

PHYSICAL REVIEW E

For editorial and subscription correspondence,
please see inside front cover
(ISSN: 1539-3755)

PERIODICALS
Postmaster send address changes to:
American Institute of Physics
Suite 1NO1
2 Huntington Quadrangle
Melville, NY 11747-4502

THIRD SERIES, VOLUME 70, NUMBER 3

CONTENTS

SEPTEMBER 2004

PART 1: SOFT MATTER AND BIOLOGICAL PHYSICS

Editorial i

RAPID COMMUNICATIONS

Films, interfaces, and crystal growth

Evolution of wrinkles in hard films on soft substrates (4 pages) 030601(R)
Zhenyu Huang, Wei Hong, and Z. Suo

Biological physics

Multiphoton switching dynamics of single green fluorescent proteins (4 pages) 030901(R)
G. Chirico, F. Cannone, A. Diaspro, S. Bologna, V. Pellegrini, R. Nifosi, and F. Beltram

Unexpected epidemic thresholds in heterogeneous networks: The role of disease transmission (4 pages) 030902(R)
Ronen Olinky and Lewi Stone

Teaching computers to fold proteins (4 pages) 030903(R)
Ole Winther and Anders Krogh

ARTICLES

Statistical physics of soft matter

Intermittency of height fluctuations in stationary state of the Kardar-Parisi-Zhang equation with infinitesimal surface tension in 1+1 dimensions (13 pages) 031101
S. M. A. Tabei, A. Bahraminasab, A. A. Masoudi, S. S. Mousavi, and M. Reza Rahimi Tabar

Influence of tether dynamics on forced Kramers escape from a kinetic trap (11 pages) 031102
Anirban Sain and Michael Wortis

Distribution of residence times in bistable noisy systems with time-delayed feedback (4 pages) 031103
D. Curtin, S. P. Hegarty, D. Goulding, J. Houlihan, Th. Busch, C. Masoller, and G. Huyet

Vortex kinetics of conserved and nonconserved $O(n)$ models (7 pages) 031104
Hai Qian and Gene F. Mazenko

Domain wall propagation and nucleation in a metastable two-level system (17 pages) 031105
Hans C. Fogedby, John Hertz, and Axel Svane



Copyright 2004 by The American Physical Society

(Continued)



1539-3755(200409)70:3;1-G

Power-law tails in nonstationary stochastic processes with asymmetrically multiplicative interactions (7 pages)	031106
Akihiro Fujihara, Toshiya Ohtsuki, and Hiroshi Yamamoto	
Consistent description of quantum Brownian motors operating at strong friction (5 pages)	031107
L. Machura, M. Kostur, P. Hänggi, P. Talkner, and J. Łuczka	
Transport and fractionation in periodic potential-energy landscapes (10 pages)	031108
Matthew Pelton, Kosta Ladavac, and David G. Grier	
Density-functional theory for the structures and thermodynamic properties of highly asymmetric electrolyte and neutral component mixtures (9 pages)	031109
Zhidong Li and Jianzhong Wu	
On-lattice coalescence and annihilation of immobile reactants in loopless lattices and beyond (9 pages)	031110
E. Abad	
Localized states on comb lattices (6 pages)	031111
G. Baldi, R. Burioni, and D. Cassi	
Random cuts in binary mixtures of spheres (8 pages)	031112
Annie Gervois, Luc Oger, and Jean-Paul Troadec	
Transitions and transport for a spatially periodic stochastic system with locally coupled oscillators (7 pages)	031113
Ying-kui Zhao, Jing-hui Li, and Xian-geng Zhao	
Equilibrium and linear transport properties of fluids	
Demixing in simple dipolar mixtures: Integral equation versus density functional results (11 pages)	031201
Gabriel M. Range and Sabine H. L. Klapp	
Symmetric diffusion equations, barodiffusion, and cross-diffusion in concentrated liquid mixtures (10 pages)	031202
Martin E. Schimpf and Semen N. Semenov	
Granular materials	
Effect of interparticle force on mixing and segregation of dry granular materials (5 pages)	031301
S. R. Hutton, A. J. Forsyth, M. J. Rhodes, and C. F. Osborne	
van der Waals normal form for a one-dimensional hydrodynamic model (8 pages)	031302
C. Cartes, M. G. Clerc, and R. Soto	
Slowly sheared dense granular flows: Crystallization and nonunique final states (13 pages)	031303
J.-C. Tsai and J. P. Gollub	
Segregation in a monolayer of magnetic spheres (6 pages)	031304
Justin Stambaugh, Zachary Smith, Edward Ott, and Wolfgang Losert	
Analytic study of the three-urn model for separation of sand (5 pages)	031305
G. M. Shim, B. Y. Park, J. D. Noh, and Hoyun Lee	
Colloidal dispersions, suspensions, and aggregates	
Determination of branch fraction and minimum dimension of mass-fractal aggregates (10 pages)	031401
G. Beaucage	

