

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 79, NUMBER 3

CONTENTS

MARCH 2009

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

RAPID COMMUNICATIONS

Interdisciplinary physics

- Spiral formation and degeneration in heterogeneous excitable media (*4 pages*) 035101(R)
Rita Toth, Ben de Lacy Costello, Christopher Stone, Jonathan Masere, Andrew Adamatzky, and
Larry Bull

- Level statistics of words: Finding keywords in literary texts and symbolic sequences (*4 pages*) 035102(R)
P. Carpena, P. Bernaola-Galván, M. Hackenberg, A. V. Coronado, and J. L. Oliver

Chaos and pattern formation

- Failure in distinguishing colored noise from chaos using the “noise titration” technique (*4 pages*) 035201(R)
Ubiratan S. Freitas, Christophe Letellier, and Luis A. Aguirre

Fluid dynamics

- Contribution of Reynolds stress distribution to the skin friction in compressible turbulent channel flows
(*4 pages*) 035301(R)
T. Gomez, V. Flutet, and P. Sagaut

- Formation of regular structures in the process of phase separation (*4 pages*) 035302(R)
Alexei Krekhov

- Detonation wave driven by condensation of supersaturated carbon vapor (*4 pages*) 035303(R)
A. Emelianov, A. Eremin, V. Fortov, H. Jander, A. Makeich, and H. Gg. Wagner

Plasma physics

- Anisotropic magnetohydrodynamic spectral transfer in the diffusion approximation (*4 pages*) 035401(R)
W. H. Matthaeus, S. Oughton, and Y. Zhou

Computational physics

- Molecular dynamics on diffusive time scales from the phase-field-crystal equation (*4 pages*) 035701(R)
Pak Yuen Chan, Nigel Goldenfeld, and Jon Dantzig



Copyright 2009 by The American Physical Society



1539-3755(200903)79:3:2;1-9

(Continued)

ARTICLES

Interdisciplinary physics

Partner switching stabilizes cooperation in coevolutionary prisoner's dilemma (7 pages)	036101
Feng Fu, Te Wu, and Long Wang	
Scaling of clusters and winding-angle statistics of isoheight lines in two-dimensional Kardar-Parisi-Zhang surfaces (5 pages)	036102
A. A. Saberi and S. Rouhani	
Cooperation in aspiration-based N -person prisoner's dilemmas (8 pages)	036103
Tadeusz Płatkowski and Paweł Bujnowski	
Dilemma game structure observed in traffic flow at a 2-to-1 lane junction (6 pages)	036104
Atsuo Yamauchi, Jun Tanimoto, Aya Hagishima, and Hiroki Sagara	
Ising model on the Apollonian network with node-dependent interactions (7 pages)	036105
R. F. S. Andrade, J. S. Andrade, Jr., and H. J. Herrmann	
Priority queues with bursty arrivals of incoming tasks (8 pages)	036106
N. Masuda, J. S. Kim, and B. Kahng	
Stabilization of multiarmed spiral waves by circularly polarized electric fields (5 pages)	036107
Ling-Yun Deng, Hong Zhang, and You-Quan Li	
Noise in random Boolean networks (9 pages)	036108
Tiago P. Peixoto and Barbara Drossel	
Pseudononstationarity in the scaling exponents of finite-interval time series (11 pages)	036109
K. H. Kiyani, S. C. Chapman, and N. W. Watkins	
Langevin approach for the dynamics of the contact process on annealed scale-free networks (17 pages)	036110
Marián Boguñá, Claudio Castellano, and Romualdo Pastor-Satorras	
Simple probabilistic algorithm for detecting community structure (9 pages)	036111
Wei Ren, Guiying Yan, Xiaoping Liao, and Lan Xiao	
Enhanced stochastic oscillations in autocatalytic reactions (7 pages)	036112
Thierry Dauxois, Francesca Di Patti, Duccio Fanelli, and Alan J. McKane	
Heterogeneous bond percolation on multitype networks with an application to epidemic dynamics (9 pages)	036113
Antoine Allard, Pierre-André Noël, Louis J. Dubé, and Babak Pourbohloul	
Entropy of network ensembles (10 pages)	036114
Ginestra Bianconi	
World-trade web: Topological properties, dynamics, and evolution (19 pages)	036115
Giorgio Fagiolo, Javier Reyes, and Stefano Schiavo	
Dynamic computation of network statistics via updating schema (9 pages)	036116
Jie Sun, James P. Bagrow, Erik M. Bollt, and Joseph D. Skufca	
Cylindrical phase separation in colloidal suspensions (10 pages)	036117
Kate Ovchinnikova and Gerald H. Pollack	

