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 75, NUMBER 1 *CONTENTS* **JANUARY 2007**

PART 1: SOFT MATTER AND BIOLOGICAL PHYSICS

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

EDITORIALS AND ANNOUNCEMENTS

Announcement: Beam Physics in the *Physical Review (1 page)* 010001
Anonymous

Announcement: Unification of Optics Papers in the *Physical Review (1 page)* 010002
Anonymous

RAPID COMMUNICATIONS

Granular materials

Force mobilization and generalized isostaticity in jammed packings of frictional grains *(4 pages)* . . . . . 010301(R)
Kostya Shundyak, Martin van Hecke, and Wim van Saarloos

Colloidal dispersions, suspensions, and aggregates

Probing surface characteristics of diffusion-limited-aggregation clusters with particles of variable size *(4 pages)* . . . . . 010401(R)
A. Yu. Menshutin, L. N. Shchur, and V. M. Vinokur

ARTICLES

Statistical physics

Critical exponents in metastable decay via quantum activation *(4 pages)* 011101
M. I. Dykman

Current behavior of a quantum Hamiltonian ratchet in resonance *(6 pages)* 011102
Dario Poletti, Gabriel G. Carlo, and Baowen Li

Condensates in driven aggregation processes *(8 pages)* 011103
E. Ben-Naim and P. L. Krapivsky

Synchronization transition of heterogeneously coupled oscillators on scale-free networks *(11 pages)* 011104
E. Oh, D.-S. Lee, B. Kahng, and D. Kim

Copyright 2007 by The American Physical Society

(Continued)

1539-3755(200701)75:1:1;1-S

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 75, NUMBER 1** **JANUARY 2007**

Factorization of the dephasing process in a quantum open system *(7 pages)* 011105
Y. B. Gao and C. P. Sun

Finite-size scaling of the $d=5$ Ising model embedded in a cylindrical geometry: The influence of hyperscaling violation *(7 pages)* 011106
Yoshihiro Nishiyama

Inverse melting in lattice-gas models *(10 pages)* 011107
Santi Prestipino

Extension of scaled particle theory to inhomogeneous hard particle fluids. III. Entropic force exerted on a cavity that intersects a hard wall *(21 pages)* 011108
Daniel W. Siderius and David S. Corti

Critical behavior of random fibers with mixed Weibull distribution *(5 pages)* 011109
Uma Divakaran and Amit Dutta

Piston dynamics from a microcanonical ensemble *(9 pages)* 011110
Masayuki Uranagase and Toyonori Munakata

Finite-size effect in persistence in random walks *(5 pages)* 011111
D. Chakraborty and J. K. Bhattacharjee

Maximum entropy principle explains quasistationary states in systems with long-range interactions: The example of the Hamiltonian mean-field model *(4 pages)* 011112
Andrea Antoniazzi, Duccio Fanelli, Julien Barré, Pierre-Henri Chavanis, Thierry Dauxois, and Stefano Ruffo

Phase-ordering kinetics on graphs *(15 pages)* 011113
R. Burioni, D. Cassi, F. Corberi, and A. Vezzani

Incorporating variability into an approximation formula for bond percolation thresholds of planar periodic lattices *(5 pages)* 011114
John C. Wierman, Dora Passen Naor, and Jonathan Smalletz

Random trimer tilings *(13 pages)* 011115
Anandamohan Ghosh, Deepak Dhar, and Jesper L. Jacobsen

Crystal field effect on a bilayer Bethe lattice *(10 pages)* 011116
Osman Canko and Erhan Albayrak

Effect of discontinuity in the threshold distribution on the critical behavior of a random fiber bundle *(6 pages)* 011117
Uma Divakaran and Amit Dutta

Biased random walks and propagation failure *(4 pages)* 011118
Vicenç Méndez, Sergei Fedotov, Daniel Campos, and Werner Horsthemke

Intertime jump statistics of state-dependent Poisson processes *(6 pages)* 011119
Edoardo Daly and Amilcare Porporato

Artifacts with uneven sampling of red noise *(5 pages)* 011120
Edoardo Milotti

Finite-size effects on the behavior of the susceptibility in van der Waals films bounded by strongly absorbing substrates *(15 pages)* 011121
Daniel Dantchev, Joseph Rudnick, and M. Barmatz

(Continued)

PHYSICAL REVIEW E THIRD SERIES, VOLUME 75, NUMBER 1 JANUARY 2007

Experimental test of a new equality: Measuring heat dissipation in an optically driven colloidal system *(4 pages)* 011122
Shoichi Toyabe, Hong-Ren Jiang, Takenobu Nakamura, Yoshihiro Murayama, and Masaki Sano

Random sequential adsorption of shrinking or expanding particles *(10 pages)* 011123
Arsen V. Subashiev and Serge Luryi