Effect of repulsive and attractive interactions on depletion forces in colloidal suspensions: A density functional theory treatment (<i>8 pages</i>)	031402
S. A. Egorov	
Scaling behaviors of colloidal aggregates under uniform pressure (<i>11 pages</i>)	031403
Robert Botet and Bernard Cabane	
Nonlinear screening and effective electrostatic interactions in charge-stabilized colloidal suspensions (<i>18 pages</i>)	031404
A. R. Denton	
Structured and complex fluids	
Monte Carlo study of shear-induced alignment of cylindrical micelles in thin films (<i>9 pages</i>)	031501
Gaurav Arya and Athanassios Z. Panagiotopoulos	
Influence of shear flow on the formation of rings in wormlike micelles: A nonequilibrium molecular dynamics study (<i>10 pages</i>)	031502
J. T. Padding and E. S. Boek	
Entropy-induced microphase separation in hard diblock copolymers (<i>16 pages</i>)	031503
Paul P. F. Wessels and Bela M. Mulder	
Aggregation dynamics of nonmagnetic particles in a ferrofluid (<i>8 pages</i>)	031504
Jozef Černák, Geir Helgesen, and Arne T. Skjeltorp	
Films, interfaces, and crystal growth	
Quantitative description of morphological transitions in diffusion-limited growth of xenon crystals (<i>9 pages</i>)	031601
H. M. Singer and J. H. Bilgram	
Pressure effects for crystal growth in a closed system (<i>6 pages</i>)	031602
Massimo Conti	
Sign of line tension in liquid bridge stability (<i>12 pages</i>)	031603
Riccardo Rosso and Epifanio G. Virga	
Growth rate of a crystal facet of arbitrary size and growth kinetics of vertical nanowires (<i>7 pages</i>)	031604
Vladimir G. Dubrovskii and Nickolai V. Sibirev	
Adsorption phenomenon of neutral particles and a kinetic equation at the interface (<i>6 pages</i>)	031605
G. Barbero and L. R. Evangelista	
Analytic formulation and parametrization of the kinetic potential theory for drizzle formation (<i>13 pages</i>)	031606
Robert McGraw and Yangang Liu	
Numerical study of discrete models in the class of the nonlinear molecular beam epitaxy equation (<i>8 pages</i>)	031607
F. D. A. Aarão Reis	
Characterizing the microscopic physics near moving contact lines using dynamic contact angle data (<i>9 pages</i>)	031608
E. Ramé, S. Garoff, and K. R. Willson	
Ripening of porous media (<i>8 pages</i>)	031609
Benny Davidovitch, Deniz Ertaş, and Thomas C. Halsey	

Liquid crystals

Collective and local molecular dynamics in the lyotropic mesophases of decylammonium chloride: ^1H and ^2H NMR study (9 pages)	031701
Marcin Wachowicz, Stefan Jurga, and Marija Vilfan	
Bent-core dopant in a liquid crystal having a reentrant synclinic phase (5 pages)	031702
Min Hua Zhu, Charles Rosenblatt, Julie M. Kim, and Mary E. Neubert	
Polarity-directed analog electro-optic switching in a low-polarization chiral smectic liquid crystal with positive dielectric anisotropy (8 pages)	031703
Jan P. F. Lagerwall, Alexander A. Kane, Noel A. Clark, and David M. Walba	
Direct measurement of the permeability of the meniscus bordering a free-standing smectic-A film (9 pages)	031704
F. Caillier and P. Oswald	

Polymers

Electrostatic contribution to the persistence length of a semiflexible dipolar chain (11 pages)	031801
Rudi Podgornik	
Overdamped stress relaxation in buckled rods (19 pages)	031802
Oskar Hallatschek, Erwin Frey, and Klaus Kroy	

