

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 1N01
2 Huntington Quadrangle
Melville, NY 11747-4502

THIRD SERIES, VOLUME 74, NUMBER 5

CONTENTS

NOVEMBER 2006

PART 1: STATISTICAL, SOFT MATTER, AND BIOLOGICAL PHYSICS

RAPID COMMUNICATIONS

Statistical physics

- Metastability, nucleation, and noise-enhanced stabilization out of equilibrium (*4 pages*) 050101(R)
Pablo I. Hurtado, J. Marro, and P. L. Garrido
- Sticky grains do not change the universality class of isotropic sandpiles (*4 pages*) 050102(R)
Juan A. Bonachela, José J. Ramasco, Hugues Chaté, Ivan Dornic, and Miguel A. Muñoz
- Short-range stationary patterns and long-range disorder in an evolution equation for one-dimensional interfaces (*4 pages*) 050103(R)
Javier Muñoz-García, Rodolfo Cuerno, and Mario Castro

Colloidal dispersions, suspensions, and aggregates

- Extended law of corresponding states in short-range square wells: A potential energy landscape study (*4 pages*) 050401(R)
Giuseppe Foffi and Francesco Sciortino

Structured and complex fluids

- Relation between local diffusivity and local inherent structures in the Kob-Andersen Lennard-Jones model (*4 pages*) 050501(R)
Emilia La Nave, Srikanth Sastry, and Francesco Sciortino
- Structural and dynamical heterogeneity in a glass-forming liquid (*4 pages*) 050502(R)
Gurpreet S. Matharoo, M. S. Gulam Razul, and Peter H. Poole

Liquid crystals

- Anticonical anchoring and surface transitions in a nematic liquid crystal (*4 pages*) 050701(R)
L. Faget, S. Lamarque-Forget, Ph. Martinot-Lagarde, P. Auroy, and I. Dozov

Biological physics

- Bubble statistics and dynamics in double-stranded DNA (*4 pages*) 050901(R)
B. S. Alexandrov, L. T. Wille, K. Ø. Rasmussen, A. R. Bishop, and K. B. Blagoev



Copyright 2006 by The American Physical Society

(Continued)



1539-3755(200611)74:5;1-R

ARTICLES

Statistical physics

Triangular Ising antiferromagnet: Boundary conditions, ground state entropy, and vortices (<i>6 pages</i>)	051101
R. P. Millane and R. M. Clare	
Violation of the des Cloizeaux relation for self-avoiding walks on Sierpinski square lattices (<i>5 pages</i>)	051102
Francesco Marini, Anke Ordemann, Markus Porto, and H. Eduardo Roman	
Thermodynamic instability of a confined gas (<i>6 pages</i>)	051103
Harald A. Posch and Walter Thirring	
Totally asymmetric exclusion process with long-range hopping (<i>8 pages</i>)	051104
J. Szavits-Nossan and K. Uzelac	
Random walkers with shrinking steps in d dimensions and their long term memory (<i>11 pages</i>)	051105
Tonguç Rador	
Relativistic Brownian motion: From a microscopic binary collision model to the Langevin equation (<i>10 pages</i>)	051106
Jörn Dunkel and Peter Hänggi	
Modeling Gaussian-to-self-avoiding-walk crossover for stiff chain polymers (<i>5 pages</i>)	051107
Md. Fhokrul Islam and Hisao Nakanishi	
Shocks in the asymmetric exclusion process with internal degree of freedom (<i>8 pages</i>)	051108
Fatemeh Tabatabaei and Gunter M. Schütz	
Probing the tails of the ground-state energy distribution for the directed polymer in a random medium of dimension $d=1,2,3$ via a Monte Carlo procedure in the disorder (<i>11 pages</i>)	051109
Cécile Monthus and Thomas Garel	
Flows on graphs with random capacities (<i>8 pages</i>)	051110
T. Antal and P. L. Krapivsky	
Energy distribution and effective temperatures in a driven dissipative model (<i>11 pages</i>)	051111
Yair Shokef and Dov Levine	
Fractional diffusion interpretation of simulated single-file systems in microporous materials (<i>13 pages</i>)	051112
Pierfranco Demontis and Giuseppe B. Suffritti	
High-temperature series expansions for the q -state Potts model on a hypercubic lattice and critical properties of percolation (<i>8 pages</i>)	051113
Meik Hellmund and Wolfhard Janke	
Current in a three-dimensional periodic tube with unbiased forces (<i>4 pages</i>)	051114
Bao-quan Ai and Liang-gang Liu	
Phenomenon of stochastic resonance caused by multiplicative asymmetric dichotomous noise (<i>9 pages</i>)	051115
Jing-hui Li and Yin-xia Han	
Nonperturbative renormalization group and momentum dependence of n -point functions. I (<i>21 pages</i>)	051116
Jean-Paul Blaizot, Ramón Méndez-Galain, and Nicolás Wschebor	
Nonperturbative renormalization group and momentum dependence of n -point functions. II (<i>15 pages</i>)	051117
Jean-Paul Blaizot, Ramón Méndez-Galain, and Nicolás Wschebor	

