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 82, NUMBER 6 *CONTENTS* **DECEMBER 2010**

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

RAPID COMMUNICATIONS

Chaos and pattern formation

Experimental confirmation of chaotic phase synchronization in coupled time-delayed electronic circuits *(4 pages)* . . . . . 065201(R)
D. V. Senthilkumar, K. Srinivasan, K. Murali, M. Lakshmanan, and J. Kurths

Subharmonic phase clusters in the complex Ginzburg-Landau equation with nonlinear global coupling *(4 pages)* . . . . . 065202(R)
Vladimir García-Morales, Alexander Orlov, and Katharina Krischer

Fluid dynamics

Banded spatiotemporal chaos in sheared nematogenic fluids *(4 pages)* . . . . . 065301(R)
Debarshini Chakraborty, Chandan Dasgupta, and A. K. Sood

Dynamics and stability of Purcell's three-link microswimmer near a wall *(4 pages)* . . . . . 065302(R)
Yizhar Or

ARTICLES

Interdisciplinary physics

Amplitude-frequency fluctuations of the seasonal cycle, temperature anomalies, and long-range persistence of climate records *(7 pages)* 066101
A. Vecchio and V. Carbone

Quantifying network heterogeneity *(8 pages)* 066102
Ernesto Estrada

Tests of nonuniversality of the stock return distributions in an emerging market *(8 pages)* 066103
Guo-Hua Mu (牟国华) and Wei-Xing Zhou (周炜星)

Opinion formation on adaptive networks with intensive average degree *(7 pages)* 066104
B. Schmittmann and Abhishek Mukhopadhyay

Copyright 2010 by The American Physical Society

(Continued)

1539-3755(201012)82:6:2;1-1

PHYSICAL REVIEW E THIRD SERIES, VOLUME 82, NUMBER 6 DECEMBER 2010

Dynamic fragmentation of a ring: Predictable fragment mass distributions *(6 pages)* 066105
S. Levy, J. F. Molinari, I. Vicari, and A. C. Davison

Measuring the significance of community structure in complex networks *(6 pages)* 066106
Yanqing Hu, Yuchao Nie, Hua Yang, Jie Cheng, Ying Fan, and Zengru Di

Two-lane traffic-flow model with an exact steady-state solution *(7 pages)* 066107
Masahiro Kanai

Life span in online communities *(5 pages)* 066108
A. Grabowski and R. A. Kosiński

Topologically biased random walk and community finding in networks *(7 pages)* 066109
Vinko Zlatić, Andrea Gabrielli, and Guido Caldarelli

Dynamic theory of cascades on finite clustered random networks with a threshold rule *(10 pages)* 066110
Daniel E. Whitney

Statistical properties of record-breaking temperatures *(10 pages)* 066111
William I. Newman, Bruce D. Malamud, and Donald L. Turcotte

Scaling relation for a compact crumpled thin sheet *(5 pages)* 066112
Wubin Bai, Yen-Chih Lin, Tzon-Kun Hou, and Tzay-Ming Hong

Persistent collective trend in stock markets *(9 pages)* 066113
Emeric Balogh, Ingve Simonsen, Bálint Zs. Nagy, and Zoltán Néda

Cooperation and punishment in an adversarial game: How defectors pave the way to a peaceful society *(7 pages)* 066114
M. B. Short, P. J. Brantingham, and M. R. D'Orsogna

Exploring the randomness of directed acyclic networks *(13 pages)* 066115
Joaquín Goñi, Bernat Corominas-Murtra, Ricard V. Solé, and Carlos Rodríguez-Caso

Role of local order in the small-scale plasticity of model amorphous materials *(11 pages)* 066116
C. Fusco, T. Albaret, and A. Tanguy

Quantifying system order for full and partial coarse graining *(8 pages)* 066117
B. Roy Frieden and Raymond J. Hawkins

Random graphs containing arbitrary distributions of subgraphs *(12 pages)* 066118
Brian Karrer and M. E. J. Newman

Chaos and pattern formation

Chimera states induced by spatially modulated delayed feedback *(13 pages)* 066201
Oleh E. Omel'chenko, Yuri L. Maistrenko, and Peter A. Tass

From incoherence to synchronicity in the network Kuramoto model *(16 pages)* 066202
Alexander C. Kalloniatis

Ewald sums for one dimension *(7 pages)* 066203
Bruce N. Miller and Jean-Louis Rouet

Noisy scattering dynamics in the randomly driven Hénon-Heiles oscillator *(10 pages)* 066204
Chunbiao Gan, Shixi Yang, and Hua Lei

Ehrenfest-time dependence of quantum transport corrections and spectral statistics *(12 pages)* 066205
Daniel Waltner and Jack Kuipers

(Continued)

PHYSICAL REVIEW E THIRD SERIES, VOLUME 82, NUMBER 6 DECEMBER 2010

Kinematics of spiral waves under feedback-related spatial gradients *(6 pages)* 066206
Ningjie Wu, Hongjun Gao, and Heping Ying

Semiclassical quantization of the diamagnetic hydrogen atom with near–action-degenerate periodic-orbit bunches *(9 pages)* 066207
Jan Gehrke, Jörg Main, and Günter Wunner

Coexistence of stable stationary behavior and partial synchrony in an all-to-all coupled spiking neural network *(11 pages)* 066208
Filip De Smet and Dirk Aeyels

Manipulation of diffusion coefficients via periodic vertical forcing controls the mechanism of Turing pattern formation *(6 pages)* 066209
Jacobo Guiu-Souto, Jorge Carballido-Landeira, Vicente Pérez-Villar, and Alberto P. Muñuzuri