Biological physics

Half-soliton interaction of population taxis waves in predator-prey systems with pursuit and evasion (10 pages)	031901
M. A. Tsyganov and V. N. Biktashev	
Quantum models of the mind: Are they compatible with environment decoherence? (6 pages)	031902
Luiz Pinguelli Rosa and Jean Faber	
Bioinspired laser-operated molecular locomotive (8 pages)	031903
Zhisong Wang	
Influence of time-delayed feedback in the firing pattern of thermally sensitive neurons (11 pages)	031904
M. Sainz-Trapaga, C. Masoller, H. A. Braun, and M. T. Huber	
Self-organized pattern formation in motor-microtubule mixtures (18 pages)	031905
Sumithra Sankararaman, Gautam I. Menon, and P. B. Sunil Kumar	
Spatially resolved electronic detection of biopolymers (8 pages)	031906
F. Pouthas, C. Gentil, D. Côte, G. Zeck, B. Straub, and U. Bockelmann	
Motion-contrast computation without directionally selective motion sensors (7 pages)	031907
B. K. Dellen, J. W. Clark, and R. Wessel	
Epidemic spreading in a hierarchical social network (7 pages)	031908
A. Grabowski and R. A. Kosiński	
Topological generalizations of network motifs (12 pages)	031909
N. Kashtan, S. Itzkovitz, R. Milo, and U. Alon	
Spectrum and symbol distribution of nucleotide sequences (4 pages)	031910
Vera Afreixo, Paulo J. S. G. Ferreira, and Dorabella Santos	

Robust stochastic resonance for simple threshold neurons (<i>10 pages</i>)	031911
Bart Kosko and Sanya Mitaim	
Periodically varying externally imposed environmental effects on population dynamics (<i>7 pages</i>)	031912
M. Ballard, V. M. Kenkre, and M. N. Kuperman	
Multidelayed random walks: Theory and application to the neolithic transition in Europe (<i>6 pages</i>)	031913
Joaquim Fort, Debnarayan Jana, and Josep Humet	
Solitons in α -helical proteins (<i>16 pages</i>)	031914
L. Brizhik, A. Eremko, B. Piette, and W. Zakrzewski	
Double-wavelet approach to study frequency and amplitude modulation in renal autoregulation (<i>8 pages</i>)	031915
O. V. Sosnovtseva, A. N. Pavlov, E. Mosekilde, N.-H. Holstein-Rathlou, and D. J. Marsh	
Spectra and waiting-time densities in firing resonant and nonresonant neurons (<i>8 pages</i>)	031916
T. Verechtchaguina, L. Schimansky-Geier, and I. M. Sokolov	
Thermoelectricity in natural and synthetic hydrogels (<i>7 pages</i>)	031917
Brandon R. Brown, Mary E. Hughes, and Clementina Russo	

BRIEF REPORTS

Statistical physics of soft matter

Sierpinski signal generates $1/f^\alpha$ spectra (<i>4 pages</i>)	032101
Jens Christian Claussen, Jan Nagler, and Heinz Georg Schuster	
Diffusion-controlled annihilation $A+B\rightarrow 0$: The growth of an A -particle island from a localized A source in the B -particle sea (<i>4 pages</i>)	032102
Boris M. Shpilevsky	

Biological physics

Steady states of a microtubule assembly in a confined geometry (<i>4 pages</i>)	032901
Bindu S. Govindan and William B. Spillman, Jr.	
Stabilization of surface-immobilized enzymes using grafted polymers (<i>4 pages</i>)	032902
Yevgeny Moskovitz and Simcha Srebnik	
Complex dynamics of the formation of spatially localized standing structures in the vicinity of saddle-node bifurcations of waves in the reaction-diffusion model of blood clotting (<i>4 pages</i>)	032903
E. S. Lobanova, E. E. Shnol, and F. I. Ataullakhanov	

PHYSICAL REVIEW E

For editorial and subscription correspondence,
please see inside front cover
(ISSN: 1539-3755)

PERIODICALS
Postmaster send address changes to:
American Institute of Physics
Suite 1NO1
2 Huntington Quadrangle
Melville, NY 11747-4502