Stochastic parametric amplification due to higher order correlations: A perturbative approach to non-Abelian effects in time ordering (<i>12 pages</i>)	051118
F. T. Hadjiioannou, T. A. Apostolatos, and N. V. Sarlis	
Collisional statistics of a stochastic single file (<i>8 pages</i>)	051119
A. Taloni and F. Marchesoni	
Real symmetric random matrices and replicas (<i>9 pages</i>)	051120
Giovanni M. Cicuta and Henri Orland	
Master equation and two heat reservoirs (<i>5 pages</i>)	051121
Steffen Trimper	
Extracting the scaling exponents of a self-affine, non-Gaussian process from a finite-length time series (<i>9 pages</i>)	051122
K. Kiyani, S. C. Chapman, and B. Hnat	
Short-time dynamics of percolation observables (<i>5 pages</i>)	051123
Wanderson G. Wanzeller, Tereza Mendes, and Gastão Krein	
Power-law random walks (<i>5 pages</i>)	051124
C. Vignat and A. Plastino	
Equilibrium and linear transport properties of fluids	
Mass dependence of shear viscosity in a binary fluid mixture: Mode-coupling theory (<i>6 pages</i>)	051201
Sk. Musharaf Ali, Alok Samanta, Niharendu Choudhury, and Swapan K. Ghosh	
Granular materials	
Power-law and exponential segregation in two-dimensional silos of granular mixtures (<i>10 pages</i>)	051301
Rajesh K. Goyal and M. Silvina Tomassone	
Velocity correlations in dense gravity-driven granular chute flow (<i>10 pages</i>)	051302
Oleh Baran, Deniz Ertaş, Thomas C. Halsey, Gary S. Grest, and Jeremy B. Lechman	
Force heterogeneities in particle assemblies: From order to disorder (<i>7 pages</i>)	051303
Leonardo E. Silbert	
Clustering instability in a freely falling granular jet (<i>9 pages</i>)	051304
Matthias E. Möbius	
Radial granular segregation under chaotic flow in two-dimensional tumblers (<i>12 pages</i>)	051305
Stephen E. Cisar, Paul B. Umbanhowar, and Julio M. Ottino	
Phases of granular segregation in a binary mixture (<i>13 pages</i>)	051306
P. M. Reis, T. Sykes, and T. Mullin	
Failure and strengthening of granular slopes under horizontal vibration (<i>8 pages</i>)	051307
Douglas Rubin, Naomi Goldenson, and Greg A. Voth	
Colloidal dispersions, suspensions, and aggregates	
Generalized hydrodynamics of a dilute suspension of finite-sized particles: Dynamic viscosity (<i>7 pages</i>)	051401
S. I. Hernández, I. Santamaría-Holek, Carlos I. Mendoza, and L. F. del Castillo	

