

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 2

CONTENTS

AUGUST 2004

PART 1: SOFT MATTER AND BIOLOGICAL PHYSICS

RAPID COMMUNICATIONS

Statistical physics of soft matter

- Stochastic nonlinear differential equation generating $1/f$ noise (3 pages) 020101(R)
B. Kaulakys and J. Ruseckas

Colloidal dispersions, suspensions, and aggregates

- Grain boundary dynamics under mechanical annealing in two-dimensional colloids (4 pages) 020401(R)
Q. H. Wei and X. L. Wu

Biological physics

- Molecular discreteness in reaction-diffusion systems yields steady states not seen in the continuum limit (4 pages) 020901(R)
Yuichi Togashi and Kunihiko Kaneko
- Effects of stacking on the configurations and elasticity of single-stranded nucleic acids (4 pages) 020902(R)
A. Buhot and A. Halperin

ARTICLES

Statistical physics of soft matter

- Reentrant behavior of the spinodal curve in a nonequilibrium ferromagnet (7 pages) 021101
P. I. Hurtado, J. Marro, and P. L. Garrido
- Brownian rectifiers in the presence of temporally asymmetric unbiased forces (6 pages) 021102
Raishma Krishnan, Mangal C. Mahato, and A. M. Jayannavar
- Effects of noise near a homoclinic bifurcation in an electrochemical system (6 pages) 021103
Gerardo J. Escalera Santos, M. Rivera, M. Eiswirth, and P. Parmananda
- Constructive approximations to the $q=1/2$ maximum entropy distribution from redundant and noisy data (8 pages) 021104
L. Rebollo-Neira and A. Plastino
- Kinetic models of ion transport through a nanopore (15 pages) 021105
Jaroslaw Piasecki, Rosalind J. Allen, and Jean-Pierre Hansen



Signal estimation and threshold optimization using an array of bithreshold elements (5 pages)	021106
Aki-Hiro Sato, Michihito Ueda, and Toyonori Munakata	
Equilibrium and linear transport properties of fluids	
Thermoacoustic boundary layers near the liquid-vapor critical point (20 pages)	021201
K. A. Gillis, I. I. Shinder, and M. R. Moldover	
Stripe patterns in two-dimensional systems with core-corona molecular architecture (6 pages)	021202
Gianpietro Malescio and Giuseppe Pellicane	
Determination of effective pair interactions from the structure factor (5 pages)	021203
N. G. Almaraz, E. Lomba, and D. Molina	
Mode-coupling theory and molecular dynamics simulation for heat conduction in a chain with transverse motions (16 pages)	021204
Jian-Sheng Wang and Baowen Li	
Thermophoretic force and velocity of nanoparticles in the free molecule regime (11 pages)	021205
Zhigang Li and Hai Wang	
Granular materials	
Pressure measurement in two-dimensional horizontal granular gases (8 pages)	021301
J.-C. Géminard and C. Laroche	
Colloidal dispersions, suspensions, and aggregates	
Chain aggregate structure and magnetic birefringence in polydisperse ferrofluids (10 pages)	021401
Alexey O. Ivanov and Sofia S. Kantorovich	
Large structures in diblock copolymer micellar solution (8 pages)	021402
Domenico Lombardo, Norberto Micali, Valentina Villari, and Mikhail A. Kiselev	
Theory of growth by differential sedimentation, with application to snowflake formation (7 pages)	021403
C. D. Westbrook, R. C. Ball, P. R. Field, and A. J. Heymsfield	
Bending of flexible magnetic rods (6 pages)	021404
A. Cēbers and I. Javaitis	
Brownian dynamics simulations of Laponite colloid suspensions (15 pages)	021405
G. Odriozola, M. Romero-Bastida, and F. de J. Guevara-Rodríguez	
Structured and complex fluids	
Unconventional density dependence of the stochastic dynamics in an organic liquid (9 pages)	021501
A. Maira-Vidal, M. A. González, M. Jimenez-Ruiz, F. J. Bermejo, D. L. Price, E. Enciso, M. L. Saboungi, R. Fernández-Perea, and C. Cabrillo	
Cooperativity of the β -relaxations in aromatic polymers (6 pages)	021502
Alejandro Sanz, Aurora Nogales, Tiberio A. Ezquerra, Nadia Lotti, and Lara Finelli	
Microrheology of solutions of semiflexible biopolymer filaments using laser tweezers interferometry (16 pages)	021503
Karim M. Addas, Christoph F. Schmidt, and Jay X. Tang	
Phase diagram of charged dumbbells: A random phase approximation approach (6 pages)	021504
Alexander Kudlay, Alexander V. Ermoshkin, and Monica Olvera de la Cruz	

