 pages)* 016107
Gregor Kaczor and Claudius Gros

Biclique communities *(9 pages)* 016108
Sune Lehmann, Martin Schwartz, and Lars Kai Hansen

Path-independent integrals to identify localized plastic events in two dimensions *(6 pages)* 016109
Mehdi Talamali, Viljo Petäjä, Damien Vandembroucq, and Stéphane Roux

Socioeconomic networks with long-range interactions *(9 pages)* 016110
Rui Carvalho and Giulia Iori

Bosonic reaction-diffusion processes on scale-free networks *(14 pages)* 016111
Andrea Baronchelli, Michele Catanzaro, and Romualdo Pastor-Satorras

Transient damage spreading and anomalous scaling in mortar crack surfaces *(5 pages)* 016112
Stéphane Morel, Daniel Bonamy, Laurent Ponson, and Elisabeth Bouchaud

Community detection in complex networks by dynamical simplex evolution *(7 pages)* 016113
V. Gudkov, V. Montealegre, S. Nussinov, and Z. Nussinov

Entropies of complex networks with hierarchically constrained topologies *(11 pages)* 016114
Ginestra Bianconi, Anthony C. C. Coolen, and Conrad J. Perez Vicente

Community detection by signaling on complex networks *(8 pages)* 016115
Yanqing Hu, Menghui Li, Peng Zhang, Ying Fan, and Zengru Di

Chaos and pattern formation

Goos-Hänchen shift and localization of optical modes in deformed microcavities *(8 pages)* 016201
Julia Unterhinninghofen, Jan Wiersig, and Martina Hentschel

Sharp versus smooth synchronization transition of locally coupled oscillators *(4 pages)* 016202
M. Ciszak, A. Montina, and F. T. Arecchi

Partially locked states in coupled oscillators due to inhomogeneous coupling *(6 pages)* 016203
Tae-Wook Ko and G. Bard Ermentrout

(Continued)

PHYSICAL REVIEW E THIRD SERIES, VOLUME 78, NUMBER 1 JULY 2008

Irregular many-body dynamics of spinor Bose-Einstein condensates in an optical lattice *(5 pages)* 016204
Guishu Chong and F. Borondo

Avoiding escapes in open dynamical systems using phase control *(8 pages)* 016205
Jesús M. Seoane, Samuel Zambrano, Stefano Euzzor, R. Meucci, F. T. Arecchi, and Miguel A.F. Sanjuán

Saffman-Taylor streamers: Mutual finger interaction in spark formation *(6 pages)* 016206
Alejandro Luque, Fabian Brau, and Ute Ebert

Hysteresis and multiple pulsing in a semiconductor disk laser with a saturable absorber *(5 pages)* 016207
Esa J. Saarinen, Jari Lyytikäinen, and Oleg G. Okhotnikov

Effect of multiple time delays on intensity fluctuation dynamics in fiber ring lasers *(19 pages)* 016208
Anthony L. Franz, Rajarshi Roy, Leah B. Shaw, and Ira B. Schwartz

Structure of characteristic Lyapunov vectors in spatiotemporal chaos *(9 pages)* 016209
Diego Pazó, Ivan G. Szendro, Juan M. López, and Miguel A. Rodríguez

Dynamics of semiconductor lasers with external multicavities *(7 pages)* 016210
Alexander Többens and Ulrich Parlitz

Continuous wavelet transform in the analysis of burst synchronization in a coupled laser system *(7 pages)* 016211
A. Bergner, R. Meucci, K. Al Naimee, M. C. Romano, M. Thiel, J. Kurths, and F. T. Arecchi

Self-localized structures in vertical-cavity surface-emitting lasers with external feedback *(7 pages)* 016212
P. V. Paulau, D. Gomila, T. Ackemann, N. A. Loiko, and W. J. Firth

Adaptive steady-state stabilization for nonlinear dynamical systems *(6 pages)* 016213
David J. Braun

Electric-field-induced wave groupings of spiral waves with oscillatory dispersion relation *(6 pages)* 016214
Jinming Luo and Meng Zhan

Wave chaos in rapidly rotating stars *(4 pages)* 016215
François Lignières and Bertrand Georgeot

Fluid dynamics

Analytical theory of forced rotating sheared turbulence: The perpendicular case *(17 pages)* 016301
Nicolas Leprovost and Eun-jin Kim

Oscillation-induced sand ripples in a circular geometry *(5 pages)* 016302
Germain Rousseaux, Joachim Kruithof, Patrice Jenffer, and José Eduardo Wesfreid

Identification of an average temperature and a dynamical pressure in a multitemperature mixture of fluids *(7 pages)* 016303
Henri Gouin and Tommaso Ruggeri