Advective transport in percolation clusters *(6 pages)* 011124
Matthew E. Rhodes and Martin J. Blunt

Lattice melting and rotation in perpetually pulsating equilibria *(11 pages)* 011125
C. Pichon, D. Lynden-Bell, J. Pichon, and R. Lynden-Bell

Test to determine the Markov order of a time series *(6 pages)* 011126
E. Racca, F. Laio, D. Poggi, and L. Ridolfi

Characteristics of the asymmetric simple exclusion process in the presence of quenched spatial disorder *(9 pages)* 011127
M. Ebrahim Foulaadvand, Sanaz Chaaboki, and Modjtaba Saalehi

Statistics of return intervals in long-term correlated records *(9 pages)* 011128
Jan F. Eichner, Jan W. Kantelhardt, Armin Bunde, and Shlomo Havlin

Collapsing transition of spherical tethered surfaces with many holes *(6 pages)* 011129
Hiroshi Koibuchi

Solution of a model of self-avoiding walks with multiple monomers per site on the Bethe lattice *(8 pages)* 011130
Pablo Serra and Jürgen F. Stilck

Geometrical clusters in two-dimensional random-field Ising models *(6 pages)* 011131
László Környei and Ferenc Iglói

Quantum master equations from classical Lagrangians with two stochastic forces *(10 pages)* 011132
A. V. Dodonov, S. S. Mizrahi, and V. V. Dodonov

Jarzynski equality: Connections to thermodynamics and the second law *(13 pages)* 011133
Benoit Palmieri and David Ronis

Equilibrium and linear transport properties of fluids

Spinodal of supercooled polarizable water *(7 pages)* 011201
P. Gallo, M. Minozzi, and M. Rovere

Effect of water-wall interaction potential on the properties of nanoconfined water *(8 pages)* 011202
Pradeep Kumar, Francis W. Starr, Sergey V. Buldyrev, and H. Eugene Stanley

Granular materials

Minimal size of a barchan dune *(10 pages)* 011301
E. J. R. Parteli, O. Durán, and H. J. Herrmann

Critical packing in granular shear bands *(7 pages)* 011302
S. Fazekas, J. Török, and J. Kertész

Computer simulation of model cohesive powders: Influence of assembling procedure and contact laws on low consolidation states *(26 pages)* 011303
F. A. Gilabert, J.-N. Roux, and A. Castellanos

(Continued)

PHYSICAL REVIEW E THIRD SERIES, VOLUME 75, NUMBER 1 JANUARY 2007

Phase separation of a driven granular gas in annular geometry *(8 pages)* 011304
Manuel Díez-Minguito and Baruch Meerson

Shear zones in granular materials: Optimization in a self-organized random potential *(5 pages)* 011305
J. Török, T. Unger, J. Kertész, and D. E. Wolf

Colloidal dispersions, suspensions, and aggregates

Macroion virial contribution to the osmotic pressure in charge-stabilized colloidal suspensions *(8 pages)* 011401
E. Trizac, Luc Belloni, J. Dobnikar, H. H. von Grünberg, and R. Castañeda-Priego

Hard-sphere fluid adsorbed in an annular wedge: The depletion force of hard-body colloidal physics *(11 pages)* 011402
A. R. Herring and J. R. Henderson

Point-defect dynamics in two-dimensional colloidal crystals *(7 pages)* 011403
A. Libál, C. Reichhardt, and C. J. Olson Reichhardt

Line tension and excess energy of a wall Plateau border *(6 pages)* 011404
P. I. C. Teixeira and M. A. Fortes

Ordering of two-dimensional crystals confined in strips of finite width *(20 pages)* 011405
A. Ricci, P. Nielaba, S. Sengupta, and K. Binder

Slippery diffusion-limited aggregation *(4 pages)* 011406
Clair R. Seager and Thomas G. Mason

Colloidal transport through optical tweezer arrays *(4 pages)* 011407
Yael Roichman, Victor Wong, and David G. Grier

Aging after shear rejuvenation in a soft glassy colloidal suspension: Evidence for two different regimes *(7 pages)* 011408
F. Ianni, R. Di Leonardo, S. Gentilini, and G. Ruocco

Transient filamentous network structure of a colloidal suspension excited by stepwise electric fields *(6 pages)* 011409
Yu Tian, Hongbo Zeng, Travers H. Anderson, Boxin Zhao, Patricia McGuiggan, and Jacob Israelachvili

Lamellar order, microphase structures, and glassy phase in a field theoretic model for charged colloids *(15 pages)* 011410
Marco Tarzia and Antonio Coniglio

Structured and complex fluids

Long-time behavior and different shear regimes in quenched binary mixtures *(6 pages)* 011501
G. Gonnella and A. Lamura

Connections between structural jamming, local metabasin features, and relaxation dynamics in a supercooled glassy liquid *(7 pages)* 011502
M. A. Frechero, L. M. Alarcón, E. P. Schulz, and G. A. Appignanesi

