PHYSICAL REVIEW E THIRD SERIES, VOLUME 88, NUMBER 4 OCTOBER 2013

Liquid Crystals

X-ray cross-correlation analysis of liquid crystal membranes in the vicinity of the hexatic-smectic phase transition *(5 pages)* 044501
R. P. Kurta, B. I. Ostrovskii, A. Singer, O. Y. Gorobtsov, A. Shabalin, D. Dzhigaev, O. M. Yefanov, A. V. Zozulya, M. Sprung, and I. A. Vartanyants

Polymers

Fluorescent beads disintegrate actin networks *(4 pages)* 044601
Tom Golde, Carsten Schuldt, Jörg Schnauß, Dan Strehle, Martin Glaser, and Josef Käs

Biological Physics

Spatial ranges of driving forces are a key determinant of protein folding cooperativity and rate diversity *(5 pages)* 044701
Hüseyin Kaya, Zeynep Uzunoğlu, and Hue Sun Chan

Fluid Dynamics

Self-propulsion in a low-Reynolds-number fluid confined by two walls of a microchannel *(4 pages)* 045001
Ali Najafi, Seyede Somaye Hoseini Raad, and Roghaye Yousefi

Plasma Physics

Quantum ion-acoustic solitary waves: The effect of exchange correlation *(5 pages)* 045101
Kamel Ourabah and Mouloud Tribeche

COMMENTS

Comment on "Stochastic dynamics of the prisoner's dilemma with cooperation facilitators" *(2 pages)* 046101
Jacek Miękisz

Reply to "Comment on 'Stochastic dynamics of the prisoner's dilemma with cooperation facilitators' " *(3 pages)* 046102
Mauro Mobilia

ERRATA

Erratum: Dynamical trapping of colloids at the stagnation points of electro-osmotic vortices of the second kind [Phys. Rev. E **87**, 033005 (2013)] *(1 page)* . . . . . 049901(E)
Yoav Green and Gilad Yossifon

Publisher's Note: Metrics for characterizing collective transport by multiple dimeric kinesins [Phys. Rev. E **86**, 051916 (2012)] *(1 page)* . . . . . 049902(E)
Woochul Nam and Bogdan I. Epureanu

Erratum: Structural transitions in a ring stain created at the contact line of evaporating nanosuspension sessile drops [Phys. Rev. E **87**, 012301 (2013)] *(1 page)* . . . . . 049903(E)
Alexandros Askounis, Khellil Sefiane, Vasileios Koutsos, and Martin E. R. Shanahan

Erratum: Time fluctuations in isolated quantum systems of interacting particles [Phys. Rev. E **88**, 032913 (2013)] *(1 page)* . . . . . 049904(E)
Pablo R. Zangara, Axel D. Dente, E. J. Torres-Herrera, Horacio M. Pastawski, Aníbal Iucci, and Lea F. Santos

PHYSICAL REVIEW E THIRD SERIES, VOLUME 88, NUMBER 4 OCTOBER 2013

Classical Physics

Simple determinant representation for rogue waves of the nonlinear Schrödinger equation *(9 pages)* 043201
Liming Ling and Li-Chen Zhao

Classical scattering of charged particles confined on an inhomogeneous helix *(14 pages)* 043202
A. V. Zampetaki, J. Stockhofe, S. Krönke, and P. Schmelcher

Second-harmonic generation for dispersive elastic waves in a discrete granular chain *(8 pages)* 043203
V. J. Sánchez-Morcillo, I. Pérez-Arjona, V. Romero-García, V. Tournat, and V. E. Gusev

Bright and peaklike pulse solitary waves and analogy with modulational instability in an extended nonlinear Schrödinger equation *(17 pages)* 043204
Fabien Kenmogne and David Yemélé

Computational Physics

Rare-event sampling for driven inertial systems via the nonequilibrium distribution function *(12 pages)* 043301
Stephen R. Williams

Flat histogram diagrammatic Monte Carlo method: Calculation of the Green's function in imaginary time *(6 pages)* 043302
Nikolaos G. Diamantis and Efstratios Manousakis

Modeling steady-state dynamics of macromolecules in exponential-stretching flow using multiscale molecular-dynamics–multiparticle-collision simulations *(11 pages)* 043303
Dhairyasheel Ghatage and Apratim Chatterji

Dynamics of solutes with hydrodynamic interactions: Comparison between Brownian dynamics and stochastic rotation dynamics simulations *(11 pages)* 043304
G. Batôt, V. Dahirel, G. Mériguet, A. A. Louis, and M. Jardat

Bottom-up construction of interaction models of non-Markovian dissipative particle dynamics *(12 pages)* 043305
Yuta Yoshimoto, Ikuya Kinefuchi, Toshiki Mima, Akinori Fukushima, Takashi Tokumasu, and Shu Takagi

Color-gradient lattice Boltzmann model for simulating droplet motion with contact-angle hysteresis *(13 pages)* 043306
Yan Ba, Haihu Liu, Jinju Sun, and Rongye Zheng

Monte Carlo renormalization-group analysis of percolation *(5 pages)* 043307
Albert Brown, Alexander Edelman, Jason Rocks, Antonio Coniglio, and Robert H. Swendsen

Ionization cross section data of nitrogen, methane, and propane for light ions and electrons and their suitability for use in track structure simulations *(21 pages)* 043308
Marion U. Bug, Elisabetta Gargioni, Heidi Nettelbeck, Woon Yong Baek, Gerhard Hilgers, Anatoly B. Rosenfeld, and Hans Rabus

