PHYSICAL REVIEW E™

For editorial and subscription correspondence, please see inside front cover
(ISSN: 2470-0045)

PERIODICALS
Postmaster send address changes to:

APS Subscription Services
P.O. Box 41
Annapolis Junction, MD 20701

THIRD SERIES, VOLUME 95, NUMBER 6
PARTS A AND B

CONTENTS

JUNE 2017

The Table of Contents is a total listing of Parts A and B.
Part A consists of pages 060101(R)–062310, and Part B pages 062401–069905(E).

PART A

RAPID COMMUNICATIONS

Statistical Physics

Temporal disorder as a mechanism for spatially heterogeneous diffusion *(5 pages)* . . . . . 060101(R)
Paul C. Bressloff and Sean D. Lawley

Information trimming: Sufficient statistics, mutual information, and predictability from effective channel states *(6 pages)* . . . . . 060102(R)
Ryan G. James, John R. Mahoney, and James P. Crutchfield

Columnar domains and anisotropic growth laws in dipolar systems *(4 pages)* . . . . . 060103(R)
Arunkumar Bupathy, Varsha Banerjee, and Sanjay Puri

Nonlinear Dynamics and Chaos

From bulk self-assembly to electrical diffuse layer in a continuum approach for ionic liquids: The impact of anion and cation size asymmetry *(6 pages)* . . . . . 060201(R)
Sariel Bier, Nir Gavish, Hannes Uecker, and Arik Yochelis

Intermittent many-body dynamics at equilibrium *(5 pages)* . . . . . 060202(R)
C. Danieli, D. K. Campbell, and S. Flach

Escape routes, weak links, and desynchronization in fluctuation-driven networks *(5 pages)* . . . . . 060203(R)
Benjamin Schäfer, Moritz Matthiae, Xiaozhu Zhang, Martin Rohden, Marc Timme, and Dirk Witthaut

Colloids, Complex Fluids, and Active Matter

Ultra-long-range dynamic correlations in a microscopic model for aging gels *(6 pages)* . . . . . 060601(R)
Pinaki Chaudhuri and Ludovic Berthier

Structural interactions in ionic liquids linked to higher-order Poisson-Boltzmann equations *(6 pages)* . . . . . 060602(R)
R. Blossey, A. C. Maggs, and R. Podgornik

Liquid Crystals

Chiral edge fluctuations of colloidal membranes *(5 pages)* . . . . . 060701(R)
Leroy L. Jia, Mark J. Zakhary, Zvonimir Dogic, Robert A. Pelcovits, and Thomas R. Powers

Copyright 2017 by American Physical Society

(Continued)

2470-0045(201706)95:6:A;1-#

The editors and referees of PRE find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. E 89, 010001 (2014).

PHYSICAL REVIEW E THIRD SERIES, VOLUME 95, NUMBER 6 JUNE 2017

Granular Materials

Universality in quasi-two-dimensional granular shock fronts above an intruder *(6 pages)* . . . . . 060901(R)
M. Yasinul Karim and Eric I. Corwin

Plasma Physics

Energy transfer channels and turbulence cascade in Vlasov-Maxwell turbulence *(5 pages)* . . . . . 061201(R)
Yan Yang, W. H. Matthaeus, T. N. Parashar, P. Wu, M. Wan, Y. Shi, S. Chen, V. Roytershteyn, and W. Daughton

Computational Physics

Transient hydrodynamic finite-size effects in simulations under periodic boundary conditions *(6 pages)* . . . . . 061301(R)
Adelchi J. Asta, Maximilien Levesque, Rodolphe Vuilleumier, and Benjamin Rotenberg

Sparse modeling approach to analytical continuation of imaginary-time quantum Monte Carlo data *(6 pages)* . . . . 061302(R)
Junya Otsuki, Masayuki Ohzeki, Hiroshi Shinaoka, and Kazuyoshi Yoshimi

ARTICLES

Statistical Physics

Stochastic thermodynamics in the strong coupling regime: An unambiguous approach based on coarse graining *(9 pages)* 062101
Philipp Strasberg and Massimiliano Esposito

Extended states with Poisson spectral statistics *(6 pages)* 062102
Triparna Mondal, Suchetana Sadhukhan, and Pragya Shukla

Performance optimization in two-dimensional Brownian rotary ratchet models *(23 pages)* 062103
Hiroki Tutu, Katsuya Ouchi, and Takehiko Horita

Representation of the direct correlation function of the hard-sphere fluid *(17 pages)* 062104
S. Pieprzyk, A. C. Brańka, and D. M. Heyes

Bose-Einstein condensation in chains with power-law hoppings: Exact mapping on the critical behavior in d-dimensional regular lattices *(5 pages)* 062105
W. S. Dias, D. Bertrand, and M. L. Lyra