Colloidal hard-rod fluids near geometrically structured substrates (<i>8 pages</i>)	021505
L. Harnau, F. Penna, and S. Dietrich	
Diffuse-charge dynamics in electrochemical systems (<i>24 pages</i>)	021506
Martin Z. Bazant, Katsuyo Thornton, and Armand Ajdari	
Experimental investigation of the frequency dependence of the electrorheological effect (<i>6 pages</i>)	021507
Yucheng Lan, Colin Ke Huang, Shouqiang Men, and Kunquan Lu	

Films, interfaces, and crystal growth

Spinodal dewetting in a volatile liquid film (<i>9 pages</i>)	021601
Len M. Pismen	
Initial-stage growth phenomena and distribution of local configurations of the restricted solid-on-solid model (<i>8 pages</i>)	021602
Chih-Chun Chien, Ning-Ning Pang, and Wen-Jer Tzeng	
Convective instability in protein crystal growth (<i>7 pages</i>)	021603
D. Lima and A. De Wit	
Interfacial mixing in heteroepitaxial growth (<i>11 pages</i>)	021604
Boris Bierwald, Michael von den Driesch, Zéno Farkas, Sang Bub Lee, and Dietrich E. Wolf	
Statistical theory of nucleation in the presence of uncharacterized impurities (<i>8 pages</i>)	021605
Richard P. Sear	
Dynamics and morphology of superfluid bubbles in ^4He quantum crystals (<i>5 pages</i>)	021606
K. Yoneyama, R. Nomura, and Y. Okuda	

Liquid crystals

Periodic buckling of smectic-A tubular filaments in an isotropic phase (<i>6 pages</i>)	021701
Masayoshi Todorokihara, Yosuke Iwata, and Hiroyoshi Naito	
Rheological properties in discotic liquid crystalline phases of 2,3,7,8,12,13-hexa(<i>n</i> -tetradecanoyloxy)truxene (<i>5 pages</i>)	021702
Keishi Negita, Chiharu Kawano, and Keiichi Moriya	
Growth laws for the phase ordering dynamics of the <i>B1</i> phase of a bent-core liquid crystal (<i>5 pages</i>)	021703
HoKei Chan and Ingo Dierking	
Origin of spontaneous polarization, tilt, and chiral structure of smectic liquid-crystal phases composed of bent-core molecules: A molecular model (<i>8 pages</i>)	021704
A. V. Emelyanenko and M. A. Osipov	

Polymers

Unwrapping of DNA-protein complexes under external stretching (<i>8 pages</i>)	021801
Takahiro Sakaue and Hartmut Löwen	
Solvation versus freezing in a heteropolymer globule (<i>6 pages</i>)	021802
Phillip L. Geissler, Eugene I. Shakhnovich, and Alexander Yu. Grosberg	