BRIEF REPORTS

Statistical Physics

Lorentz transformation of blackbody radiation *(3 pages)* 044101
G. W. Ford and R. F. O'Connell

(Continued)

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 88, NUMBER 4** **OCTOBER 2013**

Generic path for droplet relaxation in microfluidic channels *(6 pages)* 043009
P.-T. Brun, Mathias Nagel, and François Gallaire

Interfacial velocities and capillary pressure gradients during Haines jumps *(9 pages)* 043010
Ryan T. Armstrong and Steffen Berg

Rayleigh wave scattering from sessile droplets *(13 pages)* 043011
R. Quintero and F. Simonetti

Coupled motion of microscale and nanoscale elastic objects in a viscous fluid *(17 pages)* 043012
M. R. Paul, M. T. Clark, and M. C. Cross

Swimming dynamics of bidirectional artificial flagella *(11 pages)* 043013
S. Namdeo, S. N. Khaderi, and P. R. Onck

Capillary-gravity waves on a liquid film of arbitrary depth: Analysis of the wave resistance *(13 pages)* 043014
Karol Wędołowski and Marek Napiórkowski

Three-dimensional continuation study of convection in a tilted rectangular enclosure *(17 pages)* 043015
J. F. Torres, D. Henry, A. Komiya, S. Maruyama, and H. Ben Hadid

Experimental evidence of temperature gradients in cavitating microflows seeded with thermosensitive nanoprobes *(5 pages)* 043016
Frédéric Ayela, Manuel Medrano-Muñoz, David Amans, Christophe Dujardin, Thomas Brichart, Matteo Martini, Olivier Tillement, and Gilles Ledoux

Multifractal structure of fully developed turbulence *(10 pages)* 043017
K. P. Zybin and V. A. Sirota

Plasma Physics

Self-collimated axial jet seeds from thin accretion disks *(7 pages)* 043101
Giulio Tirabassi, Giovanni Montani, and Nakia Carlevaro

Polarization effect on the relativistic nonlinear dynamics of an intense laser beam propagating in a hot magnetoactive plasma *(9 pages)* 043102
N. Sepehri Javan and F. Adli

Mode couplings and resonance instabilities in dust clusters *(11 pages)* 043103
Ke Qiao, Jie Kong, Eric Van Oeveren, Lorin S. Matthews, and Truell W. Hyde

Ion collision cross sections and transport coefficients extended to intermediate energies and reduced electric fields for He_2^+ ions colliding with He *(13 pages)* 043104
A. Chicheportiche, M. Benhenni, M. Yousfi, B. Lepetit, R. Kalus, and F. X. Gadea

Relativistically induced transparency acceleration of light ions by an ultrashort laser pulse interacting with a heavy-ion-plasma density gradient *(10 pages)* 043105
Aakash A. Sahai, Frank S. Tsung, Adam R. Tableman, Warren B. Mori, and Thomas C. Katsouleas

Ion-wake-induced anomaly of dust lattice mode in the presence of an external magnetic field *(7 pages)* 043106
Saurav Bhattacharjee and Nilakshi Das

Heavy ion charge-state distribution effects on energy loss in plasmas *(10 pages)* 043107
Manuel D. Barriga-Carrasco

(Continued)

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 88, NUMBER 4** **OCTOBER 2013**

Experimental evidence of using a circularly polarized electric field to control spiral turbulence *(4 pages)* 042919
Lin Ji, Yi Zhou, Qian Li, Chun Qiao, and Qi Ouyang

Global interactions, information flow, and chaos synchronization *(8 pages)* 042920
G. Paredes, O. Alvarez-Llamoza, and M. G. Cosenza

Criterion for the emergence of explosive synchronization transitions in networks of phase oscillators *(6 pages)* . . . 042921
Liuhua Zhu, Liang Tian, and Daning Shi

Multifractality, stickiness, and recurrence-time statistics *(6 pages)* 042922
C. Vieira Abud and R. Egydio de Carvalho

Reactivity boundaries for chemical reactions associated with higher-index and multiple saddles *(11 pages)* 042923
Yutaka Nagahata, Hiroshi Teramoto, Chun-Biu Li, Shinnosuke Kawai, and Tamiki Komatsuzaki

Stability and dynamics of nonautonomous systems with pulsed nonlinearity *(7 pages)* 042924
Yannis Kominis and Tassos Bountis

Turing pattern formation in the Brusselator system with nonlinear diffusion *(12 pages)* 042925
G. Gambino, M. C. Lombardo, M. Sammartino, and V. Sciacca

Composite bound states and broken U(1) symmetry in the chemical-master-equation derivation of the Gray-Scott model *(8 pages)* 042926
Fred Cooper, Gourab Ghoshal, and Juan Pérez-Mercader

Semiclassical description of resonance-assisted tunneling in one-dimensional integrable models *(11 pages)* 042927
Jérémy Le Deunff, Amaury Mouchet, and Peter Schlagheck

Fluid Dynamics

Lagrangian statistics across the turbulent-nonturbulent interface in a turbulent plane jet *(12 pages)* 043001
Rodrigo R. Taveira, José S. Diogo, Diogo C. Lopes, and Carlos B. da Silva

Determining the number of fingers in the lifting Hele-Shaw problem *(6 pages)* 043002
Eduardo O. Dias and José A. Miranda

