

CONTENTS - *Continued*

PHYSICAL REVIEW E

THIRD SERIES, VOLUME 79, NUMBER 3

MARCH 2009

Films, interfaces, and crystal growth

- Preferred orientation of *n*-hexane crystallized in silicon nanochannels: A combined x-ray diffraction and sorption isotherm study (*4 pages*) 032601
 Anke Henschel, Pushpendra Kumar, Tommy Hofmann, Klaus Knorr, and Patrick Huber
- Long-time dynamics of the directional solidification of rodlike eutectics (*4 pages*) 032602
 Mikaël Perrut, Silvère Akamatsu, Sabine Bottin-Rousseau, and Gabriel Faivre

Liquid crystals

- Reversible macroscopic dynamics of polar nematic liquid crystals: Reversible currents and their experimental consequences (*4 pages*) 032701
 Helmut R. Brand, P. E. Cladis, and Harald Pleiner

Biological physics

- Predator-prey quasicycles from a path-integral formalism (*4 pages*) 032901
 Thomas Butler and David Reynolds
- Nanopore formation on unilamellar vesicles of long- and short-chain lipids (*4 pages*) 032902
 Norifumi L. Yamada, Mafumi Hishida, and Naoya Torikai
- Analytical results on Muller's ratchet effect in growing populations (*4 pages*) 032903
 Leonardo P. Maia

CONTENTS - *Continued*

PHYSICAL REVIEW E

THIRD SERIES, VOLUME 79, NUMBER 3

MARCH 2009

Pathlines in exclusion processes (<i>5 pages</i>)	031920
Matthew J. Simpson, Kerry A. Landman, and Barry D. Hughes	
Global coupling in excitable media provides a simplified description of mechanoelectrical feedback in cardiac tissue (<i>9 pages</i>)	031921
E. Alvarez-Lacalle and B. Echebarria	
Stochastic model for nucleosome sliding under an external force (<i>11 pages</i>)	031922
L. Mollazadeh-Beidokhti, J. Deseigne, D. Lacoste, F. Mohammad-Rafiee, and H. Schiessel	
Statistical physics of a model binary genetic switch with linear feedback (<i>16 pages</i>)	031923
Paolo Visco, Rosalind J. Allen, and Martin R. Evans	
Solution synchrotron x-ray diffraction reveals structural details of lipid domains in ternary mixtures (<i>9 pages</i>)	031924
Jing Yuan, Alexander Kiss, Yohanes H. Pramudya, Lam T. Nguyen, and Linda S. Hirst	
Effect of the ordered water on protein folding: An off-lattice Gō-like model study (<i>6 pages</i>)	031925
Guanghong Zuo, Jun Hu, and Haiping Fang	
Phase-field modeling of the dynamics of multicomponent vesicles: Spinodal decomposition, coarsening, budding, and fission (<i>13 pages</i>)	031926
John S. Lowengrub, Andreas Rätz, and Axel Voigt	
Mechanisms of proton transfer in proteins: Localized charge transfer versus delocalized soliton transfer (<i>9 pages</i>)	031927
Alexei A. Stuchebrukhov	
DNA unhooking from a single post as a deterministic process: Insights from translocation modeling (<i>9 pages</i>)	031928
Nabil Laachi, Jaeseol Cho, and Kevin D. Dorfman	
Collective dynamics of kinesin (<i>12 pages</i>)	031929
Adam G. Hendricks, Bogdan I. Epureanu, and Edgar Meyhöfer	
Stretching of a single-stranded DNA: Evidence for structural transition (<i>5 pages</i>)	031930
Garima Mishra, Debaprasad Giri, and Sanjay Kumar	

BRIEF REPORTS

Statistical physics

Anomalous diffusion as modeled by a nonstationary extension of Brownian motion (<i>4 pages</i>)	032101
John H. Cushman, Daniel O'Malley, and Moongyu Park	