Rotational electrophoresis of striped metallic microrods *(15 pages)* 011503
Klint A. Rose, John A. Meier, George M. Dougherty, and Juan G. Santiago

Non-Gaussian nature of glassy dynamics by cage to cage motion *(6 pages)* 011504
Bart Vorselaars, Alexey V. Lyulin, K. Karatasos, and M. A. J. Michels

(Continued)

PHYSICAL REVIEW E THIRD SERIES, VOLUME 75, NUMBER 1 JANUARY 2007

Dynamic heterogeneities in a supercooled diatomic molecular system *(9 pages)* 011505
Ricardo Palomar and Gemma Sesé

Equilibrium polymerization and gas-liquid critical behavior in the Stockmayer fluid *(8 pages)* 011506
Reinhard Hentschke, Jörg Bartke, and Florian Pesth

Systematic characterization of thermodynamic and dynamical phase behavior in systems with short-ranged attraction *(9 pages)* 011507
P. Charbonneau and D. R. Reichman

Films, interfaces, and crystal growth

Mechanically driven wrinkling instability in thin film polymer bilayers *(11 pages)* 011601
J. S. Sharp, K. R. Thomas, and M. P. Weir

Importance of boundary conditions for fluctuation-induced forces between colloids at interfaces *(18 pages)* . . . 011602
Hartwig Lehle and Martin Oettel

Dynamics of growing surfaces by linear equations in 2+1 dimensions *(8 pages)* 011603
Ning-Ning Pang, Wan-Ju Li, Yu-Chiao Chang, Wen-Jer Tzeng, and Juven Wang

Interface properties and microstructural stabilization in elastically inhomogeneous multiphase systems *(15 pages)* 011604
Danny Perez and Laurent J. Lewis

Capillary condensation and orientational ordering of confined polar fluids *(15 pages)* 011605
Matthias Gramzow and Sabine H. L. Klapp

Synchronous relaxation algorithm for parallel kinetic Monte Carlo simulations of thin film growth *(8 pages)* 011606
Michael Merrick and Kristen A. Fichthorn

Liquid crystals

Unwinding of a strained cholesteric elastomer by disclination loop nucleation *(8 pages)* 011701
A. C. Callan-Jones, Robert A. Pelcovits, Robert B. Meyer, and A. F. Bower

Triply periodic smectic liquid crystals *(12 pages)* 011702
Christian D. Santangelo and Randall D. Kamien

Range of interlayer interactions in smectic-*C* liquid crystals *(10 pages)* 011703
M. B. Hamaneh and P. L. Taylor

Structure and molecular dynamics of the mesophases exhibited by an organosiloxane tetrapode with strong polar terminal groups *(11 pages)* 011704
D. Filip, C. Cruz, P. J. Sebastião, A. C. Ribeiro, M. Vilfan, T. Meyer, P. H. J. Kouwer, and G. H. Mehl

Anisotropic diffusion of light in polymer dispersed liquid crystals *(6 pages)* 011705
Alenka Mertelj and Martin Čopič

Theory of two- and three-dimensional bent-core mesophases *(18 pages)* 011706
B. Mettout

Cholesteric elastomers in external mechanical and electric fields *(18 pages)* 011707
Andreas M. Menzel and Helmut R. Brand

(Continued)

PHYSICAL REVIEW E THIRD SERIES, VOLUME 75, NUMBER 1 JANUARY 2007

Polymers

Macroscopically probing the entropic influence of ions: Deswelling neutral microgels with salt *(8 pages)* 011801
T. López-León and A. Fernández-Nieves

Critical viscoelastic behavior of polydimethylsiloxane networks around the sol-gel threshold *(10 pages)* 011802
Jennifer Gasparoux, Thomas Tixier, and Philippe Tordjeman

Motion of a sphere through a polymer solution *(10 pages)* 011803
Tai-Hsi Fan, Jan K. G. Dhont, and Remco Tuinier

Grand canonical investigations of prototypical polyelectrolyte models beyond the mean field level of approximation *(11 pages)* 011804
Stephan A. Baeurle, Magali Charlot, and Evgenij A. Nogovitsin

Biological physics

Morphogen transport in epithelia *(16 pages)* 011901
T. Bollenbach, K. Kruse, P. Pantazis, M. González-Gaitán, and F. Jülicher

Separation of long DNA chains using a nonuniform electric field: A numerical study *(5 pages)* 011902
Shin-ichiro Nagahiro, Satoyuki Kawano, and Hidetoshi Kotera

Dielectric relaxation of α-tocopherol acetate (vitamin E) *(7 pages)* 011903
K. Kaminski, S. Maslanka, J. Ziolo, M. Paluch, K. J. McGrath, and C. M. Roland