Electrohydrodynamic rotations of a viscous droplet *(7 pages)* 043003
Paul F. Salipante and Petia M. Vlahovska

Stability of two-layer shear-thinning film flows *(14 pages)* 043004
S. Millet, V. Botton, H. Ben Hadid, D. Henry, and F. Rousset

Bifurcations and dynamics in convection with temperature-dependent viscosity in the presence of the O(2) symmetry *(12 pages)* 043005
J. Curbelo and A. M. Mancho

Dynamics of an oscillating bubble in a narrow gap *(7 pages)* 043006
Fahad Ibn Azam, Badarinath Karri, Siew-Wan Ohl, Evert Klaseboer, and Boo Cheong Khoo

Influence of hydrophobic effects on streaming potential *(9 pages)* 043007
Jeevanjyoti Chakraborty and Suman Chakraborty

Coarse-grained forms for equations describing the microscopic motion of particles in a fluid *(8 pages)* 043008
Shankar P. Das and Akira Yoshimori

(Continued)

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 88, NUMBER 4** **OCTOBER 2013**

Multipulse phase resetting curves *(9 pages)* 042902
Giri P. Krishnan, Maxim Bazhenov, and Arkady Pikovsky

Deformations of third-order Peregrine breather solutions of the nonlinear Schrödinger equation with four parameters *(8 pages)* 042903
Pierre Gaillard

Nonlinear vibrational resonance *(6 pages)* 042904
Shyamolina Ghosh and Deb Shankar Ray

Parameter estimation and control for a neural mass model based on the unscented Kalman filter *(9 pages)* 042905
Xian Liu and Qing Gao

Taming rogue waves in vector Bose-Einstein condensates *(5 pages)* 042906
P. S.Vinayagam, R. Radha, and K. Porsezian

Emergence of antiphase bursting in two populations of randomly spiking elements *(9 pages)* 042907
Oleg V. Maslennikov, Dmitry V. Kasatkin, Nikolai F. Rulkov, and Vladimir I. Nekorkin

Onset of chaotic dynamics in neural networks *(7 pages)* 042908
Gianbiagio Curato and Antonio Politi

Influence of the history force on inertial particle advection: Gravitational effects and horizontal diffusion *(11 pages)* 042909
Ksenia Guseva, Ulrike Feudel, and Tamás Tél

Stabilization of standing waves through time-delay feedback *(7 pages)* 042910
Michael Stich, Alfonso Casal, and Carsten Beta

Exploding dissipative solitons in reaction-diffusion systems *(7 pages)* 042911
Orazio Descalzi, Nail Akhmediev, and Helmut R. Brand

Accessible solitons in complex Ginzburg-Landau media *(6 pages)* 042912
Yingji He and Boris A. Malomed

Onset patterns in a simple model of localized parametric forcing *(16 pages)* 042913
J. Porter, I. Tinao, A. Laverón-Simavilla, and J. Rodríguez

Exploring rigidly rotating vortex configurations and their bifurcations in atomic Bose-Einstein condensates *(11 pages)* 042914
A. V. Zampetaki, R. Carretero-González, P. G. Kevrekidis, F. K. Diakonos, and D. J. Frantzeskakis

One cannot hear the density of a drum (and further aspects of isospectrality) *(4 pages)* 042915
Paolo Amore

Effective equations for matter-wave gap solitons in higher-order transversal states *(10 pages)* 042916
A. Muñoz Mateo and V. Delgado

Amplitude-mediated chimera states *(5 pages)* 042917
Gautam C. Sethia, Abhijit Sen, and George L. Johnston

Back-and-forth micromotion of aqueous droplets in a dc electric field *(5 pages)* 042918
Tomo Kurimura, Masatoshi Ichikawa, Masahiro Takinoue, and Kenichi Yoshikawa

(Continued)

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 88, NUMBER 4** **OCTOBER 2013**

Observability transitions in correlated networks *(11 pages)* 042809
Takehisa Hasegawa, Taro Takaguchi, and Naoki Masuda

Community core detection in transportation networks *(7 pages)* 042810
Vincenzo De Leo, Giovanni Santoboni, Federica Cerina, Mario Mureddu, Luca Secchi, and Alessandro Chessa

Communicability in temporal networks *(7 pages)* 042811
Ernesto Estrada

Structural and functional discovery in dynamic networks with non-negative matrix factorization *(14 pages)* 042812
Shawn Mankad and George Michailidis

Spectral clustering with epidemic diffusion *(5 pages)* 042813
Laura M. Smith, Kristina Lerman, Cristina Garcia-Cardona, Allon G. Percus, and Rumi Ghosh

Origin of complexity and conditional predictability in cellular automata *(6 pages)* 042814
Vladimir García-Morales

Edge removal balances preferential attachment and triad closing *(5 pages)* 042815
Hilla Brot, Michal Honig, Lev Muchnik, Jacob Goldenberg, and Yoram Louzoun

Extraction of self-diffusivity in systems with nondiffusive short-time behavior *(7 pages)* 042816
Sachin Shanbhag

Extracting connectivity from dynamics of networks with uniform bidirectional coupling *(11 pages)* 042817
Emily S. C. Ching, Pik-Yin Lai, and C. Y. Leung

Emergence and scaling of synchronization in moving-agent networks with restrictive interactions *(7 pages)* 042818
Beomseok Kim, Younghae Do, and Ying-Cheng Lai