Characterizing time series via complexity-entropy curves *(14 pages)* 062106
Haroldo V. Ribeiro, Max Jauregui, Luciano Zunino, and Ervin K. Lenzi

Geometric structure and information change in phase transitions *(15 pages)* 062107
Eun-jin Kim and Rainer Hollerbach

Symmetries and nonequilibrium thermodynamics *(10 pages)* 062108
Sergio Bordel

Gain and loss in open quantum systems *(11 pages)* 062109
Hichem Eleuch and Ingrid Rotter

Strong correlations between the exponent α and the particle number for a Renyi monoatomic gas in Gibbs' statistical mechanics *(4 pages)* 062110
A. Plastino and M. C. Rocca

(Continued)

The editors and referees of PRE find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. E 89, 010001 (2014).

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 95, NUMBER 6** **JUNE 2017**

Nonequilibrium dynamics of a pure dry friction model subjected to colored noise *(12 pages)* 062111
Paul M. Geffert and Wolfram Just

Fluctuation-induced forces in confined ideal and imperfect Bose gases *(22 pages)* 062112
H. W. Diehl and Sergei B. Rutkevich

Multicritical points and topology-induced inverse transition in the random-field Blume-Capel model in a random network *(9 pages)* 062113
R. Erichsen, Jr., Amanda Azevedo Lopes, and S. G. Magalhaes

Entropy measures, entropy estimators, and their performance in quantifying complex dynamics: Effects of artifacts, nonstationarity, and long-range correlations *(37 pages)* 062114
Wanting Xiong, Luca Faes, and Plamen Ch. Ivanov

Critical behavior of a two-step contagion model with multiple seeds *(9 pages)* 062115
Wonjun Choi, Deokjae Lee, and B. Kahng

Diffusion in the presence of a local attracting factor: Theory and interdisciplinary applications *(9 pages)* 062116
Hardi Veermäe and Marco Patriarca

Interference of two codirectional exclusion processes in the presence of a static bottleneck: A biologically motivated model *(19 pages)* 062117
Bhavya Mishra and Debashish Chowdhury

Genuine localization transition in a long-range hopping model *(13 pages)* 062118
Xiangyu Cao, Alberto Rosso, Jean-Philippe Bouchaud, and Pierre Le Doussal

Does greed help a forager survive? *(6 pages)* 062119
U. Bhat, S. Redner, and O. Bénichou

Frustrated crystallization of a monolayer of magnetized beads under geometrical confinement *(6 pages)* 062120
J. Schockmel, N. Vandewalle, E. Opsomer, and G. Lumay

Memory erasure using time-multiplexed potentials *(7 pages)* 062121
Saurav Talukdar, Shreyas Bhaban, and Murti V. Salapaka

Discovering phases, phase transitions, and crossovers through unsupervised machine learning: A critical examination *(14 pages)* 062122
Wenjian Hu, Rajiv R. P. Singh, and Richard T. Scalettar

Entropy production and time asymmetry in the presence of strong interactions *(7 pages)* 062123
H. J. D. Miller and J. Anders

Fluctuations of absorption of interacting diffusing particles by multiple absorbers *(14 pages)* 062124
Tal Agranov and Baruch Meerson

Population density equations for stochastic processes with memory kernels *(11 pages)* 062125
Yi Ming Lai and Marc de Kamps

Monte Carlo study of the ordering in a strongly frustrated liquid crystal *(9 pages)* 062126
S. George, C. Bentham, X. Zeng, G. Ungar, and G. A. Gehring

Thermodynamics of quantum information scrambling *(5 pages)* 062127
Michele Campisi and John Goold

(Continued)

The editors and referees of PRE find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. E 89, 010001 (2014).

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 95, NUMBER 6** **JUNE 2017**

Einstein relation and hydrodynamics of nonequilibrium mass transport processes *(13 pages)* 062128
Arghya Das, Anupam Kundu, and Punyabrata Pradhan

Influence of measurement error on Maxwell's demon *(9 pages)* 062129
Vegard Sørdal, Joakim Bergli, and Y. M. Galperin

Phase ordering dynamics of reconstituting particles *(9 pages)* 062130
F. A. Gómez Albarracín, H. D. Rosales, and M. D. Grynberg

Autonomous rotor heat engine *(13 pages)* 062131
Alexandre Roulet, Stefan Nimmrichter, Juan Miguel Arrazola, Stella Seah, and Valerio Scarani

Out-of-equilibrium protocol for Rényi entropies via the Jarzynski equality *(7 pages)* 062132
Vincenzo Alba

Log-log growth of channel capacity for nondispersive nonlinear optical fiber channel in intermediate power range *(15 pages)* 062133
I. S. Terekhov, A. V. Reznichenko, Ya. A. Kharkov, and S. K. Turitsyn