Inferring DNA sequences from mechanical unzipping data: the large-bandwidth case *(34 pages)* 011904
V. Baldazzi, S. Bradde, S. Cocco, E. Marinari, and R. Monasson

Universal laws in the force-induced unraveling of biological bonds *(7 pages)* 011905
Yuriy V. Pereverzev and Oleg V. Prezhdo

Synchronization in coupled cells with activator-inhibitor pathways *(11 pages)* 011906
S. Rajesh, Sudeshna Sinha, and Somdata Sinha

Nanosecond molecular relaxations in lipid bilayers studied by high energy-resolution neutron scattering and *in situ* diffraction *(5 pages)* 011907
Maikel C. Rheinstädter, Tilo Seydel, and Tim Salditt

Hybrid simulations of lateral diffusion in fluctuating membranes *(11 pages)* 011908
Ellen Reister-Gottfried, Stefan M. Leitenberger, and Udo Seifert

Generalization of coupled spiking models and effects of the width of an action potential on synchronization phenomena *(15 pages)* 011909
Yasuomi Daishin Sato and Masatoshi Shiino

Sequential associative memory with nonuniformity of the layer sizes *(7 pages)* 011910
Jun-nosuke Teramae and Tomoki Fukai

Dielectric dispersion of short single-stranded DNA in aqueous solutions with and without added salt *(9 pages)* 011911
Yoichi Katsumoto, Shinji Omori, Daisuke Yamamoto, Akio Yasuda, and Koji Asami

Structural network heterogeneities and network dynamics: A possible dynamical mechanism for hippocampal memory reactivation *(7 pages)* 011912
Piotr Jablonski, Gina R. Poe, and Michal Zochowski

Equation of state of looped DNA *(23 pages)* 011913
Igor M. Kulić, Hervé Mohrbach, Rochish Thaokar, and Helmut Schiessel

(Continued)

PHYSICAL REVIEW E THIRD SERIES, VOLUME 75, NUMBER 1 JANUARY 2007

Method for quantifiying conduction velocity during ventricular fibrillation *(7 pages)* 011914
Ayman Mourad and Martyn P. Nash

Markov models of genome segmentation *(10 pages)* 011915
Vivek Thakur, Rajeev K. Azad, and Ram Ramaswamy

Collecting single molecules with conventional optical tweezers *(5 pages)* 011916
Wolfgang Singer, Timo A. Nieminen, Norman R. Heckenberg, and Halina Rubinsztein-Dunlop

Role of architecture in the elastic response of semiflexible polymer and fiber networks *(14 pages)* 011917
Claus Heussinger and Erwin Frey

Feedback suppression of neural synchrony by vanishing stimulation *(8 pages)* 011918
Natalia Tukhlina, Michael Rosenblum, Arkady Pikovsky, and Jürgen Kurths

Lateral tension increases the line tension between two domains in a lipid bilayer membrane *(8 pages)* 011919
Sergey A. Akimov, Peter I. Kuzmin, Joshua Zimmerberg, and Fredric S. Cohen

Amino acid hydrophobicity and accessible surface area *(4 pages)* 011920
M. A. Moret and G. F. Zebende

Active elastic network: Cytoskeleton of the red blood cell *(6 pages)* 011921
Nir S. Gov

Complex phase synchronization in epileptic seizures: Evidence for a devil's staircase *(6 pages)* 011922
J. L. Perez Velazquez, L. Garcia Dominguez, and R. Wennberg

Effect of fluctuation in step size on actin-myosin sliding motion *(10 pages)* 011923
Yuki Kagawa

Population model of hippocampal pyramidal neurons, linking a refractory density approach to conductance-based neurons *(14 pages)* 011924
Anton V. Chizhov and Lyle J. Graham

State space method for predicting the spike times of a neuron *(8 pages)* 011925
Ryota Kobayashi and Shigeru Shinomoto

Signal enhancement in electronic detection of DNA hybridization *(4 pages)* 011926
C. Gentil, G. Philippin, and U. Bockelmann

Nonlinear dynamics of cardiac excitation-contraction coupling: An iterated map study *(13 pages)* 011927
Zhilin Qu, Yohannes Shiferaw, and James N. Weiss

Modeling spatiotemporal covariance for magnetoencephalography or electroencephalography source analysis *(13 pages)* 011928
Sergey M. Plis, J. S. George, S. C. Jun, J. Paré-Blagoev, D. M. Ranken, C. C. Wood, and D. M. Schmidt

Spiral-wave dynamics depend sensitively on inhomogeneities in mathematical models of ventricular tissue *(8 pages)* 011929
T. K. Shajahan, Sitabhra Sinha, and Rahul Pandit

BRIEF REPORTS

Equilibrium and linear transport properties of fluids

Shear waves and shocks in soft solids *(4 pages)* 012201
Hervé Tabuteau, Darek Sikorski, and John R. de Bruyn

(Continued)