Equation of state of colloids coated by polyelectrolyte multilayers (<i>10 pages</i>)	051402
Monique Dubois, Monika Schönhoff, Annette Meister, Luc Belloni, Thomas Zemb, and Helmuth Möhwald	
Viscous froth lens (<i>25 pages</i>)	051403
T. E. Green, A. Bramley, L. Lue, and P. Grassia	
Particle migration induced by confinement of colloidal suspensions along the gravitational direction (<i>7 pages</i>)	051404
J. J. Liétor-Santos, A. Fernández-Nieves, and M. Márquez	
Memory of fluctuating Brownian dipolar chains (<i>13 pages</i>)	051405
Renaud Toussaint, Eirik G. Flekkøy, and Geir Helgesen	
Flow transitions in two-dimensional foams (<i>9 pages</i>)	051406
Christopher Gilbreth, Scott Sullivan, and Michael Dennin	
Multicomponent adhesive hard sphere models and short-ranged attractive interactions in colloidal or micellar solutions (<i>14 pages</i>)	051407
Domenico Gazzillo, Achille Giacometti, Riccardo Fantoni, and Peter Sollich	
Macroion correlation effects in electrostatic screening and thermodynamics of highly charged colloids (<i>6 pages</i>)	051408
R. Castañeda-Priego, L. F. Rojas-Ochoa, V. Lobaskin, and J. C. Mixteco-Sánchez	
Structured and complex fluids	
Lengthscale dependence of dynamic four-point susceptibilities in glass formers (<i>9 pages</i>)	051501
David Chandler, Juan P. Garrahan, Robert L. Jack, Lutz Maibaum, and Albert C. Pan	
Origin of the decoupling of oxygen and silicon dynamics in liquid silica as expressed by its potential energy landscape (<i>8 pages</i>)	051502
A. Saksangwijit and A. Heuer	
Influence of rigid inclusions on the bending elasticity of a lipid membrane (<i>12 pages</i>)	051503
Miha Fošnarič, Aleš Iglič, and Sylvio May	
Kinetic arrest and glass-glass transition in short-ranged attractive colloids (<i>12 pages</i>)	051504
M. Sztucki, T. Narayanan, G. Belina, A. Moussaïd, F. Pignon, and H. Hoekstra	
Relaxation processes due to the electrode-electrolyte interface in ionic solutions (<i>9 pages</i>)	051505
Hugo Sanabria and John H. Miller, Jr.	
Density anomaly and liquid-liquid transition from perturbation theories (<i>6 pages</i>)	051506
Jose B. Caballero and Antonio M. Puertas	
Magnetostriction of field-structured magnetoelastomers (<i>17 pages</i>)	051507
James E. Martin, Robert A. Anderson, Douglas Read, and Gerald Gulley	
Films, interfaces, and crystal growth	
Interplay between thermal percolation and jamming upon dimer adsorption on binary alloys (<i>9 pages</i>)	051601
Ernesto S. Loscar, R. A. Borzi, and Ezequiel V. Albano	
Feasibility of large free-standing liquid films in space (<i>12 pages</i>)	051602
Rui Zheng and Thomas A. Witten	

Liquid crystals

Corresponding states of order parameter in nematic liquid crystals (<i>7 pages</i>)	051701
M. Simões and D. S. Simeão	
Proton NMR relaxation of the dipolar quasi-invariants of nematic methyl deuterated para-azoxyanisole within the high-temperature Redfield relaxation theory (<i>12 pages</i>)	051702
H. H. Segnorile, L. Barberis, C. E. González, and R. C. Zamar	
Frustrated smectic layer structures in bent-shaped dimer liquid crystals studied by x-ray microbeam diffraction (<i>10 pages</i>)	051703
Yoichi Takanishi, Megumi Toshimitsu, Michi Nakata, Naoki Takada, Tatsuya Izumi, Ken Ishikawa, Hideo Takezoe, Junji Watanabe, Yumiko Takahashi, and Atsuo Iida	
Cholesteric liquid crystals with a helical pitch gradient: Spatial distribution of the concentration of chiral groups by Raman mapping in relation with the optical response and the microstructure (<i>6 pages</i>)	051704
M. Belalia, M. Mitov, C. Bourgerette, A. Krallafa, M. Belhakem, and D. Bormann	
Surface effects on the relaxation dynamics of hexatic- <i>B</i> liquid-crystal films (<i>7 pages</i>)	051705
I. N. de Oliveira and M. L. Lyra	
Experimental demonstration, using polarized Raman and infrared spectroscopy, that both conventional and de Vries smectic- <i>A</i> phases may exist in smectic liquid crystals with a first-order <i>A-C</i> * transition (<i>11 pages</i>)	051706
Naoki Hayashi, A. Kocot, M. J. Linehan, Atsuo Fukuda, Jagdish K. Vij, G. Heppke, J. Naciri, Sachiko Kawada, and Shinya Kondoh	
Nematic-isotropic transition with quenched disorder (<i>11 pages</i>)	051707
L. Petridis and E. M. Terentjev	
Dielectric study on the shear-induced structural changes in the nematic and the smectic- <i>A</i> phases of 4-n-octyl-4'-cyanobiphenyl (8CB) (<i>6 pages</i>)	051708
K. Negita, M. Inoue, and S. Kondo	
Soft elasticity in biaxial smectic and smectic- <i>C</i> elastomers (<i>24 pages</i>)	051709
Olaf Stenull and T. C. Lubensky	
Optical and confocal microscopy observations of screw dislocations in smectic- <i>A</i> liquid crystals (<i>5 pages</i>)	051710
I. Lelidis, C. Blanc, and M. Kléman	