THIRD SERIES, VOLUME 70, NUMBER 3

CONTENTS

SEPTEMBER 2004

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

Editorial iii

RAPID COMMUNICATIONS

General methods of statistical physics

- Attack vulnerability of scale-free networks due to cascading breakdown (*4 pages*) 035101(R)
Liang Zhao, Kwangho Park, and Ying-Cheng Lai
- Universality of the optimal path in the strong disorder limit (*4 pages*) 035102(R)
Sergey V. Buldyrev, Shlomo Havlin, Eduardo López, and H. Eugene Stanley
- Percolation of unsatisfiability in finite dimensions (*4 pages*) 035103(R)
J. M. Schwarz and A. Alan Middleton
- Where two fractals meet: The scaling of a self-avoiding walk on a percolation cluster (*4 pages*) 035104(R)
C. von Ferber, V. Blavats'ka, R. Folk, and Yu. Holovatch
- Clogging and self-organized criticality in complex networks (*4 pages*) 035105(R)
Ginestra Bianconi and Matteo Marsili
- Paradoxical nonlinear response of a Brownian particle (*4 pages*) 035106(R)
Ralf Eichhorn and Peter Reimann
- Spontaneous edge order and geometric aspects of two-dimensional Potts models (*4 pages*) 035107(R)
Youjin Deng and Henk W. J. Blöte

Chaos and pattern formation

- Phase synchronization and polarization ordering of globally coupled oscillators (*4 pages*) 035201(R)
Alessandro Scirè, Pere Colet, and Maxi San Miguel
- Classical invariants and the quantization of chaotic systems (*4 pages*) 035202(R)
D. A. Wisniacki, E. Vergini, R. M. Benito, and F. Borondo
- Topological characterization of spatial-temporal chaos (*4 pages*) 035203(R)
Marcio Gameiro, Konstantin Mischaikow, and William Kalies
- Predicting phase synchronization in a spiking chaotic CO₂ laser (*4 pages*) 035204(R)
Isao Tokuda, Jürgen Kurths, Enrico Allaria, Riccardo Meucci, Stefano Boccaletti, and F. Tito Arecchi



Copyright 2004 by The American Physical Society

(Continued)



1539-3755(200409)70:3;2;1-F

Plasma physics

- Detection of hydrodynamic expansion in ultrashort pulse laser ellipsometric pump-probe experiments
(3 pages) 035401(R)
Hidetoshi Morikami, Hitoki Yoneda, Ken-ichi Ueda, and Richard M. More

Physics of beams

- Two-beam free-electron laser (4 pages) 035501(R)
B. W. J. McNeil, G. R. M. Robb, and M. W. Poole

Classical physics, including nonlinear media and photonic materials

- Electromagnetic nondiffracting pulses in lossless isotropic plasmalike media (4 pages) 035601(R)
Alessandro Ciattoni and Paolo Di Porto
- Metrics for negative-refractive-index materials (4 pages) 035602(R)
K. J. Webb, M. Yang, D. W. Ward, and K. A. Nelson

Computational physics

- Resummed Green-Kubo relations for a fluctuating fluid-particle model (4 pages) 035701(R)
T. Ihle, E. Tüzel, and D. M. Kroll

ARTICLES**General methods of statistical physics**

- Fluctuating fronts as correlated extreme value problems: An example of Gaussian statistics (6 pages) 036101
Debabrata Panja
- Best linear forecast of volatility in financial time series (6 pages) 036102
M. I. Krivoruchenko
- Emergent oscillations in unidirectionally coupled overdamped bistable systems (12 pages) 036103
Adi R. Bulsara, Visarath In, Andy Kho, Patrick Longhini, Antonio Palacios, Wouter-Jan Rappel,
Juan Acebron, Salvatore Baglio, and Bruno Ando
- Spin models with random anisotropy and reflection symmetry (13 pages) 036104
Pasquale Calabrese, Andrea Pelissetto, and Ettore Vicari
- Aging and rejuvenation with fractional derivatives (11 pages) 036105
Gerardo Aquino, Mauro Bologna, Paolo Grigolini, and Bruce J. West
- Self-organization of collaboration networks (10 pages) 036106
José J. Ramasco, S. N. Dorogovtsev, and Romualdo Pastor-Satorras
- Minimizing energy below the glass thresholds (11 pages) 036107
Demian Battaglia, Michal Kolář, and Riccardo Zecchina
- Networking the seceder model: Group formation in social and economic systems (9 pages) 036108
Andreas Grönlund and Petter Holme
- Cluster growth in far-from-equilibrium particle models with diffusion, detachment, reattachment,
and deposition (7 pages) 036109
F. D. A. Aarão Reis and R. B. Stinchcombe