Optimal rates for electron transfer in Marcus theory *(4 pages)* 042819
Lev Mourokh and Seth Lloyd

Effects of local population structure in a reaction-diffusion model of a contact process on metapopulation networks *(7 pages)* 042820
Angélica S. Mata, Silvio C. Ferreira, and Romualdo Pastor-Satorras

Dynamic patterns and their interactions in networks of excitable elements *(10 pages)* 042821
Pulin Gong, Harrison Steel, Peter Robinson, and Yang Qi

Spectral methods for community detection and graph partitioning *(10 pages)* 042822
M. E. J. Newman

Ising models on the regularized Apollonian network *(5 pages)* 042823
M. Serva, U. L. Fulco, and E. L. Albuquerque

Synchronization in random balanced networks *(5 pages)* 042824
Luis Carlos García del Molino, Khashayar Pakdaman, Jonathan Touboul, and Gilles Wainrib

Nonlinear Dynamics and Chaos

Loss of stability of a solitary wave through exciting a cnoidal wave on a Fermi-Pasta-Ulam ring *(7 pages)* 042901
Zongqiang Yuan, Jun Wang, Min Chu, Guodong Xia, and Zhigang Zheng

(Continued)

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 88, NUMBER 4** **OCTOBER 2013**

Theoretical study of a molecular turbine *(8 pages)* 042705
R. Perez-Carrasco and J. M. Sancho

Moderate stem-cell telomere shortening rate postpones cancer onset in a stochastic model *(7 pages)* 042706
Simon Holbek, Kristian Moss Bendtsen, and Jeppe Juul

Neuronal growth as diffusion in an effective potential *(5 pages)* 042707
Daniel J. Rizzo, James D. White, Elise Spedden, Matthew R. Wiens, David L. Kaplan, Timothy J. Atherton, and Cristian Staii

Closing the loop: Lamellipodia dynamics from the perspective of front propagation *(8 pages)* 042708
Yair Adler and Sefi Givli

Topology and structural self-organization in folded proteins *(15 pages)* 042709
M. Lundgren, Andrey Krokhotin, and Antti J. Niemi

Optimal mapping of x-ray laser diffraction patterns into three dimensions using routing algorithms *(9 pages)* 042710
Stephan Kassemeyer, Aliakbar Jafarpour, Lukas Lomb, Jan Steinbrener, Andrew V. Martin, and Ilme Schlichting

Erythrocyte hemodynamics in stenotic microvessels: A numerical investigation *(9 pages)* 042711
T. Wang and Z. W. Xing

Dynamical structure underlying inverse stochastic resonance and its implications *(7 pages)* 042712
Muhammet Uzuntarla, John R. Cressman, Mahmut Ozer, and Ernest Barreto

Adaptation controls synchrony and cluster states of coupled threshold-model neurons *(9 pages)* 042713
Josef Ladenbauer, Judith Lehnert, Hadi Rankoohi, Thomas Dahms, Eckehard Schöll, and Klaus Obermayer

Networks and Interdisciplinary Physics

Efficient local behavioral-change strategies to reduce the spread of epidemics in networks *(12 pages)* 042801
Yilei Bu, Steve Gregory, and Harriet L. Mills

Epidemic threshold and topological structure of susceptible-infectious-susceptible epidemics in adaptive networks *(14 pages)* 042802
Dongchao Guo, Stojan Trajanovski, Ruud van de Bovenkamp, Huijuan Wang, and Piet Van Mieghem

Controlling traffic jams by time modulating the safety distance *(13 pages)* 042803
Yu. B. Gaididei, C. Gorria, R. Berkemer, A. Kawamoto, T. Shiga, P. L. Christiansen, M. P. Sørensen, and J. Starke

Mutual selection in time-varying networks *(6 pages)* 042804
K. Hoppe and G. J. Rodgers

Observability and coarse graining of consensus dynamics through the external equitable partition *(13 pages)* 042805
Neave O'Clery, Ye Yuan, Guy-Bart Stan, and Mauricio Barahona

Opportunistic migration in spatial evolutionary games *(7 pages)* 042806
Pierre Buesser, Marco Tomassini, and Alberto Antonioni

Explosive synchronization in weighted complex networks *(7 pages)* 042808
I. Leyva, I. Sendiña-Nadal, J. A. Almendral, A. Navas, S. Olmi, and S. Boccaletti

(Continued)

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 88, NUMBER 4** **OCTOBER 2013**

High-resolution birefringence investigation of octylcyanobiphenyl (8CB): An upper bound on the discontinuity at the smectic-*A* to nematic phase transition *(7 pages)* 042502
M. C. Çetinkaya, S. Yildiz, H. Özbek, P. Losada-Pérez, J. Leys, and J. Thoen

Phases and properties of nanocomposites of hydrogen-bonded liquid crystals and carbon nanotubes *(12 pages)* . . . 042503
M. Petrov, B. Katranchev, P. M. Rafailov, H. Naradikian, U. Dettlaff-Weglikowska, E. Keskinova, and T. Spassov

Twisted quasiperiodic textures of biaxial nematic liquid crystals *(7 pages)* 042504
V. L. Golo, E. I. Kats, A. A. Sevenyuk, and D. O. Sinitsyn

Dynamic arrest of nematic liquid-crystal colloid networks *(8 pages)* 042505
Lu Zou, Jeoung-Yeon Hwang, and Chanjoong Kim