Biological physics

Mean-field approaches to the totally asymmetric exclusion process with quenched disorder and large particles (<i>7 pages</i>)	021901
Leah B. Shaw, James P. Sethna, and Kelvin H. Lee	
Lateral organization of cholesterol molecules in lipid-cholesterol assemblies (<i>6 pages</i>)	021902
Pinaki Sengupta, Rajiv R. P. Singh, Daniel L. Cox, and Alex Slepoy	
Solution of the quasispecies model for an arbitrary gene network (<i>15 pages</i>)	021903
Emmanuel Tannenbaum and Eugene I. Shakhnovich	
Coupled oscillator systems of cultured cardiac myocytes: Fluctuation and scaling properties (<i>9 pages</i>)	021904
Mitsuru Yoneyama and Koichi Kawahara	
Exact solution of a linear molecular motor model driven by two-step fluctuations and subject to protein friction (<i>10 pages</i>)	021905
Hans C. Fogedby, Ralf Metzler, and Axel Svane	
Finite width model sequence comparison (<i>9 pages</i>)	021906
Nicholas Chia and Ralf Bundschuh	
Solvable senescence model with positive mutations (<i>4 pages</i>)	021907
J. B. Coe, Y. Mao, and M. E. Cates	
Structure and fluctuations of phosphatidylcholines in the vicinity of the main phase transition (<i>9 pages</i>)	021908
G. Pabst, H. Amenitsch, D. P. Kharakoz, P. Laggner, and M. Rappolt	
Control of cardiac function and noise from a decaying power spectrum (<i>9 pages</i>)	021909
G. C. Kember, J. A. Armour, G. A. Fenton, and A. Malhotra	
Spontaneous rhythmic motion of a polymer chain in a continuous-wave laser field (<i>4 pages</i>)	021910
Hiroyuki Kitahata, Hiroyuki Mayama, and Kenichi Yoshikawa	
Augmented moment method for stochastic ensembles with delayed couplings. I. Langevin model (<i>11 pages</i>) . .	021911
Hideo Hasegawa	
Augmented moment method for stochastic ensembles with delayed couplings. II. FitzHugh-Nagumo model (<i>9 pages</i>)	021912
Hideo Hasegawa	
Suppression of ecological competition by an apex predator (<i>4 pages</i>)	021913
Taksu Cheon and Shigemi Ohta	
Pulse-coupled resonate-and-fire models (<i>7 pages</i>)	021914
Keiji Miura and Masato Okada	
Dynamics of a contact process with ontogeny (<i>10 pages</i>)	021915
Joshua S. Weitz and Daniel H. Rothman	
Random walks for spike-timing-dependent plasticity (<i>16 pages</i>)	021916
Alan Williams, Todd K. Leen, and Patrick D. Roberts	
Picometer-scale dynamical observations of individual membrane proteins: The case of bacteriorhodopsin (<i>7 pages</i>)	021917
Yasuaki Okumura, Toshihiko Oka, Mikio Kataoka, Yoshio Taniguchi, and Yuji C. Sasaki	

BRIEF REPORTS**Colloidal dispersions, suspensions, and aggregates**

- Competition between short-ranged attraction and short-ranged repulsion in crowded configurational space: A lattice model description (*4 pages*) 022401
Davide Cellai, Hector Cuevas, Aonghus Lawlor, Gavin D. McCullagh, and Kenneth A. Dawson

Structured and complex fluids

- Density functional theory for sphere-needle mixtures: Toward finite rod thickness (*4 pages*) 022501
Ansgar Esztermann and Matthias Schmidt

Biological physics

- Oscillatory phase transition and pulse propagation in noisy integrate-and-fire neurons (*4 pages*) 022901
Hidetsugu Sakaguchi
- Pattern formation driven by nematic ordering of assembling biopolymers (*4 pages*) 022902
Falko Ziebert and Walter Zimmermann

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 2

CONTENTS

AUGUST 2004

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

RAPID COMMUNICATIONS

General methods of statistical physics

- Modularity from fluctuations in random graphs and complex networks (*4 pages*) 025101(R)
Roger Guimerà, Marta Sales-Pardo, and Luís A. Nunes Amaral
- Universality in the level statistics of disordered systems (*4 pages*) 025102(R)
Heiko Bauke and Stephan Mertens
- Dynamical mechanisms of adaptation in multiagent systems (*4 pages*) 025103(R)
K. Y. Michael Wong, S. W. Lim, and Zhuo Gao
- Generalized minority games with adaptive trend-followers and contrarians (*4 pages*) 025104(R)
A. De Martino, I. Giardina, A. Tedeschi, and M. Marsili

Chaos and pattern formation

- Alternative pathways of dewetting for a thin liquid two-layer film (*4 pages*) 025201(R)
Andrey Pototsky, Michael Bestehorn, Domnic Merkt, and Uwe Thiele
- Preparation of subharmonic patterns in nematic electroconvection (*4 pages*) 025202(R)
Thomas John and Ralf Stannarius