Polymers

Secondary structures in long compact polymers (<i>9 pages</i>)	051801
Richard Oberdorf, Allison Ferguson, Jesper L. Jacobsen, and Jané Kondev	
Effects of solvent immiscibility on the phase behavior and microstructural length scales of a diblock copolymer in the presence of two solvents (<i>11 pages</i>)	051802
Ching-I Huang and Yu-Chieh Hsu	
RNA-like polymer model: Exact calculation on the Bethe lattice (<i>10 pages</i>)	051803
M. Pretti	

Biological physics

Thermodynamics of organisms in the context of dynamic energy budget theory (<i>15 pages</i>)	051901
Tânia Sousa, Rui Mota, Tiago Domingos, and S. A. L. M. Kooijman	

CONTENTS - Continued

PHYSICAL REVIEW E

THIRD SERIES, VOLUME 74, NUMBER 5

NOVEMBER 2006

Complex movements of motor protein relay helices during the power stroke (<i>7 pages</i>)	051902
Miljko V. Satařić, Leif Matsson, and Jack A. Tuszyński	
Subgraph ensembles and motif discovery using an alternative heuristic for graph isomorphism (<i>11 pages</i>)	051903
Kim Baskerville and Maya Paczusi	
Force modulating dynamic disorder: A physical model of catch-slip bond transitions in receptor-ligand forced dissociation experiments (<i>9 pages</i>)	051904
Fei Liu and Zhong-can Ou-Yang	
Stochastic order parameter equation of isometric force production revealed by drift-diffusion estimates (<i>11 pages</i>)	051905
T. D. Frank, R. Friedrich, and P. J. Beek	
Noise-induced cooperative dynamics and its control in coupled neuron models (<i>11 pages</i>)	051906
B. Hauschildt, N. B. Janson, A. Balanov, and E. Schöll	
Coexistence versus extinction in the stochastic cyclic Lotka-Volterra model (<i>11 pages</i>)	051907
Tobias Reichenbach, Mauro Mobilia, and Erwin Frey	
Electrophoresis of DNA on a disordered two-dimensional substrate (<i>6 pages</i>)	051908
C. J. Olson Reichhardt and C. Reichhardt	
Identifying phase synchronization clusters in spatially extended dynamical systems (<i>11 pages</i>)	051909
Stephan Bialonski and Klaus Lehnertz	
Hybrid simulations of stochastic reaction-diffusion processes for modeling intracellular signaling pathways (<i>13 pages</i>)	051910
K.-H. Chiam, Chee Meng Tan, Vipul Bhargava, and Gunaretnam Rajagopal	
Structure of two-component lipid membranes on solid support: An x-ray reflectivity study (<i>9 pages</i>)	051911
Eva Nováková, Klaus Giewekemeyer, and Tim Salditt	
Contractile stress generation by actomyosin gels (<i>6 pages</i>)	051912
A. E. Carlsson	
Effect of chain unsaturation on bilayer response to pressure (<i>8 pages</i>)	051913
I. D. Skanes, J. Stewart, K. M. W. Keough, and M. R. Morrow	
Species abundance distribution and population dynamics in a two-community model of neutral ecology (<i>9 pages</i>)	051914
M. Vallade and B. Houchmandzadeh	
Anomalies and the Eve effect in the asexual Penna model (<i>4 pages</i>)	051915
T. Preece and Y. Mao	
Iridescence in the neck feathers of domestic pigeons (<i>6 pages</i>)	051916
Haiwei Yin, Lei Shi, Jing Sha, Yizhou Li, Youhua Qin, Biqin Dong, Serge Meyer, Xiaohan Liu, Li Zhao, and Jian Zi	
Finite-size domains in membranes with active two-state inclusions (<i>5 pages</i>)	051917
Chien-Hsun Chen and Hsuan-Yi Chen	
Designability and cooperative folding in a four-letter hydrophobic-polar model of proteins (<i>8 pages</i>)	051918
Hai-guang Liu and Lei-Han Tang	
Controlling species richness in spin-glass model ecosystems (<i>8 pages</i>)	051919
Fábio C. Poderoso and José F. Fontanari	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW E