Polymers

Bundling in brushes of directed and semiflexible polymers *(7 pages)* 042601
Panayotis Benetatos, Eugene M. Terentjev, and Annette Zippelius

Microphase separation in comblike liquid-crystalline diblock copolymers *(13 pages)* 042602
S. K. Mkhonta, K. R. Elder, Zhi-Feng Huang, and Martin Grant

Self-consistent field theory and numerical scheme for calculating the phase diagram of wormlike diblock copolymers *(14 pages)* 042603
Ying Jiang and Jeff Z. Y. Chen

Crossover to surface flow in supercooled unentangled polymer films *(6 pages)* 042604
Chi-Hang Lam and Ophelia K. C. Tsui

Cooperativity length scale in nanocomposites: Interfacial and confinement effects *(7 pages)* 042605
A. Saiter, D. Prevosto, E. Passaglia, H. Couderc, L. Delbreilh, and J. M. Saiter

Cis-trans dynamical asymmetry in driven polymer translocation *(5 pages)* 042606
Takuya Saito and Takahiro Sakaue

Nonlinear mechanics of thermoreversibly associating dendrimer glasses *(8 pages)* 042607
Arvind Srikanth, Robert S. Hoy, Berend C. Rinderspacher, and Jan W. Andzelm

PART B

Biological Physics

Simulation of electron paramagnetic resonance spectra of spin-labeled molecules from replica-exchange molecular dynamics *(5 pages)* 042701
S. Tyrrell and V. S. Oganesyan

Memory, bias, and correlations in bidirectional transport of molecular-motor-driven cargoes *(9 pages)* 042702
Deepak Bhat and Manoj Gopalakrishnan

Quantitative analysis of the flexibility effect of cisplatin on circular DNA *(6 pages)* 042703
Chao Ji, Lingyun Zhang, and Peng-Ye Wang

Interaction function of oscillating coupled neurons *(13 pages)* 042704
Ramana Dodla and Charles J. Wilson

(Continued)

PHYSICAL REVIEW E THIRD SERIES, VOLUME 88, NUMBER 4 OCTOBER 2013

Formation of double glass in binary mixtures of anisotropic particles: Dynamic heterogeneities in rotations and displacements *(9 pages)* 042317
Kyohei Takae and Akira Onuki

Films, Interfaces, and Crystal Growth

Spontaneous formation of hierarchical wrinkles in Cr films deposited on silicone oil drops with constrained edges *(8 pages)* 042401
Sen-Jiang Yu, Yong-Ju Zhang, Hong Zhou, Miao-Gen Chen, Xiao-Fei Zhang, Zhi-Wei Jiao, and Ping-Zhan Si

Role of superposition of dislocation avalanches in the statistics of acoustic emission during plastic deformation *(8 pages)* 042402
M. A. Lebyodkin, I. V. Shashkov, T. A. Lebedkina, K. Mathis, P. Dobron, and F. Chmelik

Creasing-wrinkling transition in elastomer films under electric fields *(6 pages)* 042403
Qiming Wang and Xuanhe Zhao

Strain-rate and temperature-driven transition in the shear transformation zone for two-dimensional amorphous solids *(10 pages)* 042404
Penghui Cao, Harold S. Park, and Xi Lin

Self-organization and nanostructure formation in chemical vapor deposition *(12 pages)* 042405
Daniel Walgraef

Nonequilibrium kinetic boundary condition at the vapor-liquid interface of argon *(16 pages)* 042406
Tatsuya Ishiyama, Shigeo Fujikawa, Thomas Kurz, and Werner Lauterborn

Crystal growth in a channel: Pulsating fingers, merry-go-round patterns, and seesaw dynamics *(22 pages)* 042407
Jean-Marc Debierre, Rahma Guérin, and Klaus Kassner

Force and flux relations for flows of ionic solutions between parallel plates with porous and charged layers *(15 pages)* 042408
Alexander C. Barbati and Brian J. Kirby

Quasi-one-dimensional thermal breakage *(7 pages)* 042409
Cristiano Nisoli, Douglas Abraham, Turab Lookman, and Avadh Saxena

Capillary fracture of soft gels *(9 pages)* 042410
Joshua B. Bostwick and Karen E. Daniels

Role of the sample thickness in planar crack propagation *(7 pages)* 042411
Pallab Barai, Phani K. V. V. Nukala, Mikko J. Alava, and Stefano Zapperi

Stochastic resonance and dynamic first-order pseudo-phase-transitions in the irreversible growth of thin films under spatially periodic magnetic fields *(8 pages)* 042412
Ernesto S. Loscar and Julián Candia

Liquid Crystals

Nematic molecular core flexibility and chiral induction *(5 pages)* 042501
Tzu-Chieh Lin, Ian R. Nemitz, Christopher J. McGrath, Christopher P. J. Schubert, Hiroshi Yokoyama, Robert P. Lemieux, and Charles Rosenblatt

(Continued)

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 88, NUMBER 4** **OCTOBER 2013**

Small-amplitude acoustics in bulk granular media *(6 pages)* 042205
David L. Henann, John J. Valenza II, David L. Johnson, and Ken Kamrin

Colloids and Complex Fluids

Dynamic equivalences in the hard-sphere dynamic universality class *(16 pages)* 042301
Leticia López-Flores, Honorina Ruíz-Estrada, Martín Chávez-Páez, and Magdaleno Medina-Noyola