Fluid dynamics

- Dispersed phase of particles in rotating turbulent fluid flows (*4 pages*) 025301(R)
R. V. R. Pandya, P. Stansell, and J. Cosgrove
- Statistics of intense turbulent vorticity events (*4 pages*) 025302(R)
L. Moriconi

Classical physics, including nonlinear media and photonic materials

- Multipeaked polarons in soft potentials (*4 pages*) 025601(R)
M. A. Fuentes, P. Maniadis, G. Kalosakas, K. Ø. Rasmussen, A. R. Bishop, V. M. Kenkre, and
Yu. B. Gaididei



Copyright 2004 by The American Physical Society

(Continued)



1539-3755(200408)70:2;1-J

ARTICLES

General methods of statistical physics

Stochastic dynamical model for stock-stock correlations (<i>9 pages</i>)	026101
Wen-Jong Ma, Chin-Kun Hu, and Ravindra E. Amritkar	
Anomalous slow phase transitions in self-gravitating systems (<i>5 pages</i>)	026102
I. Ispolatov and M. Karttunen	
Large-scale numerical simulations of ultrametric long-range depinning (<i>9 pages</i>)	026103
Damien Vandembroucq and Stéphane Roux	
Exponential and power-law mass distributions in brittle fragmentation (<i>7 pages</i>)	026104
J. A. Åström, R. P. Linna, J. Timonen, Peder Friis Møller, and Lene Oddershede	
Equilibrium of a confined, randomly accelerated, inelastic particle: Is there inelastic collapse? (<i>6 pages</i>)	026105
Theodore W. Burkhardt and Stanislav N. Kotsev	
Perturbing general uncorrelated networks (<i>7 pages</i>)	026106
Z. Burda, J. Jurkiewicz, and A. Krzywicki	
Ordinary chemical reaction process induced by a unidimensional map (<i>6 pages</i>)	026107
Marco Bianucci	
Broadening of a nonequilibrium phase transition by extended structural defects (<i>4 pages</i>)	026108
Thomas Vojta	
Characterization of weighted complex networks (<i>4 pages</i>)	026109
Kwangho Park, Ying-Cheng Lai, and Nong Ye	
Random matrix theory analysis of cross correlations in financial markets (<i>11 pages</i>)	026110
Akihiko Utsugi, Kazusumi Ino, and Masaki Oshikawa	
Dynamical approach to the spatiotemporal aspects of the Portevin–Le Chatelier effect: Chaos, turbulence, and band propagation (<i>15 pages</i>)	026111
G. Ananthakrishna and M. S. Bharathi	
Exact solution of Ising model on a small-world network (<i>8 pages</i>)	026112
J. Viana Lopes, Yu. G. Pogorelov, J. M. B. Lopes dos Santos, and R. Toral	
Combining geometrical and dynamical disorder to enhance transport (<i>5 pages</i>)	026113
Hernan L. Martinez and Juan M. R. Parrondo	
Generalized epidemic process and tricritical dynamic percolation (<i>20 pages</i>)	026114
Hans-Karl Janssen, Martin Müller, and Olaf Stenull	
Estimate of blow-up and relaxation time for self-gravitating Brownian particles and bacterial populations (<i>8 pages</i>)	026115
P.-H. Chavanis and C. Sire	
Frequency synchronization in a random oscillator network (<i>5 pages</i>)	026116
Takashi Ichinomiya	
Finite-element analysis of contact between elastic self-affine surfaces (<i>12 pages</i>)	026117
S. Hyun, L. Pei, J.-F. Molinari, and M. O. Robbins	
Criticality in aqueous solutions of 3-methylpyridine and sodium bromide (<i>11 pages</i>)	026118
A. F. Kostko, M. A. Anisimov, and J. V. Sengers	