Finite-time and finite-size scalings in the evaluation of large-deviation functions: Numerical approach in continuous time *(10 pages)* 062134
Esteban Guevara Hidalgo, Takahiro Nemoto, and Vivien Lecomte

Stochastic dynamics for reinfection by transmitted diseases *(9 pages)* 062135
Alessandro S. Barros and Suani T. R. Pinho

Equilibrium structure and off-equilibrium kinetics of a magnet with tunable frustration *(13 pages)* 062136
Federico Corberi, Manoj Kumar, Sanjay Puri, and Eugenio Lippiello

Diffusion-controlled formation and collapse of a d-dimensional A-particle island in the B-particle sea *(13 pages)* 062137
Boris M. Shipilevsky

Correspondence between spanning trees and the Ising model on a square lattice *(4 pages)* 062138
G. M. Viswanathan

Thermodynamics of random number generation *(11 pages)* 062139
Cina Aghamohammadi and James P. Crutchfield

Heat perturbation spreading in the Fermi-Pasta-Ulam-β system with next-nearest-neighbor coupling: Competition between phonon dispersion and nonlinearity *(8 pages)* 062140
Daxing Xiong

Unjamming in models with analytic pairwise potentials *(8 pages)* 062141
Stefan Kooij and Edan Lerner

Continuous-variable approach to the spectral properties and quantum states of the two-component Bose-Hubbard dimer *(12 pages)* 062142
F. Lingua and V. Penna

Minimal motor for powering particle motion from spin imbalance *(5 pages)* 062143
Ulf Bissbort, Colin Teo, Chu Guo, Giulio Casati, Giuliano Benenti, and Dario Poletti

When memory pays: Discord in hidden Markov models *(10 pages)* 062144
Emma Lathouwers and John Bechhoefer

(Continued)

The editors and referees of PRE find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. E 89, 010001 (2014).

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 95, NUMBER 6** **JUNE 2017**

Work extraction in an isolated quantum lattice system: Grand canonical and generalized Gibbs ensemble predictions *(11 pages)* 062145
Ranjan Modak and Marcos Rigol

Nonlinear Dynamics and Chaos

Stochastic uncertainty of advected curves in finite-time unsteady flows *(12 pages)* 062201
Sanjeeva Balasuriya

Classical counterparts of quantum attractors in generic dissipative systems *(6 pages)* 062202
Gabriel G. Carlo, Leonardo Ermann, Alejandro M. F. Rivas, María E. Spina, and Dario Poletti

Nonlinear dynamics and band transport in a superlattice driven by a plane wave *(10 pages)* 062203
A. Apostolakis, M. K. Awodele, K. N. Alekseev, F. V. Kusmartsev, and A. G. Balanov

Coupling conditions for globally stable and robust synchrony of chaotic systems *(12 pages)* 062204
Suman Saha, Arindam Mishra, E. Padmanaban, Sourav K. Bhowmick, Prodyot K. Roy, Bivas Dam, and Syamal K. Dana

GOE-GUE-Poisson transitions in the nearest-neighbor spacing distribution of magnetoexcitons *(12 pages)* 062205
Frank Schweiner, Jörg Main, and Günter Wunner

Revoking amplitude and oscillation deaths by low-pass filter in coupled oscillators *(5 pages)* 062206
Wei Zou, Meng Zhan, and Jürgen Kurths

Rattleback dynamics and its reversal time of rotation *(11 pages)* 062207
Yoichiro Kondo and Hiizu Nakanishi

Solitons in the nonlinear Schrödinger equation with two power-law nonlinear terms modulated in time and space *(7 pages)* 062208
Houria Triki, K. Porsezian, and Amitava Choudhuri

Achilles' heel of a traveling pulse subject to a local external stimulus *(8 pages)* 062209
Kei Nishi, Shogo Suzuki, Katsuhiko Kayahara, Masakazu Kuze, Hiroyuki Kitahata, Satoshi Nakata, and Yasumasa Nishiura

Predicting mixing via resonances: Application to spherical piecewise isometries *(17 pages)* 062210
Lachlan D. Smith, Paul P. Park, Paul B. Umbanhowar, Julio M. Ottino, and Richard M. Lueptow

Multiple and exact soliton solutions of the perturbed Korteweg–de Vries equation of long surface waves in a convective fluid via Painlevé analysis, factorization, and simplest equation methods *(12 pages)* 062211
Ehab S. Selima, Xiaohua Yao, and Abdul-Majid Wazwaz

Bifurcation trees of Stark-Wannier ladders for accelerated Bose-Einstein condensates in an optical lattice *(5 pages)* 062212
Andrea Sacchetti

From synchronous to one-time delayed dynamics in coupled maps *(8 pages)* 062213
Celia Anteneodo, Juan Carlos González-Avella, and Raúl O. Vallejos

From dynamical systems with time-varying delay to circle maps and Koopman operators *(16 pages)* 062214
David Müller, Andreas Otto, and Günter Radons

Asymmetry-induced synchronization in oscillator networks *(10 pages)* 062215
Yuanzhao Zhang, Takashi Nishikawa, and Adilson E. Motter

(Continued)

The editors and referees of PRE find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. E 89, 010001 (2014).