Applicability of mode-coupling theory to polyisobutylene: A molecular dynamics simulation study *(13 pages)* . . . 042302
Y. Khairy, F. Alvarez, A. Arbe, and J. Colmenero

Normal-stress coefficients and rod climbing in colloidal dispersions *(12 pages)* 042303
T. F. F. Farage, J. Reinhardt, and J. M. Brader

Dynamical correlations in a glass former with randomly pinned particles *(8 pages)* 042304
Robert L. Jack and Christopher J. Fullerton

Stripe, gossamer, and glassy phases in systems with strong nonpairwise interactions *(5 pages)* 042305
Karl A. H. Sellin and Egor Babaev

Dynamics and separation of circularly moving particles in asymmetrically patterned arrays *(10 pages)* 042306
C. Reichhardt and C. J. Olson Reichhardt

Characteristics of the Johari-Goldstein process in rigid asymmetric molecules *(8 pages)* 042307
D. Fragiadakis and C. M. Roland

Manifestation of random first-order transition theory in Wigner glasses *(9 pages)* 042308
Hongsuk Kang, T. R. Kirkpatrick, and D. Thirumalai

Probing the limitations of isotropic pair potentials to produce ground-state structural extremes via inverse statistical mechanics *(15 pages)* 042309
G. Zhang, F. H. Stillinger, and S. Torquato

Thermodynamics of ferrofluids in applied magnetic fields *(11 pages)* 042310
Ekaterina A. Elfimova, Alexey O. Ivanov, and Philip J. Camp

Fluctuations in the time variable and dynamical heterogeneity in glass-forming systems *(9 pages)* 042311
Karina E. Avila, Horacio E. Castillo, and Azita Parsaeian

Localized measurement of longitudinal and transverse flow velocities in colloidal suspensions using optical coherence tomography *(7 pages)* 042312
Nicolás Weiss, Ton G. van Leeuwen, and Jeroen Kalkman

Structural ordering of trapped colloids with competing interactions *(8 pages)* 042313
L. Q. Costa Campos, S. W. S. Apolinario, and H. Löwen

Scattering approach for fluctuation-induced interactions at fluid interfaces *(12 pages)* 042314
Ehsan Noruzifar, Jef Wagner, and Roya Zandi

Slow relaxation in structure-forming ferrofluids *(9 pages)* 042315
Aparna Sreekumari and Patrick Ilg

Broadband ultrasonic spectrometry of polystyrene-cyclohexane critical mixtures *(11 pages)* 042316
Sirojiddin Z. Mirzaev and Udo Kaatze

(Continued)

PHYSICAL REVIEW E THIRD SERIES, VOLUME 88, NUMBER 4 OCTOBER 2013

Depletion-interaction effects on the tunneling conductivity of nanorod suspensions *(7 pages)* 042140
B. Nigro, C. Grimaldi, M. A. Miller, P. Ryser, and T. Schilling

Multicritical behavior in models with two competing order parameters *(14 pages)* 042141
Astrid Eichhorn, David Mesterházy, and Michael M. Scherer

Memory effects for a trapped Brownian particle in viscoelastic shear flows *(13 pages)* 042142
Romi Mankin, Katrin Laas, and Neeme Lumi

Second law of information thermodynamics with entanglement transfer *(7 pages)* 042143
Hiroyasu Tajima

Principle of maximum Fisher information from Hardy's axioms applied to statistical systems *(6 pages)* 042144
B. Roy Frieden and Robert A. Gatenby

Insight into the so-called spatial reciprocity *(8 pages)* 042145
Zhen Wang, Satoshi Kokubo, Jun Tanimoto, Eriko Fukuda, and Keizo Shigaki

Uncovering wind turbine properties through two-dimensional stochastic modeling of wind dynamics *(12 pages)* 042146
Frank Raischel, Teresa Scholz, Vitor V. Lopes, and Pedro G. Lind

Duality of diffusion dynamics in particle motion in soft-mode turbulence *(7 pages)* 042147
Masaru Suzuki, Hiroshi Sueto, Yusaku Hosokawa, Naoyuki Muramoto, Takayuki Narumi, Yoshiki Hidaka, and Shoichi Kai

Irreversible bimolecular chemical reactions on directed scale-free networks *(8 pages)* 042148
Sungchul Kwon and Yup Kim

Molecules with an induced dipole moment in a stochastic electric field *(6 pages)* 042149
Y. B. Band and Y. Ben-Shimol

Equivalence between fractional exclusion statistics and self-consistent mean-field theory in interacting-particle systems in any number of dimensions *(6 pages)* 042150
D. V. Anghel, G. A. Nemnes, and F. Gulminelli

Coarse graining for the phase-field model of fast phase transitions *(8 pages)* 042151
D. Jou and P. K. Galenko

Unstable supercritical discontinuous percolation transitions *(9 pages)* 042152
Wei Chen, Xueqi Cheng, Zhiming Zheng, Ning Ning Chung, Raissa M. D'Souza, and Jan Nagler

Granular Materials

Granular transport in a horizontally vibrated sawtooth channel *(5 pages)* 042201
Shahin Mobarakabadi, Ehsan Nedaaee Oskoee, Matthias Schröter, and Mehdi Habibi

Shape-induced chiral ordering in two-dimensional packing of snowmanlike dimeric particles *(6 pages)* 042202
Youngkyu Han, Juncheol Lee, Siyoung Q. Choi, Myung Chul Choi, and Mahn Won Kim