Statistical analysis of the extreme values of stress time series from the Portevin–Le Châtelier effect (11 pages)	036110
D. Kugiumtzis, A. Kehagias, E. C. Aifantis, and H. Neuhäuser	
Survival probability of a diffusing test particle in a system of coagulating and annihilating random walkers (9 pages)	036111
R. Rajesh and Oleg Zaboronski	
Triangular Ising model with nearest- and next-nearest-neighbor couplings in a field (8 pages)	036112
Xiaofeng Qian and Henk W. J. Blöte	
Stochastic process of equilibrium fluctuations of a system with long-range interactions (4 pages)	036113
Freddy Bouchet	
Pair approximation of the stochastic susceptible-infected-recovered-susceptible epidemic model on the hypercubic lattice (9 pages)	036114
Jaewook Joo and Joel L. Lebowitz	
Anomalous scaling of superrough growing surfaces: From correlation functions to residual local interfacial widths and scaling exponents (8 pages)	036115
Ning-Ning Pang and Wen-Jer Tzeng	
Phase transitions in moving systems (6 pages)	036116
M. Gitterman	
Navigation in a small world with local information (8 pages)	036117
Han Zhu and Zhuang-Xiong Huang	
Rapid self-organized criticality: Fractal evolution in extreme environments (8 pages)	036118
Julianne D. Halley, Andrew C. Warden, Suzanne Sadedin, and Wentian Li	
Absorbing state transition in a one-dimensional contact replication process (7 pages)	036119
S. C. Ferreira, Jr.	
Itô versus Stratonovich white-noise limits for systems with inertia and colored multiplicative noise (9 pages)	036120
R. Kupferman, G. A. Pavliotis, and A. M. Stuart	
Front propagation in reaction-dispersal models with finite jump speed (7 pages)	036121
Vicenç Méndez, Daniel Campos, and Sergei Fedotov	
Influence of adsorption and diffusion rates on the growth of $\text{Pb}_{1-x}\text{Fe}_x\text{S}$ nanoparticle films (6 pages)	036122
Varsha Banerjee, Rakesh K. Joshi, and H. K. Sehgal	
Correlation length exponent in the three-dimensional fuse network (4 pages)	036123
Thomas Ramstad, Jan Ø. H. Bakke, Johannes Bjelland, Torunn Stranden, and Alex Hansen	
Analysis of scale-free networks based on a threshold graph with intrinsic vertex weights (9 pages)	036124
Naoki Masuda, Hiroyoshi Miwa, and Norio Konno	
Saddle index properties, singular topology, and its relation to thermodynamic singularities for a ϕ^4 mean-field model (9 pages)	036125
D. A. Garanin, R. Schilling, and A. Scala	
Chaos and pattern formation	
Two-dimensional map for impact oscillator with drift (10 pages)	036201
Ekaterina Pavlovskaja, Marian Wiercigroch, and Celso Grebogi	