(Continued)

Chaos and pattern formation

Statistical properties of spectral fluctuations for a quantum system with infinitely many components (10 pages)	036201
H. Makino, N. Minami, and S. Tasaki	
Exponential localization of singular vectors in spatiotemporal chaos (5 pages)	036202
Diego Pazó, Juan M. López, and Miguel A. Rodríguez	
Origin of chaos near critical points of quantum flow (18 pages)	036203
C. Efthymiopoulos, C. Kalapotharakos, and G. Contopoulos	
Prebifurcation noise amplification in a fiber laser (6 pages)	036204
G. Huerta-Cuellar, A. N. Pisarchik, A. V. Kir'yanov, Yu. O. Barmenkov, and J. del Valle Hernández	
Experimental synchronization of circuit oscillations induced by common telegraph noise (6 pages)	036205
Ken Nagai and Hiroya Nakao	
Anderson transition in a three-dimensional kicked rotor (10 pages)	036206
Jiao Wang and Antonio M. García-García	
Motor-mediated alignment of microtubules in semidilute mixtures (8 pages)	036207
Sumanth Swaminathan, Falko Ziebert, Dmitry Karpeev, and Igor S. Aranson	
Small traveling clusters in attractive and repulsive Hamiltonian mean-field models (5 pages)	036208
Julien Barré and Yoshiyuki Y. Yamaguchi	
Stochastic bifurcation in noise-driven lasers and Hopf oscillators (10 pages)	036209
Sebastian Wieczorek	
Stability near threshold in a semiconductor laser subject to optical feedback: A bifurcation analysis of the Lang-Kobayashi equations (12 pages)	036210
Kirk Green	
Tristability of a semiconductor laser due to time-delayed optical feedback (4 pages)	036211
A. Loose, B. K. Goswami, H.-J. Wünsche, and F. Henneberger	
Drifting dynamics of dense and sparse spiral waves in heterogeneous excitable media (5 pages)	036212
Lida Xu, Zhilin Qu, and Zengru Di	
Quantum signatures of non-Newtonian orbits in the asymmetric infinite square well (8 pages)	036213
Todd K. Timberlake and Molly M. Nelson	
Diffusion-induced instability and chaos in random oscillator networks (5 pages)	036214
Hiroya Nakao and Alexander S. Mikhailov	

Fluid dynamics

Stability analysis of a phase-field model of gravity-driven unsaturated flow through porous media (13 pages)	036301
Luis Cueto-Felgueroso and Ruben Juanes	
Percolation and permeability of networks of heterogeneous fractures (12 pages)	036302
H. Hamzehpour, V. V. Mourzenko, J.-F. Thovert, and P. M. Adler	
Precessing rotating flows with additional shear: Stability analysis (9 pages)	036303
A. Salhi and C. Cambon	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW E

THIRD SERIES, VOLUME 79, NUMBER 3

MARCH 2009

Optimizing transient transport in materials having two scales of porosity (<i>10 pages</i>)	036304
Robert H. Nilson and Stewart K. Griffiths	
Stochastic transport of particles in straining flows (<i>11 pages</i>)	036305
D. C. Swailes, Y. Ammar, M. W. Reeks, and Y. Drossinos	
Drop impact onto a liquid layer of finite thickness: Dynamics of the cavity evolution (<i>15 pages</i>)	036306
Edin Berberović, Nils P. van Hinsberg, Suad Jakirlić, Ilia V. Roisman, and Cameron Tropea	
Maximum size of drops levitated by an air cushion (<i>13 pages</i>)	036307
Jacco H. Snoeijer, Philippe Brunet, and Jens Eggers	
Stability of the circular Couette flow of a ferrofluid in an axial magnetic field: Influence of polydispersity (<i>7 pages</i>)	036308
A. Leschhorn, M. Lücke, C. Hoffmann, and S. Altmeyer	
Families of subcritical spirals in highly counter-rotating Taylor-Couette flow (<i>7 pages</i>)	036309
Alvaro Meseguer, Fernando Mellibovsky, Marc Avila, and Francisco Marques	
Flux-dependent percolation transition in immiscible two-phase flows in porous media (<i>7 pages</i>)	036310
Thomas Ramstad, Alex Hansen, and Pål-Eric Øren	
Mixing and segregation of microspheres in microchannel flows of mono- and bidispersed suspensions (<i>7 pages</i>)	036311
C. Gao, B. Xu, and J. F. Gilchrist	
Slip velocity and velocity inversion in a cylindrical Couette flow (<i>6 pages</i>)	036312
Sangrak Kim	
Shear-induced self-diffusion of inertial particles in a viscous fluid (<i>8 pages</i>)	036313
Micheline Abbas, Eric Climent, and Olivier Simonin	
Extraordinary increase of lifetime of localized cold clouds by the viscous effect in thermally unstable two-phase interstellar media (<i>9 pages</i>)	036314
Hiroki Yatou and Sadayoshi Toh	
Onset of motion of a partly hidden cylinder in a laminar shear flow (<i>9 pages</i>)	036315
R. Martino, A. Paterson, and M. Piva	
Plasma physics	
Motion of plasma-dust structures and gas in a magnetic field (<i>6 pages</i>)	036401
A. V. Nedospasov	
Modes of three-dimensional dust crystals in dusty plasmas (<i>7 pages</i>)	036402
Yuriy Ivanov and André Melzer	
Electrical conductivity of carbon plasma (<i>5 pages</i>)	036403
Alan W. DeSilva and G. B. Vunni	
Effect of trapped ions and nonequilibrium electron-energy distribution function on dust-particle charging in gas discharges (<i>9 pages</i>)	036404
G. I. Sukhinin, A. V. Fedoseev, S. N. Antipov, O. F. Petrov, and V. E. Fortov	
Floquet-Liouville approach for calculating Stark profiles in plasmas in the presence of a strong oscillating field (<i>12 pages</i>)	036405
P. Sauvan and E. Dalimier	