Universal features of the jamming phase diagram of wet granular materials *(9 pages)* 042203
S. H. Ebrahimnazhad Rahbari, M. Khadem-Maaref, and S. K. A. Seyed Yaghoubi

Sedimentation of granular columns in the viscous and weakly inertial regimes *(4 pages)* 042204
Hamza Chraïbi and Yacine Amarouchene

(Continued)

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 88, NUMBER 4** **OCTOBER 2013**

Percolation model with continuously varying exponents *(9 pages)* 042122
R. F. S. Andrade and H. J. Herrmann

Velocity statistics for interacting edge dislocations in one dimension from Dyson's Coulomb gas model *(8 pages)* 042123
Farshid Jafarpour, Luiza Angheluta, and Nigel Goldenfeld

Log-normal distribution from a process that is not multiplicative but is additive *(7 pages)* 042124
Hideaki Mouri

Third-order phase transition in random tilings *(11 pages)* 042125
F. Colomo and A. G. Pronko

Tsallis power laws and finite baths with negative heat capacity *(5 pages)* 042126
G. Baris Bagci and Thomas Oikonomou

Interplay between finite resources and a local defect in an asymmetric simple exclusion process *(8 pages)* 042127
L. Jonathan Cook, J. J. Dong, and Alexander LaFleur

Effects of adaptive dynamical linking in networked games *(6 pages)* 042128
Zhihu Yang, Zhi Li, Te Wu, and Long Wang

Scaling in the aging dynamics of the site-diluted Ising model *(9 pages)* 042129
Federico Corberi, Eugenio Lippiello, Anupam Mukherjee, Sanjay Puri, and Marco Zannetti

Spectral density of a Wishart model for nonsymmetric correlation matrices *(6 pages)* 042130
Vinayak

Fluids in porous media: The case of neutral walls *(8 pages)* 042131
Giuseppe Pellicane, Richard L. C. Vink, Bruno Russo, and Paolo V. Giaquinta

Theory of warm ionized gases: Equation of state and kinetic Schottky anomaly *(6 pages)* 042132
A. Capolupo, S. M. Giampaolo, and F. Illuminati

Driven flow with exclusion and transport in graphenelike structures *(11 pages)* 042133
R. B. Stinchcombe, S. L. A. de Queiroz, M. A. G. Cunha, and Belita Koiller

Nonequilibrium thermodynamics of the soft glassy rheology model *(9 pages)* 042134
Ingo Fuereder and Patrick Ilg

Local thermodynamics and the generalized Gibbs-Duhem equation in systems with long-range interactions *(11 pages)* 042135
Ivan Latella and Agustín Pérez-Madrid

Microcanonical work and fluctuation relations for an open system: An exactly solvable model *(11 pages)* 042136
Y. Subaşı and C. Jarzynski

Emergence of fractals in aggregation with stochastic self-replication *(8 pages)* 042137
Md. Kamrul Hassan, Md. Zahedul Hassan, and Nabila Islam

Effect of coordination number on the nonequilibrium critical point *(5 pages)* 042138
Diana Thongjaomayum and Prabodh Shukla

Isomorphs, hidden scale invariance, and quasiuniversality *(9 pages)* 042139
Jeppe C. Dyre

(Continued)

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 88, NUMBER 4** **OCTOBER 2013**

Backbone structure of the Edwards-Anderson spin-glass model *(11 pages)* 042105
F. Romá and S. Risau-Gusman

Phases and fluctuations in a model for asymmetric inhomogeneous fluid membranes *(7 pages)* 042106
Niladri Sarkar and Abhik Basu

Heat capacity singularity of binary liquid mixtures at the liquid-liquid critical point *(9 pages)* 042107
Pablo Méndez-Castro, Jacobo Troncoso, José Peleteiro, and Luis Romaní

Modified Bose-Einstein and Fermi-Dirac statistics if excitations are localized on an intermediate length scale: Applications to non-Debye specific heat *(7 pages)* 042108
Ralph V. Chamberlin and Bryce F. Davis

Work distribution and edge singularities for generic time-dependent protocols in extended systems *(19 pages)* . . . 042109
Pietro Smacchia and Alessandro Silva

Mesoscopic hydrothermodynamics of complex-structured materials *(17 pages)* 042110
Áurea R. Vasconcellos, A. A. P. Silva, Roberto Luzzi, J. Casas-Vázquez, and David Jou

Stochastic kinetics of photoinduced phase transitions in spin-crossover solids *(10 pages)* 042111
Iurii Gudyma, Artur Maksymov, and Mihai Dimian

Self-organized dynamics in local load-sharing fiber bundle models *(7 pages)* 042112
Soumyajyoti Biswas and Bikas K. Chakrabarti

Random walks in nonuniform environments with local dynamic interactions *(13 pages)* 042113
Christopher M. Baker, Barry D. Hughes, and Kerry A. Landman

Energy transfer in a molecular motor in the Kramers regime *(7 pages)* 042114
K. J. Challis and Michael W. Jack

Entropy-generated power and its efficiency *(6 pages)* 042115
N. Golubeva, A. Imparato, and M. Esposito

Localization-delocalization transition of the instantaneous normal modes of liquid water *(11 pages)* 042116
Ban-Chiech Huang and Cheng-Hung Chang

Critical properties of the Hintermann-Merlini model *(7 pages)* 042117
Chengxiang Ding, Yancheng Wang, Wanzhou Zhang, and Wenan Guo

