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 76, NUMBER 6 *CONTENTS* **DECEMBER 2007**

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

RAPID COMMUNICATIONS

Chaos and pattern formation

Emergence of chaotic itinerancy in simple ecological systems *(4 pages)* . . . . . 065201(R)
Pan-Jun Kim, Tae-Wook Ko, Hawoong Jeong, Kyoung J. Lee, and Seung Kee Han

Plasma physics

Active manipulation of the spatial energy distribution of laser-accelerated proton beams *(4 pages)* . . . . . 065401(R)
D. C. Carroll, P. McKenna, O. Lundh, F. Lindau, C.-G. Wahlström, S. Bandyopadhyay, D. Pepler, D. Neely, S. Kar, P. T. Simpson, K. Markey, M. Zepf, C. Bellei, R. G. Evans, R. Redaelli, D. Batani, M. H. Xu, and Y. T. Li

Classical physics

Near-perfect absorption by a flat metamaterial plate *(4 pages)* . . . . . 065601(R)
Vladimir N. Kisel and Andrey N. Lagarkov

Computational physics

Dynamics and optimal number of replicas in parallel tempering simulations *(4 pages)* . . . . . 065701(R)
Walter Nadler and Ulrich H. E. Hansmann

ARTICLES

Interdisciplinary physics

Distance distribution in random graphs and application to network exploration *(8 pages)* 066101
Vincent D. Blondel, Jean-Loup Guillaume, Julien M. Hendrickx, and Raphaël M. Jungers

Modularity and community detection in bipartite networks *(9 pages)* 066102
Michael J. Barber

Buoyant force and sinking conditions of a hydrophobic thin rod floating on water *(9 pages)* 066103
Jian-Lin Liu, Xi-Qiao Feng, and Gang-Feng Wang

Finite-size scaling of synchronized oscillation on complex networks *(7 pages)* 066104
Hyunsuk Hong, Hyunggyu Park, and Lei-Han Tang

Copyright 2007 by The American Physical Society

1539-3755(200712)76:6:2;1-H

(Continued)

PHYSICAL REVIEW E THIRD SERIES, VOLUME 76, NUMBER 6 DECEMBER 2007

Dynamical affinity in opinion dynamics modeling *(4 pages)* 066105
Franco Bagnoli, Timoteo Carletti, Duccio Fanelli, Alessio Guarino, and Andrea Guazzini

Transport on weighted networks: When the correlations are independent of the degree *(8 pages)* 066106
José J. Ramasco and Bruno Gonçalves

Chaos and pattern formation

Stopping and initiation of a chemical pulse at the interface of excitable media with different diffusivity *(8 pages)* 066201
Jun Miyazaki and Shuichi Kinoshita

Suppressing noise-induced intensity pulsations in semiconductor lasers by means of time-delayed feedback *(9 pages)* 066202
Valentin Flunkert and Eckehard Schöll

Stochastic resonance on excitable small-world networks via a pacemaker *(7 pages)* 066203
Matjaž Perc

Peeling bifurcations of toroidal chaotic attractors *(7 pages)* 066204
Christophe Letellier, Robert Gilmore, and Timothy Jones

Finding periodic orbits of higher-dimensional flows by including tangential components of trajectory motion *(13 pages)* 066205
Yang Wei Koh and Kazuo Takatsuka

Control of rare intense events in spatiotemporally chaotic systems *(9 pages)* 066206
Viktor Nagy and Edward Ott

Detecting synchronization clusters in multivariate time series via coarse-graining of Markov chains *(8 pages)* 066207
Carsten Allefeld and Stephan Bialonski

Detection of synchronization between chaotic signals: An adaptive similarity-based approach *(11 pages)* 066208
Shyan-Shiou Chen, Li-Fen Chen, Yu-Te Wu, Yu-Zu Wu, Po-Lei Lee, Tzu-Chen Yeh, and Jen-Chuen Hsieh

Control of spatially patterned synchrony with multisite delayed feedback *(6 pages)* 066209
C. Hauptmann, O. Omel'chenko, O. V. Popovych, Y. Maistrenko, and P. A. Tass

Intermittency transition to generalized synchronization in coupled time-delay systems *(13 pages)* 066210
D. V. Senthilkumar and M. Lakshmanan

Fast Hamiltonian chaos: Heat bath without thermodynamic limit *(7 pages)* 066211
Anja Riegert, Wolfram Just, Nilüfer Baba, and Holger Kantz

