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 98, NUMBER 5
PARTS A AND B

CONTENTS

NOVEMBER 2018

The Table of Contents is a total listing of Parts A and B.
Part A consists of pages 050201(R)–052230, and Part B pages 052301–059901(E).

PART A

RAPID COMMUNICATIONS

Nonlinear Dynamics and Chaos

Front propagation into an unstable state in a forced medium: Experiments and theory *(5 pages)* . . . . . 050201(R)
K. Alfaro-Bittner, C. Castillo-Pinto, M. G. Clerc, G. González-Cortés, R. G. Rojas, and M. Wilson

Origin of Bellerophon states in globally coupled phase oscillators *(5 pages)* . . . . . 050202(R)
Can Xu, Stefano Boccaletti, Shuguang Guan, and Zhigang Zheng

Biological Physics

Extreme value statistics of mutation accumulation in renewing cell populations *(5 pages)* . . . . . 050401(R)
Philip Greulich and Benjamin D. Simons

Colloids, Complex Fluids, and Active Matter

Theory for the dynamics of glassy mixtures with particle size swaps *(5 pages)* . . . . . 050601(R)
Grzegorz Szamel

Theory of the dynamic magnetic susceptibility of ferrofluids *(5 pages)* . . . . . 050602(R)
Alexey O. Ivanov and Philip J. Camp

Liquid Crystals

Monte Carlo simulations of biaxial ordering in systems of uniaxially interacting rodlike ellipsoids *(5 pages)* . . . . . 050701(R)
Tushar Kanti Bose

Granular Materials

Effect of shape and friction on the packing and flow of granular materials *(5 pages)* . . . . . 050901(R)
K. Michael Salerno, Dan S. Bolintineanu, Gary S. Grest, Jeremy B. Lechman, Steven J. Plimpton, Ishan Srivastava, and Leonardo E. Silbert

Copyright 2018 by American Physical Society

(Continued)

2470-0045(201811)98:5:A;1-8

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 98, NUMBER 5 NOVEMBER 2018

Plasma Physics

Impact of asymmetries on fuel performance in inertial confinement fusion *(6 pages)* . . . . . 051201(R)
M. Gatu Johnson, B. D. Appelbe, J. P. Chittenden, J. Delettrez, C. Forrest, J. A. Frenje, V. Yu. Glebov, W. Grimble, B. M. Haines, I. Igumenshchev, R. Janezic, J. P. Knauer, B. Lahmann, F. J. Marshall, T. Michel, F. H. Séguin, C. Stoeckl, C. Walsh, A. B. Zylstra, and R. D. Petrasso

Driven thermal waves and determination of the thermal conductivity in a magnetized plasma *(5 pages)* . . . . . 051202(R)
S. Karbashewski, R. D. Sydora, B. Van Compernolle, and M. J. Poulos

ARTICLES

Statistical Physics

Modeling reservoir computing with the discrete nonlinear Schrödinger equation *(5 pages)* 052101
Simone Borlenghi, Magnus Boman, and Anna Delin

Log-periodicity in piecewise ballistic superdiffusion: Exact results *(7 pages)* 052102
J. C. Cressoni, G. M. Viswanathan, and M. A. A. da Silva

Dynamical phase transition in drifted Brownian motion *(11 pages)* 052103
Pelerine Tsobgni Nyawo and Hugo Touchette

Quantum detailed balance conditions and fluctuation relations for thermalizing quantum dynamics *(9 pages)* 052104
M. Ramezani, F. Benatti, R. Floreanini, S. Marcantoni, M. Golshani, and A. T. Rezakhani

Quantifying the validity and breakdown of the overdamped approximation in stochastic thermodynamics: Theory and experiment *(14 pages)* 052105
Rui Pan, Thai M. Hoang, Zhaoyu Fei, Tian Qiu, Jonghoon Ahn, Tongcang Li, and H. T. Quan

Heat distribution of a quantum harmonic oscillator *(5 pages)* 052106
Tobias Denzler and Eric Lutz

Brownian motors in variable-shape medium: Overdamped versus underdamped cases *(11 pages)* 052107
M. F. Kepnang Pebeu, R. L. Woulaché, and T. C. Kofane

Active image restoration *(13 pages)* 052108
Rongrong Xie, Shengfeng Deng, Weibing Deng, and Armen E. Allahverdyan

Kolmogorov-Sinai entropy and dissipation in driven classical Hamiltonian systems *(6 pages)* 052109
Matheus Capela, Mikel Sanz, Enrique Solano, and Lucas C. Céleri

Critical nonequilibrium cluster-flip relaxations in Ising models *(9 pages)* 052110
Yusuke Tomita and Yoshihiko Nonomura

Assortative exchange processes *(15 pages)* 052111
P. L. Krapivsky

Information loss under coarse graining: A geometric approach *(6 pages)* 052112
Archishman Raju, Benjamin B. Machta, and James P. Sethna

(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 98, NUMBER 5** **NOVEMBER 2018**