THIRD SERIES, VOLUME 74, NUMBER 5

NOVEMBER 2006

- White-noise susceptibility and critical slowing in neurons near spiking threshold (*15 pages*) 051920
D. A. Steyn-Ross, Moira L. Steyn-Ross, M. T. Wilson, and J. W. Sleigh

BRIEF REPORTS

Statistical physics

- Knotting probability of a shaken ball-chain (*4 pages*) 052101
J. Hickford, R. Jones, S. Courrech du Pont, and J. Eggers
- Changing the heat conductivity: An analytical study (*4 pages*) 052102
Fernando Barros, Humberto C. F. Lemos, and Emmanuel Pereira
- Electric-field correlation in quantum charged fluids coupled to the radiation field (*4 pages*) 052103
B. Jancovici

Structured and complex fluids

- Phase diagram of the hard-core Yukawa fluid within the integral equation method (*4 pages*) 052501
E. B. El Mendoub, J.-F. Wax, and N. Jakse

Liquid crystals

- Relaxation time for the ionic current in a nematic cell under a large electric field (*4 pages*) 052701
G. Barbero, A. M. Figueiredo Neto, F. C. M. Freire, and J. Le Digabel

Biological physics

- Orthotropic elastic shell model for buckling of microtubules (*4 pages*) 052901
C. Y. Wang, C. Q. Ru, and A. Mioduchowski

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 1N01
2 Huntington Quadrangle
Melville, NY 11747-4502

THIRD SERIES, VOLUME 74, NUMBER 5

CONTENTS

NOVEMBER 2006

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

RAPID COMMUNICATIONS

Interdisciplinary physics

- Correlations in weighted networks (*4 pages*) 055101(R)
M. Ángeles Serrano, Marián Boguñá, and Romualdo Pastor-Satorras

Chaos and pattern formation

- Frequency locking and complex dynamics near a periodically forced robust heteroclinic cycle (*4 pages*) 055201(R)
J. H. P. Dawes and T. L. Tsai

Plasma physics

- Microwave generation of stable atmospheric-pressure fireballs in air (*4 pages*) 055401(R)
Karl D. Stephan

ARTICLES

Interdisciplinary physics

- Spreading dynamics on small-world networks with connectivity fluctuations and correlations (*7 pages*) 056101
Alexei Vazquez
- Kinetics of migration-driven aggregation processes on scale-free networks (*10 pages*) 056102
Jianhong Ke, Xiaoshuang Chen, Zhenquan Lin, Yizhuang Zheng, and Wei Lu
- von Neumann entropy and localization-delocalization transition of electron states in quantum small-world networks (*6 pages*) 056103
Longyan Gong and Peiqing Tong
- Optimal paths in complex networks with correlated weights: The worldwide airport network (*9 pages*) 056104
Zhenhua Wu, Lidia A. Braunstein, Vittoria Colizza, Reuven Cohen, Shlomo Havlin, and
H. Eugene Stanley
- Dissemination strategy for immunizing scale-free networks (*8 pages*) 056105
Alexandre O. Stauffer and Valmir C. Barbosa