Symmetry-breaking study with deformed ensembles *(5 pages)* 066212
J. X. de Carvalho, M. S. Hussein, M. P. Pato, and A. J. Sargeant

Classical dynamics of the time-dependent elliptical billiard *(14 pages)* 066213
Florian Lenz, Fotis K. Diakonos, and Peter Schmelcher

Fluid dynamics

Growth of surface undulations at the Rosensweig instability *(11 pages)* 066301
Holger Knieling, Reinhard Richter, Ingo Rehberg, Gunar Matthies, and Adrian Lange

(Continued)

PHYSICAL REVIEW E THIRD SERIES, VOLUME 76, NUMBER 6 DECEMBER 2007

Turbulence with combined stratification and rotation: Limitations of Corrsin's hypothesis *(13 pages)* 066302
F. Nicolleau and G. Yu

Chaotic mixing induced by a magnetic chain in a rotating magnetic field *(11 pages)* 066303
Tae Gon Kang, Martien A. Hulsen, Patrick D. Anderson, Jaap M. J. den Toonder, and Han E. H. Meijer

Effect of surrounding tissue on propagation of axisymmetric waves in arteries *(8 pages)* 066304
K. Jagielska, D. Trzupek, M. Lepers, A. Pelc, and P. Zieliński

Stability and nonlinear dynamics of solitary waves generated by subcritical oscillatory instability under the action of feedback control *(10 pages)* 066305
Y. Kanevsky and A. A. Nepomnyashchy

Measurement of Newtonian fluid slip using a torsional ultrasonic oscillator *(12 pages)* 066306
G. R. Willmott and J. L. Tallon

Comparison between numerical and experimental results on thermoconvective instabilities of a high-Prandtl-number liquid *(10 pages)* 066307
Emilien Sauvage, Laetitia Jacoutot, Yves Fautrelle, Annie Gagnoud, Laure Blumenfeld, Eric Favre, and François Daviaud

Ekman-Hartmann layer in a magnetohydrodynamic Taylor-Couette flow *(8 pages)* 066308
Jacek Szklarski and Günther Rüdiger

Lattice-Boltzmann simulation of solvent diffusion into oil-saturated porous media *(12 pages)* 066309
Can Ulas Hatiboglu and Tayfun Babadagli

Large-scale instability in a sheared nonhelical turbulence: Formation of vortical structures *(11 pages)* 066310
Tov Elperin, Ilia Golubev, Nathan Kleeorin, and Igor Rogachevskii

Splashing of liquids: Interplay of surface roughness with surrounding gas *(5 pages)* 066311
Lei Xu, Loreto Barcos, and Sidney R. Nagel

Isotropy and the Kármán-Howarth-Kolmogorov relation in experimental and numerical turbulence *(11 pages)* 066312
Masanori Takaoka, Hideaki Mouri, Akihiro Hori, and Yoshihide Kawashima

Effective slip boundary conditions for flows over nanoscale chemical heterogeneities *(5 pages)* 066313
S. C. Hendy and N. J. Lund

Model of compactons on jet streams and their collapse *(15 pages)* 066314
V. Goncharov and V. Pavlov

Concentration fluctuations of large Stokes number particles in a one-dimensional random velocity field *(7 pages)* 066315
Piero Olla and Raffaella M. Vuolo

Plasma physics

Long- and short-lived electrons with anomalously high collision rates in laser-ionized gases *(11 pages)* 066401
Tobias Kampfrath, Dirk O. Gericke, Luca Perfetti, Petra Tegeder, Martin Wolf, and Christian Frischkorn

Plasma fluctuations as Markovian noise *(9 pages)* 066402
B. Li, R. D. Hazeltine, and K. W. Gentle

(Continued)

PHYSICAL REVIEW E THIRD SERIES, VOLUME 76, NUMBER 6 DECEMBER 2007

Relativistic laser channeling in plasmas for fast ignition *(5 pages)* 066403
A. L. Lei, A. Pukhov, R. Kodama, T. Yabuuchi, K. Adumi, K. Endo, R. R. Freeman, H. Habara, Y. Kitagawa, K. Kondo, G. R. Kumar, T. Matsuoka, K. Mima, H. Nagatomo, T. Norimatsu, O. Shorokhov, R. Snavely, X. Q. Yang, J. Zheng, and K. A. Tanaka

Temperature equilibration rate with Fermi-Dirac statistics *(21 pages)* 066404
Lowell S. Brown and Robert L. Singleton, Jr.