(Continued)

Time-dependent energetic proton acceleration and scaling laws in ultraintense laser-pulse interactions with thin foils (8 pages)	036406
Yongsheng Huang (黄永盛), Yuanjie Bi (毕远杰), Yijin Shi (施义晋), Naiyan Wang (王乃彦), Xiuzhang Tang (汤秀章), and Zhe Gao	
Solid-density plasma nanochannel generated by a fast single ion in condensed matter (13 pages)	036407
A. V. Lankin, I. V. Morozov, G. E. Norman, S. A. Pikuz, Jr., and I. Yu. Skobelev	
Enhanced hot-electron localization and heating in high-contrast ultraintense laser irradiation of microcone targets (5 pages)	036408
J. Rassuchine, E. d'Humières, S. D. Baton, P. Guillou, M. Koenig, M. Chahid, F. Perez, J. Fuchs, P. Audebert, R. Kodama, M. Nakatsutsumi, N. Ozaki, D. Batani, A. Morace, R. Redaelli, L. Gremillet, C. Rousseaux, F. Dorchies, C. Fourment, J. J. Santos, J. Adams, G. Korgan, S. Malekos, S. B. Hansen, R. Shepherd, K. Flippo, S. Gaillard, Y. Sentoku, and T. E. Cowan	
Population of resonance and metastable atoms in a cylindrical volume of finite size (13 pages)	036409
Yuri B. Golubovskii, Alexander Timofeev, Sergey Gorchakov, Detlef Loffhagen, and Dirk Uhrlandt	
Classical physics	
Soliton ratchets in sine-Gordon systems with additive inhomogeneities (9 pages)	036601
V. Stehr, P. Müller, F. G. Mertens, and A. Bishop	
Generalized Debye series expansion of electromagnetic plane wave scattering by an infinite multilayered cylinder at oblique incidence (16 pages)	036602
Renxian Li, Xiang'e Han, and Kuan Fang Ren	
Dynamics of metastable breathers in nonlinear chains in acoustic vacuum (8 pages)	036603
Surajit Sen and T. R. Krishna Mohan	
Noise effects in the ac-driven Frenkel-Kontorova model (7 pages)	036604
Jasmina Tekić, Dahai He, and Bambi Hu	
Determination of the apsidal angles and Bertrand's theorem (6 pages)	036605
Filadelfo C. Santos, Vitorvani Soares, and Alexandre C. Tort	
Stochastic differential equation approach for waves in a random medium (3 pages)	036606
Dimitris Dimitropoulos and Bahram Jalali	
Single-scattering optical tomography (10 pages)	036607
Lucia Florescu, John C. Schotland, and Vadim A. Markel	
Zero-width band gap associated with the $\bar{n}=0$ condition in photonic crystals containing left-handed materials (7 pages)	036608
M. de Dios-Leyva and J. C. Drake-Pérez	
Computational physics	
Recursive Schrödinger equation approach to faster converging path integrals (9 pages)	036701
Antun Balaž, Aleksandar Bogojević, Ivana Vidanović, and Axel Pelster	
Diffuse-interface model for smoothed particle hydrodynamics (7 pages)	036702
Zhijie Xu, Paul Meakin, and Alexandre M. Tartakovsky	
Generalized Maxwell state and H theorem for computing fluid flows using the lattice Boltzmann method (5 pages)	036703
Pietro Asinari and Ilya V. Karlin	