Adaptive identification of time delays in nonlinear dynamical models *(11 pages)* 066210
Huanfei Ma, Bing Xu, Wei Lin, and Jianfeng Feng

Cyclic competition of mobile species on continuous space: Pattern formation and coexistence *(8 pages)* 066211
Xuan Ni, Wen-Xu Wang, Ying-Cheng Lai, and Celso Grebogi

Fluid dynamics

Direct-numerical-simulation-based measurement of the mean impulse response of homogeneous isotropic turbulence *(10 pages)* 066301
Marco Carini and Maurizio Quadrio

Rapid path to transition via nonlinear localized optimal perturbations in a boundary-layer flow *(5 pages)* 066302
S. Cherubini, P. De Palma, J.-Ch. Robinet, and A. Bottaro

Strong polymer-turbulence interactions in viscoelastic turbulent channel flow *(19 pages)* 066303
V. Dallas, J. C. Vassilicos, and G. F. Hewitt

Reexamination of the infrared properties of randomly stirred hydrodynamics *(12 pages)* 066304
A. Berera and S. R. Yoffe

Three-dimensional double-diffusive Marangoni convection in a cubic cavity with horizontal temperature and concentration gradients *(14 pages)* 066305
Jie-Min Zhan, Zhi-Wu Chen, Yok-Sheung Li, and Yu-Hua Nie

Coriolis effects on rotating Hele-Shaw flows: A conformal-mapping approach *(10 pages)* 066306
José A. Miranda, Hermes Gadêlha, and Alan T. Dorsey

Autocatalytic plume pinch-off *(9 pages)* 066307
Michael C. Rogers, Abdelfattah Zebib, and Stephen W. Morris

Characterization of the hairpin vortex solution in plane Couette flow *(7 pages)* 066308
Sotos C. Generalis and Tomoaki Itano

Large-scale molecular dynamics verification of the Rayleigh-Plesset approximation for collapse of nanobubbles *(7 pages)* 066309
Robert Hołyst, Marek Litniewski, and Piotr Garstecki

Drag reduction by polymer additives from turbulent spectra *(9 pages)* 066310
Esteban Calzetta

Acoustically driven cavitation cluster collapse in planar geometry *(7 pages)* 066311
Ivan van der Kroon, Pedro A. Quinto-Su, Fenfang Li, and Claus-Dieter Ohl

(Continued)

PHYSICAL REVIEW E THIRD SERIES, VOLUME 82, NUMBER 6 DECEMBER 2010

Coarsening of capillary drops coupled by conduit networks *(11 pages)* 066312
Henrik B. van Lengerich, Michael J. Vogel, and Paul H. Steen

Direct numerical simulations of statistically steady, homogeneous, isotropic fluid turbulence with polymer additives *(9 pages)* 066313
Prasad Perlekar, Dhrubaditya Mitra, and Rahul Pandit

Plasma physics

Diffusion of neon in white dwarf stars *(5 pages)* 066401
J. Hughto, A. S. Schneider, C. J. Horowitz, and D. K. Berry

Nonlinear dynamics of resonant interactions between wave packets and particle distributions with loss-cone-like structures *(14 pages)* 066402
C. Krafft, A. Volokitin, and A. Zaslavsky

Entropy production rate in a flux-driven self-organizing system *(8 pages)* 066403
Y. Kawazura and Z. Yoshida

Effects of bounded space in the solutions of time-space fractional diffusion equation *(10 pages)* 066404
M. H. Allami and B. Shokri

Classical physics

Transformation of nonlinear behaviors: From bright- to dark-gap soliton in a one-dimensional photonic crystal containing a nonlinear indefinite metamaterial defect *(7 pages)* 066601
Wei Zhang, Yuanyuan Chen, Peng Hou, Jielong Shi, and Qi Wang

Enhancement of photoacoustic emission through terahertz-field-driven electron motions *(6 pages)* 066602
Jingle Liu, Benjamin Clough, and X.-C. Zhang

Description of the suppression of the soliton self-frequency shift by bandwidth-limited amplification *(8 pages)* 066603
Ivan M. Uzunov

Computational physics

Lattice Boltzmann equation method for multiple immiscible continuum fluids *(22 pages)* 066701
T. J. Spencer, I. Halliday, and C. M. Care

Stability and dynamical properties of Cooper-Shepard-Sodano compactons *(11 pages)* 066702
Bogdan Mihaila, Andres Cardenas, Fred Cooper, and Avadh Saxena

Interpolated lattice Boltzmann boundary conditions for surface reaction kinetics *(10 pages)* 066703
S. D. C. Walsh and M. O. Saar

Particle-layering effect in wall-bounded dissipative particle dynamics *(5 pages)* 066704
Sergey Litvinov, Marco Ellero, Xiangyu Hu, and Nikolaus A. Adams

Consistent finite-element approach to Brownian polymer dynamics with anisotropic friction *(12 pages)* 066705
Christian J. Cyron and Wolfgang A. Wall

BRIEF REPORTS

Fluid dynamics

Suppression of viscous fluid fingering: A piecewise-constant injection process *(4 pages)* 067301
Eduardo O. Dias, Fernando Parisio, and José A. Miranda

(Continued)

PHYSICAL REVIEW E THIRD SERIES, VOLUME 82, NUMBER 6 DECEMBER 2010

COMMENTS

Comment on "Scattering-theory analysis of waveguide-resonator coupling" *(4 pages)* 068601
Guanghao Zhu