Critical behavior of the two-dimensional $2A \rightarrow 3A$, $4A \rightarrow \emptyset$ binary system (5 pages)	026119
Géza Ódor	
Multicriticality of the three-dimensional Ising model with plaquette interactions: An extension of Novotny's transfer-matrix formalism (7 pages)	026120
Yoshihiro Nishiyama	
Chaos and pattern formation	
Current statistics for wave transmission through an open Sinai billiard: Effects of net currents (7 pages)	026201
Almas F. Sadreev and Karl-Fredrik Berggren	
Spatiotemporal structures in a model with delay and diffusion (12 pages)	026202
M. Bestehorn, E. V. Grigorieva, and S. A. Kaschenko	
Encoding via conjugate symmetries of slow oscillations for globally coupled oscillators (8 pages)	026203
Peter Ashwin and Jon Borresen	
Spiral wave drift in an electric field and scroll wave instabilities (5 pages)	026204
Hervé Henry	
Information flow through a chaotic channel: Prediction and postdiction at finite resolution (10 pages)	026205
Richard Metzler, Yaneer Bar-Yam, and Mehran Kardar	
Loschmidt echo for a chaotic oscillator (5 pages)	026206
A. Iomin	
Global bifurcation investigation of an optimal velocity traffic model with driver reaction time (10 pages)	026207
Gábor Orosz, R. Eddie Wilson, and Bernd Krauskopf	
Stringent numerical test of the Poisson distribution for finite quantum integrable Hamiltonians (5 pages)	026208
A. Relaño, J. Dukelsky, J. M. G. Gómez, and J. Retamosa	
Dynamics and stability of vortex-antivortex fronts in type-II superconductors (12 pages)	026209
Chiara Baggio, Martin Howard, and Wim van Saarloos	
Noise-aided synchronization of coupled chaotic electrochemical oscillators (8 pages)	026210
István Z. Kiss, John L. Hudson, J. Escalona, and P. Parmananda	
Environmental effects in the quantum-classical transition for the delta-kicked harmonic oscillator (15 pages)	026211
A. R. R. Carvalho, R. L. de Matos Filho, and L. Davidovich	
Turbulence near cyclic fold bifurcations in birhythmic media (7 pages)	026212
Dorjsuren Battogtokh and John J. Tyson	
Energy localization in the Peyrard-Bishop DNA model (9 pages)	026213
Jayme De Luca, Elso Drigo Filho, Antonio Ponno, and José Roberto Ruggiero	
Periodic precursors of nonlinear dynamical transitions (4 pages)	026214
Yu Jiang, Shi-Hai Dong, and M. Lozada-Cassou	
Adaptive control of unknown unstable steady states of dynamical systems (12 pages)	026215
K. Pyragas, V. Pyragas, I. Z. Kiss, and J. L. Hudson	
Homogenization induced by chaotic mixing and diffusion in an oscillatory chemical reaction (11 pages)	026216
I. Z. Kiss, J. H. Merkin, and Z. Neufeld	

Simple estimation of synchronization threshold in ensembles of diffusively coupled chaotic systems (<i>11 pages</i>)	026217
Andrzej Stefański, Jerzy Wojewoda, Tomasz Kapitaniak, and Serhiy Yanchuk	
Chemical and biological activity in three-dimensional flows (<i>5 pages</i>)	026218
Alessandro P. S. de Moura and Celso Grebogi	
Quantum-mechanical research on nonlinear resonance and the problem of quantum chaos (<i>15 pages</i>)	026219
A. Ugulava, L. Chotorlishvili, and K. Nickoladze	
Stochastic bifurcation in a driven laser system: Experiment and theory (<i>10 pages</i>)	026220
Lora Billings, Ira B. Schwartz, David S. Morgan, Erik M. Bollt, Riccardo Meucci, and Enrico Allaria	
Stabilizing the absolutely or convectively unstable homogeneous solutions of reaction-convection-diffusion systems (<i>11 pages</i>)	026221
Moshe Sheintuch and Yelena Smagina	
Border-collision period-doubling scenario (<i>11 pages</i>)	026222
Viktor Avrutin and Michael Schanz	
Semiclassical accuracy in phase space for regular and chaotic dynamics (<i>8 pages</i>)	026223
L. Kaplan	
Fluid dynamics	
Growth activity during fingering in a porous Hele-Shaw cell (<i>12 pages</i>)	026301
Grunde Løvoll, Yves Méheust, Renaud Toussaint, Jean Schmittbuhl, and Knut Jørgen Måløy	
Scaling and transition structure dependence on the fluid viscosity ratio in the selective withdrawal transition (<i>11 pages</i>)	026302
Itai Cohen	
Direct numerical simulation of a near-field particle-laden plane turbulent jet (<i>14 pages</i>)	026303
Jianren Fan, Kun Luo, Man Yeong Ha, and Kefa Cen	
Drag reduction in homogeneous turbulence by scale-dependent effective viscosity (<i>7 pages</i>)	026304
Roberto Benzi, Emily S. C. Ching, and Itamar Procaccia	
Normal velocity freeze-out of the Richtmyer-Meshkov instability when a shock is reflected (<i>18 pages</i>)	026305
J. G. Wouchuk and K. Nishihara	
Imploding shock wave in a fluid of hard-core particles (<i>16 pages</i>)	026306
P. Gaspard and J. Lutsko	
Reaction front propagation in a turbulent flow (<i>8 pages</i>)	026307
Christophe R. Koudella and Zoltán Neufeld	
Measurements of the local convective heat flux in turbulent Rayleigh-Bénard convection (<i>13 pages</i>)	026308
X.-D. Shang, X.-L. Qiu, P. Tong, and K.-Q. Xia	
Spreading of a thin two-dimensional strip of fluid on a vertical plane: Experiments and modeling (<i>18 pages</i>)	026309
A. G. González, J. Diez, J. Gomba, R. Gratton, and L. Kondic	
Synthetic turbulence, fractal interpolation, and large-eddy simulation (<i>11 pages</i>)	026310
Sukanta Basu, Efi Foufoula-Georgiou, and Fernando Porté-Agel	
Dynamic mechanisms for apparent slip on hydrophobic surfaces (<i>7 pages</i>)	026311
Eric Lauga and Michael P. Brenner	