Resonant interactions of nonlinear water waves in a finite basin *(9 pages)* 016304
Elena Kartashova, Sergey Nazarenko, and Oleksii Rudenko

Simulations of liquid nanocylinder breakup with dissipative particle dynamics *(11 pages)* 016305
A. Tiwari, H. Reddy, S. Mukhopadhyay, and J. Abraham

Radial viscous fingering in miscible Hele-Shaw flows: A numerical study *(15 pages)* 016306
Ching-Yao Chen, C.-W. Huang, Hermes Gadêlha, and José A. Miranda

(Continued)

PHYSICAL REVIEW E THIRD SERIES, VOLUME 78, NUMBER 1 JULY 2008

Stability of a jet in confined pressure-driven biphasic flows at low Reynolds number in various geometries *(13 pages)* 016307
Pierre Guillot, Annie Colin, and Armand Ajdari

Tortuosity of unsaturated porous fractal materials *(11 pages)* 016308
S. W. Coleman and J. C. Vassilicos

Transition between an exothermic chemical wave front and a generic flame *(6 pages)* 016309
G. Dumazer, M. Leda, B. Nowakowski, and A. Lemarchand

Dispersion of heavy particle sets in isotropic turbulence using kinematic simulation *(17 pages)* 016310
A. Abou El-Azm Aly and F. Nicolleau

Non-Bragg resonance of surface water waves in a trough with periodic walls *(6 pages)* 016311
Yumeng Xiao, Zhiyong Tao, Weiyu He, and Xinlong Wang

Non-self-similar, partial, and robust collapse of four point vortices on a sphere *(8 pages)* 016312
Takashi Sakajo

Anomalous scaling and intermittency in three-dimensional synthetic turbulence *(18 pages)* 016313
Carlos Rosales and Charles Meneveau

Breakup of a supported drop of a viscous conducting liquid in a uniform electric field *(11 pages)* 016314
F. J. Higuera

Sivashinsky equation for corrugated flames in the large-wrinkle limit *(11 pages)* 016315
Guy Joulin and Bruno Denet

Nonlinear chemoconvection in the methylene-blue–glucose system: Two-dimensional shallow layers *(15 pages)* 016316
A. J. Pons, O. Batiste, and M. A. Bees

Onset of chaotic advection in open flows *(5 pages)* 016317
J. J. Benjamin Biemond, Alessandro P. S. de Moura, György Károlyi, Celso Grebogi, and Henk Nijmeijer

Plasma physics

Patterns of sound radiation behind pointlike charged obstacles in plasma flows *(9 pages)* 016401
P. Guio, W. J. Miloch, H. L. Pécseli, and J. Trulsen

Evolution of anisotropic turbulence in nonlinear magnetic reconnection *(6 pages)* 016402
M. Onofri and F. Malara

Dynamics of a dense laboratory plasma jet investigated using soft x-ray laser interferometry *(9 pages)* 016403
Jonathan Grava, Michael A. Purvis, Jorge Filevich, Mario C. Marconi, Jorge J. Rocca, James Dunn, Stephen J. Moon, and Vyacheslav N. Shlyaptsev

Unphysical kinetic effects in particle-in-cell modeling of laser wakefield accelerators *(17 pages)* 016404
Estelle Cormier-Michel, B. A. Shadwick, C. G. R. Geddes, E. Esarey, C. B. Schroeder, and W. P. Leemans

Formation of a cylindrical dust void in a plasma crystal due to a potential bump *(5 pages)* 016405
Yu Zhang, Xiaogang Wang, and Jinyuan Liu

Neoclassical simulation of tokamak plasmas using the continuum gyrokinetic code TEMPEST *(11 pages)* 016406
X. Q. Xu

(Continued)

PHYSICAL REVIEW E THIRD SERIES, VOLUME 78, NUMBER 1 JULY 2008

Formation and relaxation of rovibrationally excited H_2 molecules due to plasma-surface interaction *(8 pages)* 016407
O. Gabriel, D. C. Schram, and R. Engeln

Classical physics

Superluminal tunneling of microwaves in smoothly varying transmission lines *(6 pages)* 016601
A. B. Shvartsburg, M. Marklund, G. Brodin, and L. Stenflo

Experimental study of acoustical memory in lithium niobate *(6 pages)* 016602
Dao Zhou, Xiaozhou Liu, and Xiufen Gong

Nonlinear Schrödinger equation with random Gaussian input: Distribution of inverse scattering data and eigenvalues *(7 pages)* 016603
Pavlos Kazakopoulos and Aris L. Moustakas

Transmission-line analysis of ε-near-zero–filled narrow channels *(10 pages)* 016604
Andrea Alù, Mário G. Silveirinha, and Nader Engheta