Rotating hexagonal pattern in a dielectric barrier discharge system (9 pages)	036202
A. L. Zanin, E. L. Gurevich, A. S. Moskalenko, H. U. Bödeker, and H.-G. Purwins	
Stability of attractors formed by inertial particles in open chaotic flows (10 pages)	036203
Younghae Do and Ying-Cheng Lai	
Poincaré Husimi representation of eigenstates in quantum billiards (10 pages)	036204
A. Bäcker, S. Fürstberger, and R. Schubert	
Chaotic Hamiltonian ratchets for pulsed periodic double-well potentials: Classical correlations and the ratchet current (13 pages)	036205
N. A. C. Hutchings, M. R. Isherwood, T. Jonckheere, and T. S. Monteiro	
Counting function for a sphere of anisotropic quartz (9 pages)	036206
Niels Søndergaard, Thomas Guhr, Mark Oxborrow, Kristian Schaadt, and Clive Ellegaard	
Regularity and chaos in interacting two-body systems (13 pages)	036207
Sergey Radionov, Sven Åberg, and Thomas Guhr	
Coupling scheme for complete synchronization of periodically forced chaotic CO ₂ lasers (8 pages)	036208
I. P. Mariño, E. Allaria, M. A. F. Sanjuán, R. Meucci, and F. T. Arecchi	
Lyapunov spectrum of the many-dimensional dilute random Lorentz gas (7 pages)	036209
Astrid S. de Wijn and Henk van Beijeren	
Domain dynamics in the anisotropic Swift-Hohenberg equation (11 pages)	036210
Katsuya Ouchi and Hirokazu Fujisaka	
Bifurcation study of regular pulse packages in laser diodes subject to optical feedback (9 pages)	036211
Andrzej Tabaka, Krassimir Panajotov, Irina Veretennicoff, and Marc Sciamanna	
Fractal rock slope dynamics anticipating a collapse (7 pages)	036212
Milan Paluš, Dagmar Novotná, and Jiří Zvelebil	
Transient and stationary chaos of a Bose-Einstein condensate loaded into a moving optical lattice potential (6 pages)	036213
Guishu Chong, Wenhua Hai, and Qiongtao Xie	
Classical-quantum correspondence for the scattering dwell time (5 pages)	036214
Caio H. Lewenkopf and Raúl O. Vallejos	
Hierarchical structure description of spatiotemporal chaos (10 pages)	036215
Jian Liu, Zhen-Su She, Hongyu Guo, Liang Li, and Qi Ouyang	
Reactions in flows with nonhyperbolic dynamics (9 pages)	036216
Alessandro P. S. de Moura and Celso Grebogi	
Observation of robust quantum resonance peaks in an atom optics kicked rotor with amplitude noise (10 pages)	036217
Mark Sadgrove, Andrew Hilliard, Terry Mullins, Scott Parkins, and Rainer Leonhardt	
Interaction of Ising-Bloch fronts with Dirichlet boundaries (9 pages)	036218
A. Yadav and D. A. Browne	
Synchronization of spatially extended chaotic systems in the presence of asymmetric coupling (9 pages)	036219
J. Bragard, S. Boccaletti, C. Mendoza, H. G. E. Hentschel, and H. Mancini	

Effects of time-delayed feedback on chaotic oscillators (<i>7 pages</i>)	036220
Jung-Wan Ryu, Won-Ho Kye, Soo-Young Lee, Myung-Woon Kim, Muhan Choi, Sunghwan Rim, Young-Jai Park, and Chil-Min Kim	
Direction detector on an excitable field: Field computation with coincidence detection (<i>5 pages</i>)	036221
Hiroki Nagahara, Takatoshi Ichino, and Kenichi Yoshikawa	
Fluid dynamics	
Conditional Lagrangian acceleration statistics in turbulent flows with Gaussian-distributed velocities (<i>8 pages</i>)	036301
A. K. Aringazin	
Reynolds stress model involving the mean spin tensor (<i>10 pages</i>)	036302
Yu-Ning Huang and Hui-Yang Ma	
Nonlinear hydrodynamic waves: Effects of the equation of state (<i>5 pages</i>)	036303
N. M. Bulgakova and I. M. Burakov	
Kelvin-Helmholtz instability for relativistic fluids (<i>4 pages</i>)	036304
G. Bodo, A. Mignone, and R. Rosner	
Electro-osmotic streaming on application of traveling-wave electric fields (<i>14 pages</i>)	036305
Brian P. Cahill, Laura J. Heyderman, Jens Gobrecht, and Andreas Stemmer	
Fractal aircraft trajectories and nonclassical turbulent exponents (<i>5 pages</i>)	036306
S. Lovejoy, D. Schertzer, and A. F. Tuck	
23/9 dimensional anisotropic scaling of passive admixtures using lidar data of aerosols (<i>7 pages</i>)	036307
Marc Lilley, Shaun Lovejoy, Kevin Strawbridge, and Daniel Schertzer	
Molecular to fluid dynamics: The consequences of stochastic molecular motion (<i>11 pages</i>)	036308
Stefan Heinz	
Two-point closure strategy in the mapping closure approximation approach (<i>4 pages</i>)	036309
Guo-Wei He and Zi-Fan Zhang	
Polymers suppress the inverse transfers of energy and the enstrophy flux fluctuations in two-dimensional turbulence (<i>7 pages</i>)	036310
H. Kellay	
Adhesion phenomena in ferrofluids (<i>10 pages</i>)	036311
José A. Miranda, Rafael M. Oliveira, and David P. Jackson	
Frozen water waves over rough topographical bottoms (<i>4 pages</i>)	036312
Liang-Shan Chen and Zhen Ye	
Wave-number selection by target patterns and sidewalls in Rayleigh-Bénard convection (<i>10 pages</i>)	036313
John R. Royer, Patrick O'Neill, Nathan Becker, and Guenter Ahlers	
Plasma physics	
Electron acceleration to energies beyond GeV by a relativistic ion beam instability (<i>5 pages</i>)	036401
M. E. Dieckmann, B. Eliasson, and P. K. Shukla	
Effects of the electron energy distribution function on modeled x-ray spectra (<i>13 pages</i>)	036402
S. B. Hansen and A. S. Shlyaptseva	