Colloidal dispersions, suspensions, and aggregates

Contact-line speed and morphology in vertical deposition of diluted colloids (<i>4 pages</i>)	032401
M. Giuliani and W. González-Viñas	

Structured and complex fluids

Density scaling of the diffusion coefficient at various pressures in viscous liquids (<i>4 pages</i>)	032501
A. N. Papathanassiou	

(*Continued*)

CONTENTS - *Continued*

PHYSICAL REVIEW E

THIRD SERIES, VOLUME 79, NUMBER 3

MARCH 2009

Interlinked dual-time feedback loops can enhance robustness to stochasticity and persistence of memory (11 pages)	031902
Paul Smolen, Douglas A. Baxter, and John H. Byrne	
How adsorption influences DNA denaturation (15 pages)	031903
A. E. Allahverdyan, Zh. S. Gevorkian, Chin-Kun Hu, and Th. M. Nieuwenhuizen	
Ion specific effects on phase transitions in protein solutions (6 pages)	031904
S. Lettieri, Xiaofei Li, and J. D. Gunton	
Compatibility between itinerant synaptic receptors and stable postsynaptic structure (13 pages)	031905
Ken Sekimoto and Antoine Triller	
Kinetics of signaling-DNA-aptamer-ATP binding (9 pages)	031906
Issei Nakamura, An-Chang Shi, Razvan Nutiu, Jasmine M. Y. Yu, and Yingfu Li	
Spontaneous emergence of modularity in a model of evolving individuals and in real networks (13 pages) ...	031907
Jiankui He, Jun Sun, and Michael W. Deem	
Modeling the skin pattern of fishes (11 pages)	031908
Rafael A. Barrio, Ruth E. Baker, Benjamin Vaughan, Jr., Karla Tribuzy, Marcelo R. de Carvalho, Rodney Bassanezi, and Philip K. Maini	
Very long transients, irregular firing, and chaotic dynamics in networks of randomly connected inhibitory integrate-and-fire neurons (13 pages)	031909
Rüdiger Zillmer, Nicolas Brunel, and David Hansel	
Compression of random coils due to macromolecular crowding (4 pages)	031910
C. Le Coeur, B. Demé, and S. Longeville	
Stochasticity of gene products from transcriptional pulsing (9 pages)	031911
Srividya Iyer-Biswas, F. Hayot, and C. Jayaprakash	
Pulling self-interacting polymers in two dimensions (9 pages)	031912
J. Krawczyk, I. Jensen, A. L. Owczarek, and S. Kumar	
Fractal properties of lysozyme: A neutron scattering study (4 pages)	031913
S. G. Lushnikov, A. V. Svanidze, S. N. Gvasaliya, G. Torok, L. Rosta, and I. L. Sashin	
Nonequilibrium actin polymerization treated by a truncated rate-equation method (9 pages)	031914
F. J. Brooks and A. E. Carlsson	
Relaxation dynamics of fluid membranes (17 pages)	031915
Marino Arroyo and Antonio DeSimone	
Buckling-induced zebra stripe patterns in nematic F-actin (11 pages)	031916
Brian Gentry, David Smith, and Josef Käs	
Modeling tumor cell migration: From microscopic to macroscopic models (14 pages)	031917
Christophe Deroulers, Marine Aubert, Mathilde Badoual, and Basil Grammaticos	
Using a mathematical model of cadherin-based adhesion to understand the function of the actin cytoskeleton (12 pages)	031918
J. C. Dallon, Elijah Newren, and Marc D. H. Hansen	
Monte Carlo simulation for statistical mechanics model of ion-channel cooperativity in cell membranes (7 pages)	031919
Riza Erdem and Ekrem Aydiner	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW E