PHYSICAL REVIEW E THIRD SERIES, VOLUME 75, NUMBER 1 JANUARY 2007

Structured and complex fluids

Shape of the isotropic-(para)nematic coexistence curve in sheared nanotube suspensions *(3 pages)* 012501
E. K. Hobbie

Biological physics

Semianalytical transient solution of a delayed differential equation and its application to the tracking motion in the sensory-motor system *(4 pages)* 012901
Fumihiko Ishida and Yasuji E. Sawada

Coincidence detection of inharmonic pulses in a nonlinear crystal *(4 pages)* 012902
Xavier Vidal, Pablo Balenzuela, Javier M. Buldú, Jordi Martorell, and Jordi García-Ojalvo

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 75, NUMBER 1 *CONTENTS* **JANUARY 2007**

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

RAPID COMMUNICATIONS

Interdisciplinary physics

Design and statistical properties of robust functional networks: A model study of biological signal transduction *(4 pages)* . . . . . 015101(R)
Pablo Kaluza, Mads Ipsen, Martin Vingron, and Alexander S. Mikhailov

Chaos and pattern formation

Loschmidt-echo decay from local boundary perturbations *(4 pages)* . . . . . 015201(R)
Arseni Goussev and Klaus Richter

Is the efficiency of classical simulations of quantum dynamics related to integrability? *(4 pages)* . . . . . 015202(R)
Tomaž Prosen and Marko Žnidarič

Transient and steady state of mass-conserved reaction-diffusion systems *(4 pages)* . . . . . 015203(R)
Shuji Ishihara, Mikiya Otsuji, and Atsushi Mochizuki

Plasma physics

Production of proton beams with narrow-band energy spectra from laser-irradiated ultrathin foils *(4 pages)* . . . . . 015401(R)
A. P. L Robinson and P. Gibbon

Classical physics, including nonlinear media and photonic materials

Evidence of a mobility edge for photons in two dimensions *(4 pages)* . . . . . 015601(R)
A. A. Asatryan, L. C. Botten, M. A. Byrne, R. C. McPhedran, and C. M. de Sterke

Excitability in a nonlinear magnetoacoustic resonator *(4 pages)* . . . . . 015602(R)
V. J. Sánchez-Morcillo, J. Redondo, and J. Martínez-Mora

ARTICLES

Interdisciplinary physics

Statistical mechanics of learning multiple orthogonal signals: Asymptotic theory and fluctuation effects *(13 pages)* 016101
D. C. Hoyle and M. Rattray

Copyright 2007 by The American Physical Society

(Continued)

1539-3755(200701)75:1;2;1-R

PHYSICAL REVIEW E THIRD SERIES, VOLUME 75, NUMBER 1 JANUARY 2007

Exploring complex networks through random walks *(7 pages)* 016102
Luciano da Fontoura Costa and Gonzalo Travieso

Topological structural classes of complex networks *(12 pages)* 016103
Ernesto Estrada

Statistics of fracture surfaces *(6 pages)* 016104
Stéphane Santucci, Knut Jørgen Måløy, Arnaud Delaplace, Joachim Mathiesen, Alex Hansen, Jan Øistein Haavig Bakke, Jean Schmittbuhl, Loïc Vanel, and Purusattam Ray

Analysis of aggregated tick returns: Evidence for anomalous diffusion *(9 pages)* 016105
Philipp Weber

Mean escape time in a system with stochastic volatility *(8 pages)* 016106
Giovanni Bonanno, Davide Valenti, and Bernardo Spagnolo

Interaction and breakup of inwardly rotating spiral waves in an inhomogeneous oscillatory medium *(5 pages)* 016107
Fagen Xie and James N. Weiss

Collective synchronization induced by epidemic dynamics on complex networks with communities *(5 pages)* 016108
Gang Yan, Zhong-Qian Fu, Jie Ren, and Wen-Xu Wang

Weather-driven model indicative of spatiotemporal power laws *(5 pages)* 016109
Weiguo Song, Hongyang Zheng, Jian Wang, Jian Ma, and Kohyu Satoh

Fractality in complex networks: Critical and supercritical skeletons *(14 pages)* 016110
J. S. Kim, K.-I. Goh, G. Salvi, E. Oh, B. Kahng, and D. Kim

Phase transitions in operational risk *(12 pages)* 016111
Kartik Anand and Reimer Kühn

Chaos and pattern formation

Stability of quantum motion in regular systems: A uniform semiclassical approach *(5 pages)* 016201
Wen-ge Wang, G. Casati, and Baowen Li

Hexagonal, square, and stripe patterns of the ion channel density in biomembranes *(14 pages)* 016202
Markus Hilt and Walter Zimmermann

Theory of collective firing induced by noise or diversity in excitable media *(5 pages)* 016203
C. J. Tessone, A. Scirè, R. Toral, and P. Colet