Ultrashort relativistic electromagnetic solitons (<i>4 pages</i>)	036403
Baifei Shen, M. Y. Yu, and Ruxin Li	
Closed fluid description of relativistic, magnetized plasma interacting with radiation field (<i>6 pages</i>)	036404
R. D. Hazeltine and S. M. Mahajan	
Characterization of proton and heavier ion acceleration in ultrahigh-intensity laser interactions with heated target foils (<i>6 pages</i>)	036405
P. McKenna, K. W. D. Ledingham, J. M. Yang, L. Robson, T. McCanny, S. Shimizu, R. J. Clarke, D. Neely, K. Spohr, R. Chapman, R. P. Singhal, K. Krushelnick, M. S. Wei, and P. A. Norreys	
Normal modes of a quasi-one-dimensional multichain complex plasma (<i>13 pages</i>)	036406
G. Piacente, F. M. Peeters, and J. J. Betouras	
Large-amplitude oscillations and chaos in a Hamiltonian plasma system with many degrees of freedom (<i>5 pages</i>)	036407
Daniela Farina and Roberto Pozzoli	
Suppression of small scale dynamo action by an imposed magnetic field (<i>7 pages</i>)	036408
Nils Erland L. Haugen and Axel Brandenburg	
Kinetics of ultrashort relativistic electron pulses emitted from solid targets (<i>5 pages</i>)	036409
Ernst E. Fill	
Physics of beams	
Mechanism of electron multipacting with a long-bunch proton beam (<i>19 pages</i>)	036501
L. Wang, M. Blaskiewicz, J. Wei, W. T. Weng, K. Ohmi, and R. Macek	
Classical physics, including nonlinear media and photonic materials	
Anisotropic enhanced backscattering induced by anisotropic diffusion (<i>5 pages</i>)	036601
B. P. J. Bret and A. Lagendijk	
Saturation-induced coherence loss in coherent backscattering of light (<i>4 pages</i>)	036602
T. Chanelière, D. Wilkowski, Y. Bidel, R. Kaiser, and C. Miniatura	
Circular photonic crystal resonators (<i>8 pages</i>)	036603
Jacob Scheuer and Amnon Yariv	
Nonlinear optical pulse propagation simulation: From Maxwell's to unidirectional equations (<i>11 pages</i>)	036604
M. Kolesik and J. V. Moloney	
Optical properties of an ideal homogeneous causal left-handed material slab (<i>11 pages</i>)	036605
P. F. Loschialpo, D. W. Forester, D. L. Smith, F. J. Rachford, and C. Monzon	
Coupled dipole method for scatterers with large permittivity (<i>6 pages</i>)	036606
Patrick C. Chaumet, Anne Sentenac, and Adel Rahmani	
Lasing in a random amplifying medium: Spatiotemporal characteristics and nonadiabatic atomic dynamics (<i>10 pages</i>)	036607
Lucia Florescu and Sajeed John	
Stabilization of a light bullet in a layered Kerr medium with sign-changing nonlinearity (<i>4 pages</i>)	036608
Sadhan K. Adhikari	
Bubble generation in a twisted and bent DNA-like model (<i>6 pages</i>)	036609
P. V. Larsen, P. L. Christiansen, O. Bang, J. F. R. Archilla, and Yu. B. Gaididei	