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 95, NUMBER 6** **JUNE 2017**

Emergence of dispersive shocks and rarefaction waves in power-law contact models *(5 pages)* 062216
H. Yasuda, C. Chong, J. Yang, and P. G. Kevrekidis

Output-only parameter identification of a colored-noise-driven Van-der-Pol oscillator: Thermoacoustic instabilities as an example *(15 pages)* 062217
Giacomo Bonciolini, Edouard Boujo, and Nicolas Noiray

Escape dynamics through a continuously growing leak *(10 pages)* 062218
Tamás Kovács and József Vanyó

Extreme events in FitzHugh-Nagumo oscillators coupled with two time delays *(10 pages)* 062219
Arindam Saha and Ulrike Feudel

Amplitude death in a pair of one-dimensional complex Ginzburg-Landau systems coupled by diffusive connections *(9 pages)* 062220
Hakui Teki, Keiji Konishi, and Naoyuki Hara

Noise-induced stabilization of collective dynamics *(9 pages)* 062221
Pau Clusella and Antonio Politi

Entanglement and its relationship to classical dynamics *(10 pages)* 062222
Joshua B. Ruebeck, Jie Lin, and Arjendu K. Pattanayak

Analytic solutions throughout a period doubling route to chaos *(5 pages)* 062223
Marko S. Milosavljevic, Jonathan N. Blakely, Aubrey N. Beal, and Ned J. Corron

Geometric determination of classical actions of heteroclinic and unstable periodic orbits *(10 pages)* 062224
Jizhou Li and Steven Tomsovic

Ensemble dynamics and the emergence of correlations in one- and two-dimensional wave turbulence *(6 pages)* 062225
Thomas Y. Sheffield and Benno Rumpf

Breather-to-soliton transformation rules in the hierarchy of nonlinear Schrödinger equations *(11 pages)* 062226
Amdad Chowdury and Wieslaw Krolikowski

Networks and Complex Systems

Weighted growing simplicial complexes *(14 pages)* 062301
Owen T. Courtney and Ginestra Bianconi

Q-voter model with nonconformity in freely forming groups: Does the size distribution matter? *(8 pages)* 062302
Wojciech Radosz, Adam Mielnik-Pyszczorski, Marta Brzezińska, and Katarzyna Sznajd-Weron

Effects of communication burstiness on consensus formation and tipping points in social dynamics *(13 pages)* . . . 062303
C. Doyle, B. K. Szymanski, and G. Korniss

Finite-size analysis of the detectability limit of the stochastic block model *(16 pages)* 062304
Jean-Gabriel Young, Patrick Desrosiers, Laurent Hébert-Dufresne, Edward Laurence, and Louis J. Dubé

Consensus formation times in anisotropic societies *(10 pages)* 062305
Juan Neirotti

How the fittest compete for leadership: A tale of tails *(14 pages)* 062306
J. M. Luck and A. Mehta

(Continued)

The editors and referees of PRE find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. E 89, 010001 (2014).

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 95, NUMBER 6** **JUNE 2017**

Collapse of resilience patterns in generalized Lotka-Volterra dynamics and beyond *(7 pages)* 062307
Chengyi Tu, Jacopo Grilli, Friedrich Schuessler, and Samir Suweis

Emergence of robustness in networks of networks *(7 pages)* 062308
Kevin Roth, Flaviano Morone, Byungjoon Min, and Hernán A. Makse

Relating the large-scale structure of time series and visibility networks *(8 pages)* 062309
Miguel A. Rodríguez

Spectral partitioning in equitable graphs *(7 pages)* 062310
Paolo Barucca

PART B

Biological Physics

Fluctuation relations between hierarchical kinetically equivalent networks with Arrhenius-type transitions and their roles in systems and structural biology *(14 pages)* 062401
De-Ming Deng, Yi-Ta Lu, and Cheng-Hung Chang

Orientational phase transitions and the assembly of viral capsids *(19 pages)* 062402
Sanjay Dharmavaram, Fangming Xie, William Klug, Joseph Rudnick, and Robijn Bruinsma

Coexisting origins of subdiffusion in internal dynamics of proteins *(9 pages)* 062403
Yasmine Meroz, Victor Ovchinnikov, and Martin Karplus