Copyright 2006 by The American Physical Society

(Continued)



1539-3755(200611)74:5;2;1-Q

Collective oscillations, bicluster motion, and dynamical order in a system of globally coupled rotors with repulsive interactions (<i>6 pages</i>)	056106
Daun Jeong, J. Choi, and M. Y. Choi	
Characteristics of reaction-diffusion on scale-free networks (<i>4 pages</i>)	056107
Lazaros K. Gallos and Panos Argyrakis	
Nonequilibrium phase transition in the coevolution of networks and opinions (<i>5 pages</i>)	056108
Petter Holme and M. E. J. Newman	
Behaviors of susceptible-infected epidemics on scale-free networks with identical infectivity (<i>6 pages</i>)	056109
Tao Zhou, Jian-Guo Liu, Wen-Jie Bai, Guanrong Chen, and Bing-Hong Wang	
Statistical mechanics of error exponents for error-correcting codes (<i>25 pages</i>)	056110
Thierry Mora and Olivier Rivoire	
Thermodynamics of spin systems on small-world hypergraphs (<i>11 pages</i>)	056111
D. Bollé, R. Heylen, and N. S. Skantzos	
Sparse repulsive coupling enhances synchronization in complex networks (<i>7 pages</i>)	056112
I. Leyva, I. Sendiña-Nadal, J. A. Almendral, and M. A. F. Sanjuán	
Memory-based snowdrift game on networks (<i>6 pages</i>)	056113
Wen-Xu Wang, Jie Ren, Guanrong Chen, and Bing-Hong Wang	
Clustering in complex networks. I. General formalism (<i>9 pages</i>)	056114
M. Ángeles Serrano and Marián Boguñá	
Clustering in complex networks. II. Percolation properties (<i>8 pages</i>)	056115
M. Ángeles Serrano and Marián Boguñá	
Designing threshold networks with given structural and dynamical properties (<i>10 pages</i>)	056116
Aric Hagberg, Pieter J. Swart, and Daniel A. Schult	
Chaos and pattern formation	
Time delay in the Kuramoto model with bimodal frequency distribution (<i>5 pages</i>)	056201
Ernest Montbrió, Diego Pazó, and Jürgen Schmidt	
Quasiregularity and rigorous diffusion of strong Hamiltonian chaos (<i>8 pages</i>)	056202
O. Barash and I. Dana	
Calculation of cantori for Hamiltonian flows (<i>6 pages</i>)	056203
S. R. Hudson	
Phase rigidity and avoided level crossings in the complex energy plane (<i>6 pages</i>)	056204
Evgeny N. Bulgakov, Ingrid Rotter, and Almas F. Sadreev	
Synchronization and beam forming in an array of repulsively coupled oscillators (<i>10 pages</i>)	056205
N. F. Rulkov, L. Tsimring, M. L. Larsen, and M. Gabbay	
Persistent localized states for a chaotically mixed bistable reaction (<i>6 pages</i>)	056206
Stephen M. Cox	
Nonperiodic echoes from mushroom billiard hats (<i>8 pages</i>)	056207
B. Dietz, T. Friedrich, M. Miski-Oglu, A. Richter, T. H. Seligman, and K. Zapfe	
Quantum-to-classical transition in a system with mixed classical dynamics (<i>9 pages</i>)	056208
Fabricio Toscano and Diego A. Wisniacki	

Method for determining a coupling function in coupled oscillators with application to Belousov-Zhabotinsky oscillators (10 pages)	056209
J. Miyazaki and S. Kinoshita	