THIRD SERIES, VOLUME 79, NUMBER 3

MARCH 2009

Dewetting dynamics of stressed viscoelastic thin polymer films (<i>10 pages</i>)	031605
Falko Ziebert and Elie Raphaël	
Molecular dynamics simulations of supercritical water confined within a carbon-slit pore (<i>10 pages</i>)	031606
J. Martí, J. Sala, E. Guàrdia, and M. C. Gordillo	
Boundaries, kinetic properties, and final domain structure of plane discrete uniform Poisson-Voronoi tessellations with von Neumann neighborhoods (<i>8 pages</i>)	031607
A. Korobov	
Numerical solution of the nonequilibrium square-gradient model and verification of local equilibrium for the Gibbs surface in a two-phase binary mixture (<i>19 pages</i>)	031608
K. S. Glavatskiy and D. Bedeaux	
Liquid crystals	
Relaxational dynamics of smectic phases on a curved substrate (<i>5 pages</i>)	031701
Leopoldo R. Gómez and Daniel A. Vega	
Theory and computer simulation for the cubatic phase of cut spheres (<i>11 pages</i>)	031702
Peter D. Duncan, Matthew Dennison, Andrew J. Masters, and Mark R. Wilson	
Smectic-A and -C phases, and the transition between them, in uniaxial disordered environments (<i>38 pages</i>)	031703
Leiming Chen and John Toner	
Surface-induced ordering effect in one antiferroelectric liquid crystal compound (<i>4 pages</i>)	031704
LiDong Pan, Shun Wang, C. S. Hsu, and C. C. Huang	
Effect of the network density on dynamics of the soft and the Goldstone modes in short-pitch ferroelectric liquid crystals stabilized by an anisotropic polymer network (<i>9 pages</i>)	031705
Mohamed Petit, Jamal Hemine, Abdelylah Daoudi, Mimoun Ismaili, Jean Marc Buisine, and Antonio Da Costa	
Time-resolved x-ray studies of the dynamics of smectic-A layer realignment by magnetic fields (<i>12 pages</i>) . . .	031706
P. D. Brimicombe, S. D. Siemianowski, S. Jaradat, Y. K. Levine, P. Thompson, W. Bras, and H. F. Gleeson	
Polymers	
Tightening of the elastic overhand knot (<i>5 pages</i>)	031801
Sylwester Przybyl and Piotr Pieranski	
Theory and computation of photopolymerization-induced phase transition and morphology development in blends of crystalline polymer and photoreactive monomer (<i>8 pages</i>)	031802
Pankaj Rathi and Thein Kyu	
Dynamical self-arrest in symmetric and asymmetric diblock copolymer melts using a replica approach within a local theory (<i>6 pages</i>)	031803
Sangwook Wu	
Biological physics	
Asymmetric charge renormalization for nanoparticles in aqueous media (<i>6 pages</i>)	031901
P. González-Mozuelos and M. Olvera de la Cruz	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW E

THIRD SERIES, VOLUME 79, NUMBER 3

MARCH 2009

Simulation of cohesive head-on collisions of thermally activated nanoclusters (<i>9 pages</i>)	031309
Hiroto Kuninaka and Hisao Hayakawa	

Colloidal dispersions, suspensions, and aggregates

Short-time motion of Brownian particles in a shear flow (<i>5 pages</i>)	031401
Takuya Iwashita and Ryoichi Yamamoto	
Persistent correlation of constrained colloidal motion (<i>11 pages</i>)	031402
Thomas Franosch and Sylvia Jeney	
Surface structure of sterically stabilized ferrofluids in a normal magnetic field: Grazing-incidence x-ray study (<i>9 pages</i>)	031403
A. Vorobiev, G. Gordeev, O. Konovalov, and D. Orlova	
Structure and dynamics of reverse micelles containing supercooled water investigated by neutron scattering (<i>12 pages</i>)	031404
Tinka Spehr, Bernhard Frick, Isabelle Grillo, Peter Falus, Martin Müller, and Bernd Stühn	
Test particle limit for the pair structure of quenched-annealed fluid mixtures (<i>7 pages</i>)	031405
Matthias Schmidt	
Structure of quasi-one-dimensional ribbon colloid suspensions (<i>9 pages</i>)	031406
Thomas R. Stratton, Sergey Novikov, Ream Qato, Sebastian Villarreal, Bianxiao Cui, Stuart A. Rice, and Binhua Lin	