Growth-dependent behavioral difference in bacterial chemotaxis *(8 pages)* 062404
Chi Zhang, Rongjing Zhang, and Junhua Yuan

Crossing fitness canyons by a finite population *(7 pages)* 062405
David B. Saakian, Alexander S. Bratus, and Chin-Kun Hu

Phenomenology of stochastic exponential growth *(12 pages)* 062406
Dan Pirjol, Farshid Jafarpour, and Srividya Iyer-Biswas

℘ Bubble gating in biological ion channels: A density functional theory study *(7 pages)* 062407
Florian Gußmann and Roland Roth

Fluorescence correlation spectroscopy experiments to quantify free diffusion coefficients in reaction-diffusion systems: The case of Ca^{2+} and its dyes *(15 pages)* 062408
Lorena Sigaut, Cecilia Villarruel, María Laura Ponce, and Silvina Ponce Dawson

Coherence of biochemical oscillations is bounded by driving force and network topology *(11 pages)* 062409
Andre C. Barato and Udo Seifert

Universal lower bound on the free-energy cost of molecular measurements *(8 pages)* 062410
Suman G. Das, Madan Rao, and Garud Iyengar

Apex predator and the cyclic competition in a rock-paper-scissors game of three species *(6 pages)* 062411
C. A. Souza-Filho, D. Bazeia, and J. G. G. S. Ramos

(Continued)

℘ The editors and referees of PRE find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. E 89, 010001 (2014).

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 95, NUMBER 6** **JUNE 2017**

Three-dimensional mechanisms of macro-to-micro-scale transport and absorption enhancement by gut villi motions *(8 pages)* 062412
Yanxing Wang and James G. Brasseur

Lateral trapping of DNA inside a voltage gated nanopore *(13 pages)* 062413
Thomas Töws and Peter Reimann

Mode-locking behavior of Izhikevich neurons under periodic external forcing *(9 pages)* 062414
AmirAli Farokhniaee and Edward W. Large

Backward renormalization-group inference of cortical dipole sources and neural connectivity efficacy *(14 pages)* 062415
Selene da Rocha Amaral, Luiz A. Baccalá, Leonardo S. Barbosa, and Nestor Caticha

Empirical resistive-force theory for slender biological filaments in shear-thinning fluids *(13 pages)* 062416
Emily E. Riley and Eric Lauga

Weak nanoscale chaos and anomalous relaxation in DNA *(8 pages)* 062417
Alexey K. Mazur

Careful accounting of extrinsic noise in protein expression reveals correlations among its sources *(15 pages)* 062418
John A. Cole and Zaida Luthey-Schulten

Scales and multimodal flux distributions in stationary metabolic network models via thermodynamics *(5 pages)* 062419
Daniele De Martino

Polymers

Magnetorheological response of highly filled magnetoactive elastomers from perspective of mechanical energy density: Fractal aggregates above the nanometer scale? *(10 pages)* 062501
Vladislav V. Sorokin, Inna A. Belyaeva, Mikhail Shamonin, and Elena Yu. Kramarenko

Colloids, Complex Fluids, and Active Matter

Anisotropic hydrodynamic function of dense confined colloids *(5 pages)* 062601
Kim Nygård, Johan Buitenhuis, Matias Kagias, Konstantins Jefimovs, Federico Zontone, and Yuriy Chushkin

Artificial living crystals in confined environment *(7 pages)* 062602
Wen Yang, Vyacheslav R. Misko, Jacques Tempere, Minghui Kong, and Francois M. Peeters

Pragmatical access to the viscous flow of undercooled liquids *(4 pages)* 062603
U. Buchenau

Aggregation and fragmentation dynamics in random flows: From tracers to inertial aggregates *(11 pages)* 062604
Ksenia Guseva and Ulrike Feudel

Shear-induced laning transition in a confined colloidal film *(10 pages)* 062605
Sascha Gerloff, Tarlan A. Vezirov, and Sabine H. L. Klapp

Structure and reentrant percolation in an inverse patchy colloidal system *(11 pages)* 062606
J. L. B. de Araújo, F. F. Munarin, G. A. Farias, F. M. Peeters, and W. P. Ferreira

Self-propulsion and crossing statistics under random initial conditions *(6 pages)* 062607
M. Hubert, M. Labousse, and S. Perrard

(Continued)

The editors and referees of PRE find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. E 89, 010001 (2014).