Simultaneous measurement of rock permeability and effective porosity using laser-polarized noble gas NMR (7 pages)	026312
R. Wang, R. W. Mair, M. S. Rosen, D. G. Cory, and R. L. Walsworth	
Convective instability of magnetic fluids (12 pages)	026313
P. N. Kaloni and J. X. Lou	
Plasma physics	
Laboratory measurements of 0.7 GG magnetic fields generated during high-intensity laser interactions with dense plasmas (5 pages)	026401
U. Wagner, M. Tatarakis, A. Gopal, F. N. Beg, E. L. Clark, A. E. Dangor, R. G. Evans, M. G. Haines, S. P. D. Mangles, P. A. Norreys, M.-S. Wei, M. Zepf, and K. Krushelnick	
Analysis of <i>L</i> -shell line spectra with 50-ps time resolution from Mo <i>X</i> -pinch plasmas (8 pages)	026402
S. B. Hansen, A. S. Shlyaptseva, S. A. Pikuz, T. A. Shelkovenko, D. B. Sinars, K. M. Chandler, and D. A. Hammer	
Microcanonical calculations of excess thermodynamic properties of dense binary systems (9 pages)	026403
Christophe Winisdoerffer, Gilles Chabrier, and Gilles Zerah	
Dust-lower-hybrid drift instabilities with dust charge fluctuations in an inhomogeneous dusty magnetoplasma (5 pages)	026404
M. Salimullah, A. M. Rizwan, M. Nambu, H. Nitta, and P. K. Shukla	
Inertial range scaling in numerical turbulence with hyperviscosity (7 pages)	026405
Nils Erland L. Haugen and Axel Brandenburg	
Dielectric response function and plasmon dispersion in a strongly coupled two-dimensional Coulomb liquid (8 pages)	026406
Kenneth I. Golden, Hania Mahassen, and Gabor J. Kalman	
Interactive dynamics of two copropagating laser beams in underdense plasmas (5 pages)	026407
Hui-Chun Wu, Zheng-Ming Sheng, and Jie Zhang	
Numerical solutions to a kinetic model for the plasma-sheath problem with charge exchange collisions of ions (8 pages)	026408
Z. Sternovsky, K. Downum, and S. Robertson	
Physics of beams	
Radial compression of protons and H_3^+ ions in a multiring trap for the production of ultralow energy antiproton beams (5 pages)	026501
H. Higaki, N. Kuroda, K. Yoshiki Franzen, Z. Wang, M. Hori, A. Mohri, K. Komaki, and Y. Yamazaki	
Classical physics, including nonlinear media and photonic materials	
TE-TM mode coupling in two-dimensional photonic crystals composed of liquid-crystal rods (7 pages)	026601
Hiroyuki Takeda and Katsumi Yoshino	
Switching of discrete optical solitons in engineered waveguide arrays (8 pages)	026602
Rodrigo A. Vicencio, Mario I. Molina, and Yuri S. Kivshar	
Transverse modulational instability of partially incoherent soliton stripes (5 pages)	026603
D. Anderson, L. Helczynski-Wolf, M. Lisak, and V. Semenov	