Structured and complex fluids

Quantitative theory of a time-correlation function in a one-component glass-forming liquid with anisotropic potential (<i>6 pages</i>)	031501
Edan Lerner, Itamar Procaccia, and Ido Regev	
Phase-field modeling of dry snow metamorphism (<i>17 pages</i>)	031502
Thomas U. Kaempfer and Mathis Plapp	
Phase behavior of a reversibly assembling system in two dimensions: A Monte Carlo simulation study (<i>8 pages</i>)	031503
Wen-Ze Ouyang and Reinhard Hentschke	
Nonequilibrium dynamics in an amorphous solid (<i>4 pages</i>)	031504
Sunil P. Singh and Shankar P. Das	

Films, interfaces, and crystal growth

Thermodynamics and roughening of solid-solid interfaces (<i>11 pages</i>)	031601
Luiza Angheluta, Espen Jettstuen, and Joachim Mathiesen	
Spontaneous motion of a droplet evolved by resonant oscillation of a vortex pair (<i>12 pages</i>)	031602
Takahiko Ban, Yosuke Hatada, and Katsuroku Takahashi	
Quantitative phase-field modeling for dilute alloy solidification involving diffusion in the solid (<i>15 pages</i>) . . .	031603
Munekazu Ohno and Kiyotaka Matsuura	
Molecular-dynamics simulation of evaporation processes of fluid bridges confined in slitlike pores (<i>12 pages</i>)	031604
Katarzyna Bucior, Leonid Yelash, and Kurt Binder	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW E

THIRD SERIES, VOLUME 79, NUMBER 3

MARCH 2009

Self-tuning phase separation in a model with competing interactions inspired by biological cell polarization (7 pages)	031125
T. Ferraro, A. Coniglio, and M. Zannetti	
Statistical physics of power fluctuations in mode-locked lasers (7 pages)	031126
Oded Basis and Omri Gat	
Deviation from Archie's law in partially saturated porous media: Wetting film versus disconnectedness of the conducting phase (11 pages)	031127
M. Han, S. Youssef, E. Rosenberg, M. Fleury, and P. Levitz	
Equilibrium states of a test particle coupled to finite-size heat baths (11 pages)	031128
Qun Wei, S. Taylor Smith, and Roberto Onofrio	
Log-amplitude statistics of intermittent and non-Gaussian time series (5 pages)	031129
Ken Kiyono	
Equilibrium and linear transport properties of fluids	
Transition to irreversibility in sheared suspensions: An analysis based on a mesoscopic entropy production (10 pages)	031201
I. Santamaría-Holek, G. Barrios, and J. M. Rubi	
Molecular dynamics simulation of collision operator eigenvalues (8 pages)	031202
Erich D. Gust and L. E. Reichl	
Anomalous structure and dynamics of the Gaussian-core fluid (6 pages)	031203
William P. Krekelberg, Tanuj Kumar, Jeetain Mittal, Jeffrey R. Errington, and Thomas M. Truskett	
Soret effect in molecular mixtures (11 pages)	031204
Konstantin I. Morozov	
Granular materials	
Driven inelastic-particle systems with drag (17 pages)	031301
Jonathan J. Wylie, Qiang Zhang, Yun Li, and Xu Hengyi	
Flow-rate fluctuations in the outpouring of grains from a two-dimensional silo (5 pages)	031302
A. Janda, R. Harich, I. Zuriguel, D. Maza, P. Cixous, and A. Garcimartín	
Formation of aeolian ripples and sand sorting (10 pages)	031303
Edgar Manukyan and Leonid Prigozhin	
Effective boundary conditions for dense granular flows (6 pages)	031304
Riccardo Artoni, Andrea Santomaso, and Paolo Canu	
Vibrated granular gas confined by a piston (13 pages)	031305
J. Javier Brey and M. J. Ruiz-Montero	
Magnetofluidization of fine magnetite powder (11 pages)	031306
J. M. Valverde, M. J. Espin, M. A. S. Quintanilla, and A. Castellanos	
Axial and radial segregation of granular mixtures in a rotating spherical container (8 pages)	031307
Lama Naji and Ralf Stannarius	
Role of interparticle friction and particle-scale elasticity in the shear-strength mechanism of three-dimensional granular media (9 pages)	031308
S. J. Antony and N. P. Krut	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW E