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 95, NUMBER 6** **JUNE 2017**

Transient flows in active porous media *(6 pages)* 062608
Lefteris I. Kosmidis and Kaare H. Jensen

Curvature-controlled defect dynamics in active systems *(8 pages)* 062609
Sebastian Ehrig, Jonathan Ferracci, Richard Weinkamer, and John W. C. Dunlop

Transitions between multiple dynamical states in a confined dense active-particle system *(7 pages)* 062610
Pallab Sinha Mahapatra, Ajinkya Kulkarni, Sam Mathew, Mahesh V. Panchagnula, and Srikanth Vedantam

Separation of two attractive ferromagnetic ellipsoidal particles by hydrodynamic interactions under alternating magnetic field *(11 pages)* 062611
Micheline Abbas and Georges Bossis

Tuning bacterial hydrodynamics with magnetic fields *(8 pages)* 062612
C. J. Pierce, E. Mumper, E. E. Brown, J. T. Brangham, B. H. Lower, S. K. Lower, F. Y. Yang, and R. Sooryakumar

Dynamical transition in a jammed state of a quasi-two-dimensional foam *(6 pages)* 062613
Rei Kurita, Yujiro Furuta, Naoya Yanagisawa, and Noriko Oikawa

Liquid Crystals

Anisotropy of electrostatic interaction in free-standing smectic-C^* films *(8 pages)* 062701
S. V. Ulyanov

Dielectric relaxation process of a partially unwound helical structure in ferroelectric liquid crystals *(8 pages)* 062702
Amit Choudhary, Ambika Bawa, Rajesh, Surinder P. Singh, and Ashok M. Biradar

Effect of head group orientation on phospholipid assembly *(6 pages)* 062703
Tanay Paul and Jayashree Saha

Chiral smectic-*A* and smectic-*C* phases with de Vries characteristics *(9 pages)* 062704
Neelam Yadav, V. P. Panov, V. Swaminathan, S. P. Sreenilayam, J. K. Vij, T. S. Perova, R. Dhar, A. Panov, D. Rodriguez-Lojo, and P. J. Stevenson

Spatially periodic deformations in planar and twisted flexoelectric nematic layers *(8 pages)* 062705
M. Buczkowska and G. Derfel

Curvature-driven stability of defects in nematic textures over spherical disks *(10 pages)* 062706
Xiuqing Duan and Zhenwei Yao

Films and Interfaces

Size dependence of the surface tension of a free surface of an isotropic fluid *(5 pages)* 062801
Sergii Burian, Mykola Isaiev, Konstantinos Termentzidis, Vladimir Sysoev, and Leonid Bulavin

Multiscaling behavior of atomic-scale friction *(6 pages)* 062802
M. Jannesar, T. Jamali, A. Sadeghi, S. M. S. Movahed, G. Fesler, E. Meyer, B. Khoshnevisan, and G. R. Jafari

Phase-field-crystal investigation of the morphology of a steady-state dendrite tip on the atomic scale *(10 pages)* 062803
Sai Tang, Jincheng Wang, Junjie Li, Zhijun Wang, Yaolin Guo, Can Guo, and Yaohe Zhou

Effect of impurities on chirality conversion by grinding *(6 pages)* 062804
Hiroyasu Katsuno and Makio Uwaha

(Continued)

The editors and referees of PRE find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. E 89, 010001 (2014).

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 95, NUMBER 6** **JUNE 2017**

Granular Materials

Pneumatic fractures in confined granular media *(15 pages)* 062901
Fredrik K. Eriksen, Renaud Toussaint, Antoine L. Turquet, Knut J. Måløy, and Eirik G. Flekkøy

Discontinuous change of shear modulus for frictional jammed granular materials *(9 pages)* 062902
Michio Otsuki and Hisao Hayakawa

Charging changes contact composition in binary sphere packings *(6 pages)* 062903
André Schella, Simon Weis, and Matthias Schröter

Mechanical excitation of rodlike particles by a vibrating plate *(8 pages)* 062904
Torsten Trittel, Kirsten Harth, and Ralf Stannarius

Stability of gas channels in a dense suspension in the presence of obstacles *(8 pages)* 062905
Raphaël Poryles, Germán Varas, and Valérie Vidal

Shear-rate-dependent transport coefficients in granular suspensions *(19 pages)* 062906
Vicente Garzó

Solid Mechanics

Modeling energy storage and structural evolution during finite viscoplastic deformation of glassy polymers *(13 pages)* 063001
Rui Xiao, Gagik Ghazaryan, Theo A. Tervoort, and Thao D. Nguyen

Broadband cloaking of flexural waves *(8 pages)* 063002
Ahmad Zareei and Mohammad-Reza Alam

Golf-course and funnel energy landscapes: Protein folding concepts in martensites *(8 pages)* 063003
N. Shankaraiah

Three-dimensional to two-dimensional transition in mode-I fracture microbranching in a perturbed hexagonal close-packed lattice *(8 pages)* 063004
Shay I. Heizler and David A. Kessler

Fluid Dynamics

Direct numerical simulation study of statistically stationary propagation of a reaction wave in homogeneous turbulence *(18 pages)* 063101
Rixin Yu and Andrei N. Lipatnikov