Quantum chaos and fluctuations in isolated nuclear-spin systems *(4 pages)* 016204
J. A. Ludlow and O. P. Sushkov

Magnetic field induced pattern formation in reactive membranes *(7 pages)* 016205
Sumana Dutta and Deb Shankar Ray

State differentiation by transient truncation in coupled threshold dynamics *(8 pages)* 016206
Yoshinori Watanabe and Kunihiko Kaneko

Dual synchronization of chaos in Mackey-Glass electronic circuits with time-delayed feedback *(6 pages)* 016207
Satoshi Sano, Atsushi Uchida, Shigeru Yoshimori, and Rajarshi Roy

Pattern formation of flames in radial microchannels with lean methane-air mixtures *(10 pages)* 016208
Sudarshan Kumar, Kaoru Maruta, and S. Minaev

(Continued)

PHYSICAL REVIEW E THIRD SERIES, VOLUME 75, NUMBER 1 JANUARY 2007

Bifurcations of flame filaments in chaotically mixed combustion reactions *(13 pages)* 016209
Shakti N. Menon and Georg A. Gottwald

Ragged synchronizability of coupled oscillators *(7 pages)* 016210
Andrzej Stefański, Przemyslaw Perlikowski, and Tomasz Kapitaniak

Granger causality and cross recurrence plots in rheochaos *(6 pages)* 016211
Rajesh Ganapathy, Govindan Rangarajan, and A. K. Sood

Ground-state properties of small-size nonlinear dynamical lattices *(8 pages)* 016212
P. Buonsante, P. G. Kevrekidis, V. Penna, and A. Vezzani

$1/f$ noise in a thin stochastic layer described by the discrete nonlinear Schrödinger equation *(11 pages)* 016213
C. L. Pando L. and E. J. Doedel

Chirality effect on the global structure of spiral-domain patterns in the two-dimensional complex Ginzburg-Landau equation *(6 pages)* 016214
Meng Zhan, Jinming Luo, and Jihua Gao

Separation and synchronization of chaotic signals by optimization *(7 pages)* 016215
Arturo Buscarino, Luigi Fortuna, and Mattia Frasca

Bubbles and filaments: Stirring a Cahn-Hilliard fluid *(11 pages)* 016216
Lennon Ó Náraigh and Jean-Luc Thiffeault

Long-time signatures of short-time dynamics in decaying quantum-chaotic systems *(4 pages)* 016217
T. Gorin, D. F. Martinez, and H. Schomerus

Detecting temporal and spatial correlations in pseudoperiodic time series *(10 pages)* 016218
Jie Zhang, Xiaodong Luo, Tomomichi Nakamura, Junfeng Sun, and Michael Small

Fluid dynamics

Scaling behavior of optimally structured catalytic microfluidic reactors *(4 pages)* 016301
Fridolin Okkels and Henrik Bruus

Breakdown of wind in turbulent thermal convection *(4 pages)* 016302
Ronald du Puits, Christian Resagk, and André Thess

Localized intermittent short-wavelength bursts in the high-radius ratio limit of the Taylor-Couette system *(5 pages)* 016303
C. S. Carey, A. B. Schlender, and C. D. Andereck

Regularity of inviscid shell models of turbulence *(10 pages)* 016304
Peter Constantin, Boris Levant, and Edriss S. Titi

Dynamics of viscous fingers in rotating Hele-Shaw cells with Coriolis effects *(9 pages)* 016305
Hermes Gadêlha, Nielison Brito, and José A. Miranda

Multiscale gas-kinetic simulation for continuum and near-continuum flows *(6 pages)* 016306
Kun Xu and Hongwei Liu

Whitham method for the Benjamin-Ono-Burgers equation and dispersive shocks *(5 pages)* 016307
Y. Matsuno, V. S. Shchesnovich, A. M. Kamchatnov, and R. A. Kraenkel

Experimental evidence of accelerated energy transfer in turbulence *(4 pages)* 016308
R. Labbé, C. Baudet, and G. Bustamante

(Continued)

PHYSICAL REVIEW E THIRD SERIES, VOLUME 75, NUMBER 1 JANUARY 2007

Imperfect Hopf bifurcation in spiral Poiseuille flow *(7 pages)* 016309
J. Abshagen, M. Heise, J. Langenberg, and G. Pfister

Statistical properties of four-dimensional turbulence *(20 pages)* 016310
Toshiyuki Gotoh, Yusaku Watanabe, Yoshitaka Shiga, Tohru Nakano, and Eijiro Suzuki

Suppressing the Rayleigh-Taylor instability with a rotating magnetic field *(8 pages)* 016311
Dirk Rannacher and Andreas Engel

Time-dependent rotating stratified shear flow: Exact solution and stability analysis *(5 pages)* 016312
A. Salhi and C. Cambon