Fluid dynamics

Vorticity generation in creeping flow past a magnetic obstacle (10 pages)	056301
S. Cuevas, S. Smolentsev, and M. Abdou	
Helical magnetorotational instability in magnetized Taylor-Couette flow (8 pages)	056302
Wei Liu, Jeremy Goodman, Isom Herron, and Hantao Ji	
Pore-network study of methane hydrate dissociation (13 pages)	056303
Ioannis N. Tsimpanogiannis and Peter C. Lichtner	
Linking drainage front morphology with gaseous diffusion in unsaturated porous media: A lattice Boltzmann study (11 pages)	056304
Jessica Furrer Chau and Dani Or	
Experiments on the rapid mechanical expansion of liquid ^4He through its superfluid transition (8 pages)	056305
V. B. Efimov, O. J. Griffiths, P. C. Hendry, G. V. Kolmakov, P. V. E. McClintock, and L. Skrbek	
Heat flux intensification by vortical flow localization in rotating convection (4 pages)	056306
R. P. J. Kunnen, H. J. H. Clercx, and B. J. Geurts	
Negative wake behind a sphere rising in viscoelastic fluids: A lattice Boltzmann investigation (9 pages)	056307
Xavier Frank and Huai Z. Li	
Comparisons between different approximations to energy dissipation rate in a self-preserving far wake (11 pages)	056308
T. Zhou, Z. Hao, L. P. Chua, and Y. Zhou	

Plasma physics

Multiple void formation in plasmas containing multispecies charged grains (6 pages)	056401
Y. H. Liu, Z. Y. Chen, M. Y. Yu, and A. Bogaerts	
Nonintrusive characterization of the azimuthal drift current in a coaxial $\mathbf{E} \times \mathbf{B}$ discharge plasma (6 pages)	056402
Cliff A. Thomas, Nicolas Gascon, and Mark A. Cappelli	
Ground state of a confined Yukawa plasma (6 pages)	056403
C. Henning, H. Baumgartner, A. Piel, P. Ludwig, V. Golubnichiy, M. Bonitz, and D. Block	
Nonadiabatic tunneling in ponderomotive barriers (8 pages)	056404
I. Y. Dodin and N. J. Fisch	
Transverse dielectric matrix and shear mode dispersion in strongly coupled electronic bilayer liquids (15 pages)	056405
Kenneth I Golden, Hania Mahassen, Gaetano Senatore, and Francesco Rapisarda	

Classical physics, including nonlinear media and photonic materials

Exotic radiation from a photonic crystal excited by an ultrarelativistic electron beam (4 pages)	056601
N. Horiuchi, T. Ochiai, J. Inoue, Y. Segawa, Y. Shibata, K. Ishi, Y. Kondo, M. Kanbe, H. Miyazaki, F. Hinode, S. Yamaguti, and K. Ohtaka	

CONTENTS - Continued

PHYSICAL REVIEW E

THIRD SERIES, VOLUME 74, NUMBER 5

NOVEMBER 2006

Zener tunneling in two-dimensional photonic lattices (6 pages)	056602
Valery S. Shchesnovich, Solange B. Cavalcanti, Jandir M. Hickmann, and Yuri S. Kivshar	
Propagation of femtosecond light pulses in a dye solution: Nonadherence to the conventional group velocity (5 pages)	056603
T. Kohmoto, Y. Fukui, S. Furue, K. Nakayama, and Y. Fukuda	
Self-compression by femtosecond pulse filamentation: Experiments versus numerical simulations (9 pages)	056604
Stefan Skupin, Gero Stibenz, Luc Bergé, Falk Lederer, Thomas Sokollik, Matthias Schnürer, Nickolai Zhavoronkov, and Günter Steinmeyer	
Analytical cumulant solution of the vector radiative transfer equation investigates backscattering of circularly polarized light from turbid media (11 pages)	056605
Wei Cai, Xiaohui Ni, S. K. Gayen, and R. R. Alfano	
Straight-edge diffraction of Planck radiation (8 pages)	056606
Peter J. Mohr and Eric L. Shirley	
Generalized matrix equivalence theorem for polarization theory (8 pages)	056607
S. N. Savenkov, V. V. Marienko, E. A. Oberemok, and O. Sydoruk	
Symmetry breaking in symmetric and asymmetric double-well potentials (9 pages)	056608
G. Theocharis, P. G. Kevrekidis, D. J. Frantzeskakis, and P. Schmelcher	
Effect of amplification on conductance distribution of a disordered waveguide (4 pages)	056609
Alexey Yamilov and Hui Cao	
Spatial correlation functions of random electromagnetic fields in the presence of a semi-infinite isotropic medium (9 pages)	056610
Luk R. Arnaut	
One-way diffraction grating (4 pages)	056611
Matthew J. Lockyear, Alastair P. Hibbins, Kevin R. White, and J. Roy Sambles	
Bloch vector dependence of the plasma frequency in metallic photonic crystals (6 pages)	056612
Frédéric Zolla, Didier Felbacq, and Guy Bouchitté	
Polarization versus spatial characteristics of optical beams at a planar isotropic interface (16 pages)	056613
Wojciech Nasalski	
Wave propagation and optical properties in slabs with light-induced free charge carriers (9 pages)	056614
Alberto Lencina, Pablo Vaveliuk, Beatriz Ruiz, Myrian Tebaldi, and Néstor Bolognini	
Experimental study of photonic crystals consisting of ϵ -negative and μ -negative materials (6 pages)	056615
Liwei Zhang, Yewen Zhang, Li He, Hongqing Li, and Hong Chen	
Computational physics	
Dissipative-particle-dynamics model for two-phase flows (13 pages)	056701
Anupam Tiwari and John Abraham	
Dynamic correlations in stochastic rotation dynamics (17 pages)	056702
E. Tüzel, T. Ihle, and D. M. Kroll	
Thermodynamic consistency of liquid-gas lattice Boltzmann simulations (12 pages)	056703
A. J. Wagner	