Nested polyhedra model of turbulence *(10 pages)* 063102
Ö. D. Gürcan

Criteria for drop generation in multiphase microfluidic devices *(14 pages)* 063103
Joseph D. Buttacci, Michael Loewenberg, Christine C. Roberts, Martin B. Nemer, and Rekha R. Rao

Internal rupture and rapid bouncing of impacting drops induced by submillimeter-scale textures *(9 pages)* 063104
Rui Zhang, Xiwen Zhang, Pengfei Hao, and Feng He

Electro-osmotic flow through nanopores in thin and ultrathin membranes *(8 pages)* 063105
Dmitriy V. Melnikov, Zachery K. Hulings, and Maria E. Gracheva

(Continued)

The editors and referees of PRE find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. E 89, 010001 (2014).

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 95, NUMBER 6** **JUNE 2017**

Modeling polymorphic transformation of rotating bacterial flagella in a viscous fluid *(12 pages)* 063106
William Ko, Sookkyung Lim, Wanho Lee, Yongsam Kim, Howard C. Berg, and Charles S. Peskin

Direct numerical simulation of an arbitrarily shaped particle at a fluidic interface *(7 pages)* 063107
Gregory Lecrivain, Ryoichi Yamamoto, Uwe Hampel, and Takashi Taniguchi

Impact of diffusion on transverse dispersion in two-dimensional ordered and random porous media *(16 pages)* . . . 063108
Dzmitry Hlushkou, Stanislau Piatrusha, and Ulrich Tallarek

Electrohydrodynamic instability of ion-concentration shock wave in electrophoresis *(9 pages)* 063109
Rahul Gaur and Supreet Singh Bahga

Experimental investigations on characteristics of stable water electrospray in air without discharge *(8 pages)* 063110
Inyong Park, Won Seok Hong, Sang Bok Kim, and Sang Soo Kim

Linear and nonlinear perturbation analysis of the symmetry breaking in time-periodic propulsive wakes *(15 pages)* 063111
Damien Jallas, Olivier Marquet, and David Fabre

Instability evolution of the viscous elliptic liquid jet in the Rayleigh regime *(10 pages)* 063112
Shibo Gu, Lipo Wang, and David L. S. Hung

Combustion instability mitigation by magnetic fields *(7 pages)* 063113
Agnes Jocher, Heinz Pitsch, Thomas Gomez, Jérôme Bonnety, and Guillaume Legros

Plasma Physics

Degeneracy and relativistic microreversibility relations for collisional-radiative equilibrium models *(7 pages)* 063201
Gérald Faussurier and Christophe Blancard

Correlation and transport properties for mixtures at constant pressure and temperature *(9 pages)* 063202
Alexander J. White, Lee A. Collins, Joel D. Kress, Christopher Ticknor, Jean Clérouin, Philippe Arnault, and Nicolas Desbiens

Kinetic modeling of x-ray laser-driven solid Al plasmas via particle-in-cell simulation *(11 pages)* 063203
R. Royle, Y. Sentoku, R. C. Mancini, I. Paraschiv, and T. Johzaki

Picosecond time-resolved measurements of dense plasma line shifts *(5 pages)* 063204
C. R. Stillman, P. M. Nilson, S. T. Ivancic, I. E. Golovkin, C. Mileham, I. A. Begishev, and D. H. Froula

Laser-driven shock waves studied by x-ray radiography *(8 pages)* 063205
L. Antonelli, S. Atzeni, A. Schiavi, S. D. Baton, E. Brambrink, M. Koenig, C. Rousseaux, M. Richetta, D. Batani, P. Forestier-Colleoni, E. Le Bel, Y. Maheut, T. Nguyen-Bui, X. Ribeyre, and J. Trela

Numerical investigations of potential systematic uncertainties in iron opacity measurements at solar interior temperatures *(12 pages)* 063206
T. Nagayama, J. E. Bailey, G. P. Loisel, G. A. Rochau, J. J. MacFarlane, and I. E. Golovkin

Plasma anisotropy around a dust particle placed in an external electric field *(8 pages)* 063207
G. I. Sukhinin, A. V. Fedoseev, M. V. Salnikov, A. Rostom, M. M. Vasiliev, and O. F. Petrov

Contribution of electron-atom collisions to the plasma conductivity of noble gases *(12 pages)* 063208
S. Rosmej, H. Reinholz, and G. Röpke

(Continued)

The editors and referees of PRE find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. E 89, 010001 (2014).