CONTENTS - *Continued*

PHYSICAL REVIEW E

THIRD SERIES, VOLUME 79, NUMBER 3

MARCH 2009

Hierarchical coarse-graining transform (<i>12 pages</i>)	036704
Vera Pancaldi, Peter R. King, and Kim Christensen	
Corrected momentum exchange method for lattice Boltzmann simulations of suspension flow (<i>9 pages</i>)	036705
Eric Lorenz, Alfonso Caiazzo, and Alfons G. Hoekstra	
Lees-Edwards boundary conditions for lattice Boltzmann suspension simulations (<i>8 pages</i>)	036706
Eric Lorenz, Alfons G. Hoekstra, and Alfonso Caiazzo	
Momentum-shell renormalization-group flow from simulation (<i>5 pages</i>)	036707
A. Tröster	
Implicit restart Lanczos as an eigensolver (<i>10 pages</i>)	036708
Reza Rajaie Khorasani and Randall S. Dumont	
Microscopic and macroscopic stress with gravitational and rotational forces (<i>6 pages</i>)	036709
Wm. G. Hoover, Carol G. Hoover, and James F. Lutsko	
Grid method for computation of generalized spheroidal wave functions based on discrete variable representation (<i>7 pages</i>)	036710
Di Yan, Liang-You Peng, and Qihuang Gong	

BRIEF REPORTS

Interdisciplinary physics

Fluctuations in interbank network dynamics (<i>4 pages</i>)	037101
Daniel O. Cajueiro, Benjamin M. Tabak, and Roberto F. S. Andrade	

Chaos and pattern formation

Invisible grazings and dangerous bifurcations in impacting systems: The problem of narrow-band chaos (<i>4 pages</i>)	037201
Soumitro Banerjee, James Ing, Ekaterina Pavlovskaja, Marian Wiercigroch, and Ramesh K. Reddy	

Plasma physics

Realization of electron degeneracy effects as virtual upshifting in the ionization energies in the classical Saha equation (<i>3 pages</i>)	037401
Mofreh R. Zaghloul	

Classical physics

Higher-order effects and ultrashort solitons in left-handed metamaterials (<i>4 pages</i>)	037601
N. L. Tsitsas, N. Rompotis, I. Kourakis, P. G. Kevrekidis, and D. J. Frantzeskakis	

Computational physics

Convergence rate for numerical computation of the lattice Green's function (<i>4 pages</i>)	037701
M. Ghazisaeidi and D. R. Trinkle	

COMMENTS

Comment on "Observation of neutronless fusion reactions in picosecond laser plasmas" (<i>3 pages</i>)	038401
S. Kimura, A. Anzalone, and A. Bonasera	

(*Continued*)

ERRATA

Erratum: Shear thinning near the critical point of xenon [Phys. Rev. E 77 , 041116 (2008)] (<i>1 page</i>)	039901(E)
Robert F. Berg, Michael R. Moldover, Minwu Yao, and Gregory A. Zimmerli	
Erratum: Statistics of work performed on a forced quantum oscillator [Phys. Rev. E 78 , 011115 (2008)] (<i>1 page</i>)	039902(E)
Peter Talkner, P. Sekhar Burada, and Peter Hänggi	
Publisher's Note: Approximations on the Peano river network: Application of the Horton-Strahler hierarchy to the case of low connections [Phys. Rev. E 79 , 026108 (2009)] (<i>1 page</i>)	039903(E)
Samuele De Bartolo, Francesco Dell'Accio, and Massimo Veltri	
Erratum: Spatiotemporal perspective on the decay of turbulence in wall-bounded flows [Phys. Rev. E 79 , 025301 (2009)] (<i>1 page</i>)	039904(E)
Paul Manneville	
Publisher's Note: Field theory of bicritical and tetracritical points. III. Relaxational dynamics including conservation of magnetization (model C) [Phys. Rev. E 79 , 031109 (2009)] (<i>1 page</i>)	039905(E)
R. Folk, Yu. Holovatch, and G. Moser	
Publisher's Note: Relaxation dynamics of fluid membranes [Phys. Rev. E 79 , 031915 (2009)] (<i>1 page</i>)	039906(E)
Marino Arroyo and Antonio DeSimone	