Numerical modeling of the electrical breakdown and discharge properties of laser-generated plasma channels *(11 pages)* 066405
Tz. B. Petrova, H. D. Ladouceur, and A. P. Baronavski

Classical physics

Sine-Gordon ratchets with general periodic, additive, and parametric driving forces *(9 pages)* 066601
Elías Zamora-Sillero, Niurka R. Quintero, and Franz G. Mertens

Solitons in anharmonic chains with negative group velocity *(5 pages)* 066602
Edward Arévalo

Formation, control, and dynamics of *N* localized structures in the Peyrard-Bishop model *(13 pages)* 066603
Elías Zamora-Sillero, A. V. Shapovalov, and Francisco J. Esteban

Cubic-quintic solitons in the checkerboard potential *(10 pages)* 066604
Rodislav Driben, Boris A. Malomed, Arthur Gubeskys, and Joseph Zyss

Feigel effect: Extraction of momentum from vacuum? *(10 pages)* 066605
Ole Jakob Birkeland and Iver Brevik

Symmetry breaking in linearly coupled dynamical lattices *(9 pages)* 066606
G. Herring, P. G. Kevrekidis, B. A. Malomed, R. Carretero-González, and D. J. Frantzeskakis

Computational physics

Proposed approximation for contact angles in Shan-and-Chen-type multicomponent multiphase lattice Boltzmann models *(6 pages)* 066701
Haibo Huang, Daniel T. Thorne, Jr., Marcel G. Schaap, and Michael C. Sukop

Generator estimation of Markov jump processes based on incomplete observations nonequidistant in time *(8 pages)* 066702
Philipp Metzner, Illia Horenko, and Christof Schütte

Lattice-switch Monte Carlo simulation for binary hard-sphere crystals *(10 pages)* 066703
A. N. Jackson and G. J. Ackland

Kinetically reduced local Navier-Stokes equations for simulation of incompressible viscous flows *(9 pages)* 066704
S. Borok, S. Ansumali, and I. V. Karlin

Least-squares dynamic approximation method for evolution of uncertainty in initial conditions of dynamical systems *(13 pages)* 066705
Carlos Pantano and Babak Shotorban

Genetic embedded matching approach to ground states in continuous-spin systems *(16 pages)* 066706
Martin Weigel

Lattice Boltzmann method for weakly ionized isothermal plasmas *(8 pages)* 066707
Huayu Li and Hyungson Ki

(Continued)

PHYSICAL REVIEW E THIRD SERIES, VOLUME 76, NUMBER 6 DECEMBER 2007

Numerical approach to the fractional Klein-Kramers equation *(5 pages)* 066708
Marcin Magdziarz and Aleksander Weron

Full-scale solutions to particle-laden flows: Multidirect forcing and immersed boundary method *(9 pages)* 066709
Kun Luo, Zeli Wang, Jianren Fan, and Kefa Cen

BRIEF REPORTS

Chaos and pattern formation

Partial synchronization on a network with different classes of oscillators *(4 pages)* 067201
Emmanuel Gräve de Oliveira and Thomas Braun

Fluid dynamics

Time-dependent lift force acting on a particle moving arbitrarily in a pure shear flow, at small Reynolds number *(4 pages)* 067301
F. Candelier and M. Souhar

Plasma physics

Magnetosonic solitons in a fermionic quantum plasma *(4 pages)* 067401
M. Marklund, B. Eliasson, and P. K. Shukla

COMMENTS

Comment on “Helical magnetorotational instability in magnetized Taylor-Couette flow” *(2 pages)* 068301
G. Rüdiger and R. Hollerbach

ERRATA

Erratum: Enlargement of zero averaged refractive index gaps in the photonic heterostructures containing negative-index materials [Phys. Rev. E **76**, 056604 (2007)] *(1 page)* . . . . . 069901(E)
Yuanjiang Xiang, Xiaoyu Dai, Shuangchun Wen, and Dianyuan Fan

Erratum: Coupled double-distribution-function lattice Boltzmann method for the compressible Navier-Stokes equations [Phys. Rev. E **76**, 056705 (2007)] *(1 page)* . . . . . 069902(E)
Q. Li, Y. L. He, Y. Wang, and W. Q. Tao