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 95, NUMBER 6** **JUNE 2017**

Coulomb collision model for use in nonthermal plasma simulation *(12 pages)* 063209
Andrew M. Chap and Raymond J. Sedwick

Computational Physics

Acoustic multipole sources for the regularized lattice Boltzmann method: Comparison with multiple-relaxation-time models in the inviscid limit *(22 pages)* 063301
Congshan Zhuo and Pierre Sagaut

Asymptotic modeling of transport phenomena at the interface between a fluid and a porous layer: Jump conditions *(16 pages)* 063302
Philippe Angot, Benoît Goyeau, and J. Alberto Ochoa-Tapia

Kaiser-Bessel basis for particle-mesh interpolation *(10 pages)* 063303
Xingyu Gao, Jun Fang, and Han Wang

Auxiliary variables for numerically solving nonlinear equations with softly broken symmetries *(7 pages)* 063304
Ken D. Olum and Ali Masoumi

Chemical-potential-based lattice Boltzmann method for nonideal fluids *(7 pages)* 063305
Binghai Wen, Xuan Zhou, Bing He, Chaoying Zhang, and Haiping Fang

Entropic multirelaxation-time lattice Boltzmann method for moving and deforming geometries in three dimensions *(10 pages)* 063306
B. Dorschner, S. S. Chikatamarla, and I. V. Karlin

Modeling of nanoscale liquid mixture transport by density functional hydrodynamics *(17 pages)* 063307
Oleg Yu. Dinariev and Nikolay V. Evseev

Determination of the conformal-field-theory central charge by the Wang-Landau algorithm *(8 pages)* 063308
P. A. Belov, A. A. Nazarov, and A. O. Sorokin

Lattice Boltzmann simulations of heat transfer in fully developed periodic incompressible flows *(13 pages)* 063309
Zimeng Wang, Helen Shang, and Junfeng Zhang

Flow and mass transfer around a core-shell reservoir *(7 pages)* 063310
Badr Kaoui

Fourth-order analysis of a diffusive lattice Boltzmann method for barrier coatings *(11 pages)* 063311
Kyle T. Strand, Aaron J. Feickert, and Alexander J. Wagner

Linearization-based method for solving a multicomponent diffusion phase-field model with arbitrary solution thermodynamics *(9 pages)* 063312
M. J. Welland, E. Tenuta, and A. A. Prudil

Lattice Boltzmann solution of the transient Boltzmann transport equation in radiative and neutron transport *(9 pages)* 063313
Yahui Wang, Liming Yan, and Yu Ma

Hybrid smoothed dissipative particle dynamics and immersed boundary method for simulation of red blood cells in flows *(14 pages)* 063314
Ting Ye, Nhan Phan-Thien, Chwee Teck Lim, Lina Peng, and Huixin Shi

(Continued)

The editors and referees of PRE find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. E 89, 010001 (2014).

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 95, NUMBER 6** **JUNE 2017**

Population annealing simulations of a binary hard-sphere mixture *(12 pages)* 063315
Jared Callaham and Jonathan Machta

Computational aspects of the smectization process in liquid crystals: An example study of a perfectly aligned two-dimensional hard-boomerang system *(9 pages)* 063316
Agnieszka Chrzanowska

ERRATA

Erratum: Relationship between bond-breakage correlations and four-point correlations in heterogeneous glassy dynamics: Configuration changes and vibration modes [Phys. Rev. E **86**, 041504 (2012)] *(1 page)* . . . . . 069901(E)
Hayato Shiba, Takeshi Kawasaki, and Akira Onuki

Publisher's Note: General scaling relations for locomotion in granular media [Phys. Rev. E **95**, 052901 (2017)] *(1 page)* . . . . . 069902(E)
James Slonaker, D. Carrington Motley, Qiong Zhang, Stephen Townsend, Carmine Senatore, Karl Iagnemma, and Ken Kamrin

Publisher's Note: Fluctuating lattice Boltzmann method for the diffusion equation [Phys. Rev. E **94**, 033302 (2016)] *(1 page)* . . . . . 069903(E)
Alexander J. Wagner and Kyle Strand

Erratum: Modeling rigid magnetically rotated microswimmers: Rotation axes, bistability, and controllability [Phys. Rev. E **90**, 063006 (2014)] *(1 page)* . . . . . 069904(E)
Farshad Meshkati and Henry Chien Fu

Publisher's Note: X-ray shadow imprint of hydrodynamic instabilities on the surface of inertial confinement fusion capsules by the fuel fill tube [Phys. Rev. E **95**, 031204(R) (2017)] *(1 page)* . . . . . 069905(E)
A. G. MacPhee, D. T. Casey, D. S. Clark, S. Felker, J. E. Field, S. W. Haan, B. A. Hammel, J. Kroll, O. L. Landen, D. A. Martinez, P. Michel, J. Milovich, A. Moore, A. Nikroo, N. Rice, H. F. Robey, V. A. Smalyuk, M. Stadermann, and C. R. Weber