Negative refractive index of metallic cross-I-shaped pairs: Origin and evolution with pair gap width *(5 pages)* 016605
Y. G. Ma, X. C. Wang, and C. K. Ong

Modulated waves and pattern formation in coupled discrete nonlinear *LC* transmission lines *(13 pages)* 016606
Fabien II Ndzana, Alidou Mohamadou, Timoléon C. Kofané, and Lars Q. English

Complex flow and reflection of evanescent waves from a nanometer-sized hole in a cylindrical waveguide *(15 pages)* 016607
T. I. Kuznetsova and V. S. Lebedev

Computational physics

Generalized local equilibrium in the cascaded lattice Boltzmann method *(5 pages)* 016701
Pietro Asinari

Analytic solution for a higher-order lattice Boltzmann method: Slip velocity and Knudsen layer *(6 pages)* 016702
Seung Hyun Kim and Heinz Pitsch

Comparison of phase-field models for surface diffusion *(17 pages)* 016703
Clemens Gugenberger, Robert Spatschek, and Klaus Kassner

Lattice Boltzmann method for simulation of compressible flows on standard lattices *(7 pages)* 016704
Nikolaos I. Prasianakis and Iliya V. Karlin

Hydrodynamics beyond Navier-Stokes: The slip flow model *(14 pages)* 016705
Wahyu P. Yudistiawan, Santosh Ansumali, and Iliya V. Karlin

Transport coefficients of off-lattice mesoscale-hydrodynamics simulation techniques *(12 pages)* 016706
Hiroshi Noguchi and Gerhard Gompper

BRIEF REPORTS

Interdisciplinary physics

Enhancement of cooperation in highly clustered scale-free networks *(4 pages)* 017101
Salvatore Assenza, Jesús Gómez-Gardeñes, and Vito Latora

(Continued)

PHYSICAL REVIEW E THIRD SERIES, VOLUME 78, NUMBER 1 JULY 2008

Chaos and pattern formation

Identifying system structure from controlled steady-state responses *(4 pages)* 017201
Dongchuan Yu and Fang Liu

Probing remnants of invariants to mediate energy exchange in highly chaotic many-dimensional systems *(4 pages)* 017202
Hiroshi Teramoto and Tamiki Komatsuzaki

Experimental observation of ragged synchronizability *(4 pages)* 017203
P. Perlikowski, B. Jagiello, A. Stefanski, and T. Kapitaniak

Fluid dynamics

Modeling shock waves in an ideal gas: Combining the Burnett approximation and Holian's conjecture *(4 pages)* 017301
Yi-guang He, Xiu-zhang Tang, and Yi-kang Pu

Quantitative modeling of bubble competition in Richtmyer-Meshkov instability *(4 pages)* 017302
Sung-Ik Sohn

Wave-number dependence of the transitions between traveling and standing vortex waves and their mixed states in the Taylor-Couette system *(4 pages)* 017303
A. Pinter, M. Lücke, and Ch. Hoffmann

Computational physics

Two-dimensional oscillator in time-dependent fields: Comparison of some exact and approximate calculations *(4 pages)* 017701
O. Chuluunbaatar, A. A. Gusev, S. I. Vinitsky, V. L. Derbov, A. Galtbayar, and T. Zhanlav

Wall boundary conditions in the lattice Boltzmann equation method for nonideal gases *(4 pages)* 017702
Taehun Lee and Lin Liu

ERRATA

Publisher's Note: Entangled dynamics of a stiff polymer [Phys. Rev. E **77**, 060904 (2008)] *(1 page)* . . . . . 019901(E)
Felix Höfling, Tobias Munk, Erwin Frey, and Thomas Franosch

Erratum: Coexistence of amplitude and frequency modulations in intracellular calcium dynamics [Phys. Rev. E **77**, 030903(R) (2008)] *(1 page)* . . . . . 019902(E)
Maurizio De Pittà, Vladislav Volman, Herbert Levine, Giovanni Pioggia, Danilo De Rossi, and Eshel Ben-Jacob

Erratum: Easily adaptable complexity measure for finite time series [Phys. Rev. E **77**, 066215 (2008)] *(1 page)* . . . . . 019903(E)
Da-Guan Ke (柯大观) and Qin-Ye Tong (童勤业)

Erratum: Global entangling properties of the coupled kicked tops [Phys. Rev. E **70**, 066216 (2004)] *(1 page)* . . . . . 019904(E)
Rafał Demkowicz-Dobrzański and Marek Kuś

Publisher's Note: Patterns of sound radiation behind pointlike charged obstacles in plasma flows [Phys. Rev. E **78**, 016401 (2008)] *(1 page)* . . . . . 019905(E)
P. Guio, W. J. Miloch, H. L. Pécseli, and J. Trulsen