CONTENTS - Continued

PHYSICAL REVIEW E

THIRD SERIES, VOLUME 70, NUMBER 2

AUGUST 2004

Analysis of the dynamics of a blue-violet $\text{In}_x\text{Ga}_{1-x}\text{N}$ laser with a saturable absorber (6 pages)	026604
V. Z. Tronciu, Minoru Yamada, and R. A. Abram	
Modified geometrical optics of a smoothly inhomogeneous isotropic medium: The anisotropy, Berry phase, and the optical Magnus effect (9 pages)	026605
K. Yu. Bliokh and Yu. P. Bliokh	
Resonant phenomena in nonlinearly managed lattice solitons (4 pages)	026606
Yaroslav V. Kartashov and Victor A. Vysloukh	
Dynamics of developable cones under shear (9 pages)	026607
Eugenio Hamm, Benoît Roman, and Francisco Melo	
Negative-refraction-like behavior revealed by arrays of dielectric cylinders (5 pages)	026608
Chao-Hsien Kuo and Zhen Ye	
Multiple scattering of acoustic waves and porous absorbing media (10 pages)	026609
V. Tournat, V. Pagneux, D. Lafarge, and L. Jaouen	
Band theory of light localization in one-dimensional disordered systems (4 pages)	026610
A. P. Vinogradov and A. M. Merzlikin	

Computational physics

Force evaluations in lattice Boltzmann simulations with moving boundaries in two dimensions (9 pages)	026701
Huabing Li, Xiaoyan Lu, Haiping Fang, and Yuehong Qian	
Monte Carlo simulations in generalized isobaric-isothermal ensembles (14 pages)	026702
Hisashi Okumura and Yuko Okamoto	
Evolution of time horizons in parallel and grid simulations (9 pages)	026703
L. N. Shchur and M. A. Novotny	

BRIEF REPORTS

General methods of statistical physics

Vertex dynamics during domain growth in three-state models (4 pages)	027101
Attila Szolnoki and György Szabó	
Preferential exchange: Strengthening connections in complex networks (4 pages)	027102
G. Caldarelli, F. Coccetti, and P. De Los Rios	
Exponents and bounds for uniform spanning trees in d dimensions (4 pages)	027103
N. Read	
Transient behavior of particle transport in a Brownian motor (4 pages)	027104
G. Q. Cai and Y. K. Lin	

Plasma physics

Influence of detailed line treatment on the opacity of iron plasmas in the $2p$ - $3d$ energy region (4 pages)	027401
Jiaolong Zeng, Gang Zhao, and Jianmin Yuan	

(Continued)

Computational physics

Systematic errors due to linear congruential random-number generators with the Swendsen-Wang algorithm: A warning (<i>4 pages</i>)	027701
Giovanni Ossola and Alan D. Sokal	

COMMENTS

Comment on “Universality in sandpiles” (<i>3 pages</i>)	028101
Mario De Menech	
Comment on “Observation of matter wave beat phenomena in the macrodomain for electrons moving along a magnetic field” (<i>6 pages</i>)	028501
C. S. Unnikrishnan	
Reply to “Comment on ‘Observation of matter wave beat phenomena in the macrodomain for electrons moving along a magnetic field’ ” (<i>7 pages</i>)	028502
Ram K. Varma, A. M. Punithavelu, and S. B. Banerjee	

ERRATA

Erratum: Shear-induced formation of vesicles in membrane phases: Kinetics and size selection mechanisms, elasticity versus surface tension [Phys. Rev. E 69 , 021504 (2004)] (<i>1 page</i>)	029901(E)
L. Courbin and P. Panizza	

Cumulative Author Index	i
--------------------------------------	---