Dynamics of a viscous vesicle in linear flows *(12 pages)* 016313
Petia M. Vlahovska and Ruben Serral Gracia

Single-bubble sonoluminescence in sulfuric acid and water: Bubble dynamics, stability, and continuous spectra *(5 pages)* 016314
Gabriela F. Puente, Pablo García-Martínez, and Fabián J. Bonetto

Band gaps and the Kelvin-Helmholtz instability *(6 pages)* 016315
Tom Chou

Plasma physics

Stark broadening of high principal quantum number hydrogen Balmer lines in low-density laboratory plasmas *(9 pages)* 016401
E. Stambulchik, S. Alexiou, H. R. Griem, and P. C. Kepple

Modeling of atmospheric-pressure plasma columns sustained by surface waves *(14 pages)* 016402
Y. Kabouzi, D. B. Graves, E. Castaños-Martínez, and M. Moisan

High-current fast electron beam propagation in a dielectric target *(15 pages)* 016403
Ondrej Klimo, V. T. Tikhonchuk, and A. Debayle

Fluorescent microspheres as tracer particles in dusty plasmas *(5 pages)* 016404
Tobias Miksch and André Melzer

Superdiffusion in two-dimensional Yukawa liquids *(5 pages)* 016405
Bin Liu and J. Goree

Nonequilibrium phenomena and determination of plasma parameters in the hot core of the cathode region in free-burning arc discharges *(13 pages)* 016406
Gerrit Kühn and Manfred Kock

Powerful terahertz emission from laser wakefields in inhomogeneous magnetized plasmas *(7 pages)* 016407
Hui-Chun Wu, Zheng-Ming Sheng, Quan-Li Dong, Han Xu, and Jie Zhang

Classical physics, including nonlinear media and photonic materials

Long distance stability of gap solitons *(7 pages)* 016601
T. Richter, K. Motzek, and F. Kaiser

Surface elastic waves in granular media under gravity and their relation to booming avalanches *(13 pages)* . . . 016602
L. Bonneau, B. Andreotti, and E. Clément

Nonlinear wave mixing and susceptibility properties of negative refractive index materials *(5 pages)* 016603
Aref Chowdhury and John A. Tataronis

(Continued)

PHYSICAL REVIEW E THIRD SERIES, VOLUME 75, NUMBER 1 JANUARY 2007

Metamaterial of rod pairs standing on gold plate and its negative refraction property in the far-infrared frequency regime *(4 pages)* 016604
F. M. Wang, H. Liu, T. Li, Z. G. Dong, S. N. Zhu, and X. Zhang

Acoustic localization in weakly compressible elastic media containing random air bubbles *(9 pages)* 016605
Bin Liang and Jian-chun Cheng

Onset instability of a parametrically excited pendulum array *(5 pages)* 016606
Weizhong Chen, Wengang Lin, and Yifei Zhu

X, *Y*, and *Z* waves: Extended structures in nonlinear lattices *(6 pages)* 016607
P. G. Kevrekidis, J. Gagnon, D. J. Frantzeskakis, and B. A. Malomed

Hamiltonian formulation of coupled-mode theory in waveguiding structures *(14 pages)* 016608
Philip Chak, Rajiv Iyer, J. S. Aitchison, and J. E. Sipe

Wrinkling of a bilayer membrane *(6 pages)* 016609
A. Concha, J. W. McIver, III, P. Mellado, D. Clarke, O. Tchernyshyov, and R. L. Leheny

Dynamics of fast and slow pulse propagation through a microsphere–optical-fiber system *(5 pages)* 016610
Kouki Totsuka and Makoto Tomita

Polarization dynamics of the fundamental vector soliton of isotropic Kerr media *(10 pages)* 016611
Michaël Delqué, Gil Fanjoux, and Thibaut Sylvestre

Surface quality and surface waves on subwavelength-structured silver films *(4 pages)* 016612
G. Gay, O. Alloschery, J. Weiner, H. J. Lezec, C. O'Dwyer, M. Sukharev, and T. Seideman

Soliton complexes in dissipative systems: Vibrating, shaking, and mixed soliton pairs *(9 pages)* 016613
J. M. Soto-Crespo, Ph. Grelu, N. Akhmediev, and N. Devine

Multifrequency third-harmonic generation by red-shifting solitons in a multimode photonic-crystal fiber *(7 pages)* 016614
A. B. Fedotov, A. A. Voronin, E. E. Serebryannikov, I. V. Fedotov, A. V. Mitrofanov, A. A. Ivanov, D. A. Sidorov-Biryukov, and A. M. Zheltikov

Solitons in strongly driven discrete nonlinear Schrödinger-type models *(11 pages)* 016615
Josselin Garnier, Fatkhulla Kh. Abdullaev, and Mario Salerno

Real-time recoverable and irrecoverable energy in dispersive-dissipative dielectrics *(12 pages)* 016616
S. Glasgow, M. Meilstrup, J. Peatross, and M. Ware