(Continued)

Order- N first-principles calculation method for self-consistent ground-state electronic structures of semi-infinite systems (<i>7 pages</i>)	056704
Takashi Sasaki, Tomoya Ono, and Kikuji Hirose	
Lattice Boltzmann approach to thermal transpiration (<i>5 pages</i>)	056705
Victor Sofonea	
Analysis of simulation technique for steady shock waves in materials with analytical equations of state (<i>9 pages</i>)	056706
Evan J. Reed, Laurence E. Fried, William D. Henshaw, and Craig M. Tarver	
Simulation of binary mixtures with the lattice Boltzmann method (<i>10 pages</i>)	056707
S. Arcidiacono, J. Mantzaras, S. Ansumali, I. V. Karlin, C. Frouzakis, and K. B. Boulouchos	

BRIEF REPORTS

Interdisciplinary physics

Coloring random graphs and maximizing local diversity (<i>4 pages</i>)	057101
S. Bounkong, J. van Mourik, and D. Saad	
Consequences of imperfect mixing the Gray-Scott model (<i>4 pages</i>)	057102
M.-P. Zorzano, D. Hochberg, and F. Morán	

Chaos and pattern formation

Persistent chaos in high dimensions (<i>4 pages</i>)	057201
D. J. Albers, J. C. Sprott, and J. P. Crutchfield	
Hexagonal superlattice state in dielectric barrier discharge (<i>4 pages</i>)	057202
Lifang Dong, Ruiling Gao, Yafeng He, Weili Fan, and Weili Liu	
Chaotic synchronization in large map networks (<i>4 pages</i>)	057203
S. H. He, H. B. Huang, X. Zhang, Z. X. Liu, D. S. Xu, and C. K. Shen	

Classical physics, including nonlinear media and photonic materials

Structure analysis of two-dimensional nonlinear self-trapped photonic lattices in anisotropic photorefractive media (<i>3 pages</i>)	057601
Bernd Terhalle, Denis Träger, Liqin Tang, Jörg Imbrock, and Cornelia Denz	

ERRATA

Erratum: Molecular-field theory method for evaluating critical points of the Ising model [Phys. Rev. E 72 , 056104 (2005)] (<i>1 page</i>)	059901(E)
K. K. Zhuravlev	
Erratum: Collective acoustic modes as renormalized damped oscillators: Unified description of neutron and x-ray scattering data from classical fluids [Phys. Rev. E 73 , 061203 (2006)] (<i>1 page</i>)	059902(E)
Ubaldo Bafle, Eleonora Guarini, and Fabrizio Barocchi	
Publisher's Note: Knotting probability of a shaken ball-chain [Phys. Rev. E 74 , 052101 (2006)] (<i>1 page</i>)	059903(E)
J. Hickford, R. Jones, S. Courrech du Pont, and J. Eggers	