CONTENTS - Continued

PHYSICAL REVIEW E

THIRD SERIES, VOLUME 70, NUMBER 3

SEPTEMBER 2004

Chaos near the gap soliton in a Kerr grating (9 pages)	036610
Theo P. Valkering and Arie Irman	
Generalized optical theorem for reflection, transmission, and extinction of power for scalar fields (7 pages)	036611
P. Scott Carney, John C. Schotland, and Emil Wolf	
Designing for beam propagation in periodic and nonperiodic photonic nanostructures: Extended Hamiltonian method (9 pages)	036612
Yang Jiao, Shanhui Fan, and David A. B. Miller	
Strongly asymmetric soliton explosions (8 pages)	036613
Nail Akhmediev and J. M. Soto-Crespo	
Freezing of nonlinear Bloch oscillations in the generalized discrete nonlinear Schrödinger equation (6 pages)	036614
F. J. Cao	
Nonequilibrium electromagnetics: Local and macroscopic fields and constitutive relationships (13 pages)	036615
James Baker-Jarvis, Pavel Kabos, and Christopher L. Holloway	
Optical limiting and intensity-dependent diffraction from low-contrast nonlinear periodic media: Coupled-mode analysis (8 pages)	036616
Jamin L. Sheriff, Irene A. Goldthorpe, and Edward H. Sargent	
Nonlocal incoherent solitons (5 pages)	036617
Wiesław Królikowski, Ole Bang, and John Wyller	
Bifurcations and stability of gap solitons in periodic potentials (17 pages)	036618
Dmitry E. Pelinovsky, Andrey A. Sukhorukov, and Yuri S. Kivshar	
Statistics of polarization and Stokes parameters of stochastic waves (12 pages)	036619
M. J. Hole, P. A. Robinson, and Iver H. Cairns	

Computational physics

Hybrid Monte Carlo–molecular dynamics algorithm for the study of islands and step edges on semiconductor surfaces: Application to Si/Si(001) (8 pages)	036701
F. Tavazza, L. Nurminen, D. P. Landau, A. Kuronen, and K. Kaski	
Quantum adiabatic optimization and combinatorial landscapes (18 pages)	036702
V. N. Smelyanskiy, S. Knysh, and R. D. Morris	
Accurate discretization of advection-diffusion equations (9 pages)	036703
R. Grima and T. J. Newman	
Boltzmann equation description of flows at long mean free paths (10 pages)	036704
J. Feng and W. N. G. Hitchon	

BRIEF REPORTS

General methods of statistical physics

Assortative model for social networks (4 pages)	037101
Michele Catanzaro, Guido Caldarelli, and Luciano Pietronero	
Phase transitions for rock-scissors-paper game on different networks (4 pages)	037102
Attila Szolnoki and György Szabó	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW E

THIRD SERIES, VOLUME 70, NUMBER 3

SEPTEMBER 2004

Complex network study of Brazilian soccer players (*4 pages*) 037103
Roberto N. Onody and Paulo A. de Castro

Dynamical model of Ising spins (*4 pages*) 037104
Katarzyna Sznajd-Weron

Chaos and pattern formation

Nonlinear dynamic conversion of analog signals into excitation patterns (*4 pages*) 037201
Gerold Baier and Markus Müller

Abnormal frequency locking and the function of the cardiac pacemaker (*4 pages*) 037202
M. Gutman, I. Aviram, and A. Rabinovitch

Fluid dynamics

$1/f$ model for long-time memory of the ocean surface temperature (*4 pages*) 037301
Klaus Fraedrich, Ute Luksch, and Richard Blender

Classical physics, including nonlinear media and photonic materials

Nonradiating sources with connections to the adjoint problem (*4 pages*) 037601
Edwin A. Marengo and Anthony J. Devaney

Layer-by-layer photonic crystal horn antenna (*4 pages*) 037602
Andrew R. Weily, Karu P. Esselle, and Barry C. Sanders

Effects of localization and amplification on intensity distribution of light transmitted through random media (*4 pages*) 037603
Alexey Yamilov and Hui Cao

ERRATA

Erratum: Modeling traffic through a sequence of traffic lights [Phys. Rev. E **70**, 016107 (2004)] (*1 page*) 039901(E)
B. A. Toledo, V. Muñoz, J. Rogan, C. Tenreiro, and J. A. Valdivia

Publisher's Note: Percolation and Burgers' dynamics in a model of capillary formation [Phys. Rev. E **69**, 051910 (2004)] (*1 page*) 039902(E)
A. Coniglio, A. de Candia, S. Di Talia, and A. Gamba

Cumulative Author Index v