Delocalization of classical waves in highly anisotropic random media *(9 pages)* 016617
Alex Small and David Pine

Computational physics

Polynomial scheme for time evolution of open and closed quantum systems *(8 pages)* 016701
Jun Jing and H. R. Ma

Path integral Monte Carlo study of the interacting quantum double-well model: Quantum phase transition and phase diagram *(6 pages)* 016702
Dong-Hee Kim, Yu-Cheng Lin, and Heiko Rieger

Feynman perturbation expansion for the price of coupon bond options and swaptions in quantum finance. I. Theory *(17 pages)* 016703
Belal E. Baaquie

(Continued)

PHYSICAL REVIEW E THIRD SERIES, VOLUME 75, NUMBER 1 JANUARY 2007

Feynman perturbation expansion for the price of coupon bond options and swaptions in quantum finance. II. Empirical *(8 pages)* 016704
Belal E. Baaquie and Cui Liang

Entropic sampling of flexible polyelectrolytes within the Wang-Landau algorithm *(10 pages)* 016705
N. A. Volkov, P. N. Vorontsov-Velyaminov, and A. P. Lyubartsev

Precursors of extreme increments *(13 pages)* 016706
Sarah Hallerberg, Eduardo G. Altmann, Detlef Holstein, and Holger Kantz

Nonstationary Gaussian processes in wavelet domain: Synthesis, estimation, and significance testing *(14 pages)* 016707
D. Maraun, J. Kurths, and M. Holschneider

Fractional Fokker-Planck dynamics: Stochastic representation and computer simulation *(6 pages)* 016708
Marcin Magdziarz, Aleksander Weron, and Karina Weron

BRIEF REPORTS

Chaos and pattern formation

Generalized coupling in the Kuramoto model *(4 pages)* 017201
G. Filatrella, N. F. Pedersen, and K. Wiesenfeld

Classical physics, including nonlinear media and photonic materials

Rotating cavity solitons in semiconductor microresonators *(4 pages)* 017601
O. Egorov and F. Lederer

Computational physics

Adaptive molecular resolution via a continuous change of the phase space dimensionality *(4 pages)* 017701
Matej Praprotnik, Kurt Kremer, and Luigi Delle Site

Controlling the accuracy of unconditionally stable algorithms in the Cahn-Hilliard equation *(4 pages)* 017702
Mowei Cheng and James A. Warren

COMMENTS

Comment on "Adaptive-feedback control algorithm" *(3 pages)* 018201
Wenlian Lu

Comment on "Shock-wave-induced enhancement of optical emission in nitrogen afterglow plasma" *(3 pages)* 018401
G. V. Naidis

ERRATA

Erratum: Finite time collapse of *N* classical fields described by coupled nonlinear Schrödinger equations [Phys. Rev. E **74**, 047602 (2006)] *(1 page)* . . . . . 019901(E)
D. C. Roberts and A. C. Newell

(Continued)

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 75, NUMBER 1** **JANUARY 2007**

Erratum: Designed interaction potentials via inverse methods for self-assembly [Phys. Rev. E **73**, 011406 (2006)] *(1 page)* . . . . . 019902(E)
Mikael Rechtsman, Frank Stillinger, and Salvatore Torquato

Publisher's Note: Exactly solvable cellular automaton traffic jam model [Phys. Rev. E **74**, 061115 (2006)] *(1 page)* . . . . . 019903(E)
Michael J. Kearney

Publisher's Note: Hexagonal, square, and stripe patterns of the ion channel density in biomembranes [Phys. Rev. E **75**, 016202 (2007)] *(1 page)* . . . . . 019904(E)
Markus Hilt and Walter Zimmermann

Publisher's Note: Triply periodic smectic liquid crystals [Phys. Rev. E **75**, 011702 (2007)] *(1 page)* . . . . . 019905(E)
Christian D. Santangelo and Randall D. Kamien

Publisher's Note: Stark Broadening of high principal quantum number hydrogen Balmer lines in low-density laboratory plasmas [Phys. Rev. E **75**, 016401 (2007)] *(1 page)* . . . . . 019906(E)
E. Stambulchik, S. Alexiou, H. R. Griem, and P. C. Kepple

Publisher's Note: Dielectric dispersion of short single-stranded DNA in aqueous solutions with and without added salt [Phys. Rev. E **75**, 011911 (2007)] *(1 page)* . . . . . 019907(E)
Yoichi Katsumoto, Shinji Omori, Daisuke Yamamoto, Akio Yasuda, and Koji Asami

Publisher's Note: $1/f$ noise in a thin stochastic layer described by the discrete nonlinear Schrödinger equation [Phys. Rev. E **75**, 016213 (2006)] *(1 page)* . . . . . 019908(E)
C. L. Pando L. and E. J. Doedel