Extremal paths, the stochastic heat equation, and the three-dimensional Kardar-Parisi-Zhang universality class *(13 pages)* 042118
Timothy Halpin-Healy

Frequency-dependent effective hydraulic conductivity of strongly heterogeneous media *(10 pages)* 042119
E. Caspari, B. Gurevich, and T. M. Müller

Asymmetric exclusion process with global hopping *(8 pages)* 042120
Chikashi Arita, Jérémie Bouttier, P. L. Krapivsky, and Kirone Mallick

Effects of the interplay between initial state and Hamiltonian on the thermalization of isolated quantum many-body systems *(10 pages)* 042121
E. J. Torres-Herrera and Lea F. Santos

(Continued)

PHYSICAL REVIEW E THIRD SERIES, VOLUME 88, NUMBER 4 OCTOBER 2013

Energy landscape and dynamics of proteins: An exact analysis of a simplified lattice model *(4 pages)* . . . . . 040702(R)
Marek Cieplak and Jayanth R. Banavar

Binding-rebinding dynamics of proteins interacting nonspecifically with a long DNA molecule *(4 pages)* . . . . . 040703(R)
Azita Parsaeian, Monica Olvera de la Cruz, and John F. Marko

Networks and Interdisciplinary Physics

Endemic infections are always possible on regular networks *(5 pages)* . . . . . 040801(R)
Charo I. Del Genio and Thomas House

Nonlinear Dynamics and Chaos

Supratransmission induced by waves collisions in a discrete electrical lattice *(4 pages)* . . . . . 040901(R)
A. B. Togueu Motcheyo, C. Tchawoua, and J. D. Tchinang Tchameu

Decomposing the dynamics of heterogeneous delayed networks with applications to connected vehicle systems *(5 pages)* . . . . . 040902(R)
Róbert Szalai and Gábor Orosz

Quorum sensing via static coupling demonstrated by Chua's circuits *(5 pages)* . . . . . 040903(R)
Harpartap Singh and P. Parmananda

Fluid Dynamics

Diffusion approximation in turbulent two-particle dispersion *(4 pages)* . . . . . 041001(R)
Gregory L. Eyink and Damien Benveniste

Enhanced diffusion of nonswimmers in a three-dimensional bath of motile bacteria *(5 pages)* . . . . . 041002(R)
Alys Jepson, Vincent A. Martinez, Jana Schwarz-Linek, Alexander Morozov, and Wilson C. K. Poon

Plasma Physics

Scaling laws for ignition at the National Ignition Facility from first principles *(4 pages)* . . . . . 041101(R)
Baolian Cheng, Thomas J. T. Kwan, Yi-Ming Wang, and Steven H. Batha

ARTICLES

Statistical Physics

Wigner distribution functions for complex dynamical systems: The emergence of the Wigner-Boltzmann equation *(6 pages)* 042101
Dries Sels and Fons Brosens

High-precision Monte Carlo study of directed percolation in $(d + 1)$ dimensions *(10 pages)* 042102
Junfeng Wang, Zongzheng Zhou, Qingquan Liu, Timothy M. Garoni, and Youjin Deng

Effect of short-range order on transport in one-particle tight-binding models *(8 pages)* 042103
Abdellah Khodja and Jochen Gemmer

Role of network junctions for the totally asymmetric simple exclusion process *(15 pages)* 042104
Adélaïde Raguin, Andrea Parmeggiani, and Norbert Kern

(Continued)

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
P.O. Box 41
Annapolis Junction, MD 20701

THIRD SERIES, VOLUME 88, NUMBER 4
PARTS A AND B

CONTENTS

OCTOBER 2013

The Table of Contents is a total listing of Parts A and B.
Part A consists of pages 040101(R)-042607, and Part B pages 042701-049904(E).

PART A

RAPID COMMUNICATIONS

Statistical Physics

Nature versus nurture: Predictability in low-temperature Ising dynamics *(4 pages)* . . . . . 040101(R)
J. Ye, J. Machta, C. M. Newman, and D. L. Stein

Intrinsic noise and discrete-time processes *(4 pages)* . . . . . 040102(R)
Joseph D. Challenger, Duccio Fanelli, and Alan J. McKane

Colloids and Complex Fluids

Onset of flow in a confined colloidal glass under an imposed shear stress *(5 pages)* . . . . . 040301(R)
Pinaki Chaudhuri and Jürgen Horbach

Periodic structures in binary mixtures enforced by Janus particles *(4 pages)* . . . . . 040302(R)
Alexei Krekhov, Vanessa Weith, and Walter Zimmermann

Invasion-wave-induced first-order phase transition in systems of active particles *(5 pages)* . . . . . 040303(R)
Thomas Ihle

Liquid Crystals

Optomechanical elastomeric engine *(4 pages)* . . . . . 040501(R)
Miloš Knežević and Mark Warner

Polymers

Giant and universal magnetoelectric coupling in soft materials and concomitant ramifications for materials science and biology *(5 pages)* . . . . . 040601(R)
Liping Liu and Pradeep Sharma

Biological Physics

Hydrodynamic and subdiffusive motion of tracers in a viscoelastic medium *(5 pages)* . . . . . 040701(R)
Denis S. Grebenkov, Mahsa Vahabi, Elena Bertseva, László Forró, and Sylvia Jeney

Copyright 2013 by American Physical Society

(Continued)

1539-3755(201310)88:4:B;1-M