THIRD SERIES, VOLUME 79, NUMBER 3

MARCH 2009

Response theory and reduced equations of motion (<i>11 pages</i>)	031106
David Ronis	
Disordered driven lattice gases with boundary reservoirs and Langmuir kinetics (<i>14 pages</i>)	031107
Philip Greulich and Andreas Schadschneider	
Density matrix for the kink ground state of the ferromagnetic <i>XXZ</i> chain (<i>7 pages</i>)	031108
Kohei Motegi and Kazumitsu Sakai	
Field theory of bicritical and tetracritical points. III. Relaxational dynamics including conservation of magnetization (model C) (<i>15 pages</i>)	031109
R. Folk, Yu. Holovatch, and G. Moser	
Different thresholds of bond percolation in scale-free networks with identical degree sequence (<i>6 pages</i>)	031110
Zhongzhi Zhang, Shuigeng Zhou, Tao Zou, Lichao Chen, and Jihong Guan	
Continuum diffusion on networks: Trees with hyperbranched trunks and fractal branches (<i>11 pages</i>)	031111
C. P. Haynes and A. P. Roberts	
Persistence in advection of a passive scalar (<i>6 pages</i>)	031112
D. Chakraborty	
Quantized heat transport in small systems: A phenomenological approach (<i>7 pages</i>)	031113
F. Vázquez, F. Márkus, and K. Gambár	
Ratchet effect of a dimer with broken friction symmetry in a symmetric potential (<i>8 pages</i>)	031114
Sebastian von Gehlen, Mykhaylo Evstigneev, and Peter Reimann	
Analytical investigation of the open boundary conditions in the Nagel-Schreckenberg model (<i>9 pages</i>)	031115
Ning Jia and Shoufeng Ma	
Modeling long-range memory with stationary Markovian processes (<i>9 pages</i>)	031116
Salvatore Micciché	
Deformations of the Tracy-Widom distribution (<i>6 pages</i>)	031117
O. Bohigas, J. X. de Carvalho, and M. P. Pato	
Optimal potentials for temperature ratchets (<i>9 pages</i>)	031118
Florian Berger, Tim Schmiedl, and Udo Seifert	
Statistical theory of critical phenomena in fluids (<i>9 pages</i>)	031119
G. A. Martynov	
Truncation effects in superdiffusive front propagation with Lévy flights (<i>10 pages</i>)	031120
D. del-Castillo-Negrete	
Direct evidence for conformal invariance of avalanche frontiers in sandpile models (<i>5 pages</i>)	031121
A. A. Saberi, S. Moghimi-Araghi, H. Dashti-Naserabadi, and S. Rouhani	
Ultrametricity property of energy landscapes of multidisperse packing problems (<i>8 pages</i>)	031122
Johannes J. Schneider, André Müller, and Elmar Schömer	
Dense sphere packings from optimized correlation functions (<i>10 pages</i>)	031123
Adam B. Hopkins, Frank H. Stillinger, and Salvatore Torquato	
Statistical thermodynamics of a two-dimensional relativistic gas (<i>5 pages</i>)	031124
Afshin Montakhab, Malihe Ghodrat, and Mahmood Barati	

(Continued)