Physical foundation and consistent formulation of atomic-level fluxes in transport processes *(16 pages)* 052113
Youping Chen and Adrian Diaz

Feynman-Kac equation revisited *(13 pages)* 052114
Xudong Wang, Yao Chen, and Weihua Deng

Molecular dynamics of partially confined Lennard-Jones gases: Velocity autocorrelation function, mean squared displacement, and collective excitations *(13 pages)* 052115
Kanka Ghosh and C. V. Krishnamurthy

Universality in dynamical phase transitions of diffusive systems *(10 pages)* 052116
Ohad Shpielberg, Takahiro Nemoto, and João Caetano

Probability distribution of Brownian motion in periodic potentials *(6 pages)* 052117
Matan Sivan and Oded Farago

Interacting elephant random walks *(7 pages)* 052118
Chikashi Arita and Eric Ragoucy

Optimal tuning of a Brownian information engine operating in a nonequilibrium steady state *(7 pages)* 052119
Govind Paneru, Dong Yun Lee, Jong-Min Park, Jin Tae Park, Jae Dong Noh, and Hyuk Kyu Pak

Data-driven diagnosis for compressed sensing with cross validation *(6 pages)* 052120
Yoshinori Nakanishi-Ohno and Koji Hukushima

Percolation of defective dimers irreversibly deposited on honeycomb and triangular lattices *(8 pages)* 052121
P. M. Centres, A. J. Ramirez-Pastor, and M. C. Gimenez

Statistics of overtake events by a tagged agent *(5 pages)* 052122
Santanu Das, Deepak Dhar, and Sanjib Sabhapandit

Kinetic theory for a simple modeling of a phase transition: Dynamics out of local equilibrium *(10 pages)* 052123
Shigeru Takata, Takuya Matsumoto, Anna Hirahara, and Masanari Hattori

Topological phase transition in quantum-heat-engine cycles *(9 pages)* 052124
Mojde Fadaie, Elif Yunt, and Özgür E. Müstecaplıoğlu

Fluctuation theory in space and time: White noise in reaction-diffusion models of morphogenesis *(11 pages)* 052125
Roman Belousov, Adrian Jacobo, and A. J. Hudspeth

Quasilocal charges and the generalized Gibbs ensemble in the Lieb-Liniger model *(16 pages)* 052126
T. Palmai and R. M. Konik

Confinement of Lévy flights in a parabolic potential and fractional quantum oscillator *(7 pages)* 052127
E. V. Kirichenko and V. A. Stephanovich

Thermal theory for heterogeneously architected structure: Fundamentals and application *(8 pages)* 052128
Liujun Xu, Shuai Yang, and Jiping Huang

Examples of renormalization group transformations for image sets *(14 pages)* 052129
Samuel Foreman, Joel Giedt, Yannick Meurice, and Judah Unmuth-Yockey

(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 98, NUMBER 5** **NOVEMBER 2018**

Self-consistent field theory of density correlations in classical fluids *(12 pages)* 052130
Hiroshi Frusawa

Semiclassical analysis of distinct square partitions *(16 pages)* 052131
M. V. N. Murthy, Matthias Brack, Rajat K. Bhaduri, and Johann Bartel

State-dependent jump processes: Itô-Stratonovich interpretations, potential, and transient solutions *(16 pages)* . . . 052132
Mark S. Bartlett and Amilcare Porporato

Scaling in the eigenvalue fluctuations of correlation matrices *(6 pages)* 052133
Udaysinh T. Bhosale, S. Harshini Tekur, and M. S. Santhanam

Nernst-like effect in a flexible chain *(12 pages)* 052134
Shuji Tamaki and Keiji Saito

Extended coarse-grained dipole model for polar liquids: Application to bulk and confined water *(17 pages)* 052135
M. H. Motevaselian, S. Y. Mashayak, and N. R. Aluru

Ising ferromagnets in Ising-percolation square lattices, an example of Ising-Ising coupling *(8 pages)* 052136
J. Cheraghalizadeh and M. N. Najafi

Nonuniversality of heat-engine efficiency at maximum power *(9 pages)* 052137
Sang Hoon Lee, Jaegon Um, and Hyunggyu Park

Diffusing diffusivity: Fractional Brownian oscillator model for subdiffusion and its solution *(13 pages)* 052138
Rohit Jain and K. L. Sebastian

Heaps' law, statistics of shared components, and temporal patterns from a sample-space-reducing process *(11 pages)* 052139
Andrea Mazzolini, Alberto Colliva, Michele Caselle, and Matteo Osella

Irreversible work reduction by disorder in many-body quantum systems *(6 pages)* 052140
Yuanjian Zheng and Dario Poletti

Universality of active wetting transitions *(10 pages)* 052141
Néstor Sepúlveda and Rodrigo Soto

Current reversal in interacting colloids under time-periodic drive *(9 pages)* 052142
Shubhashis Rana, Sanchari Goswami, Sakuntala Chatterjee, and Punyabrata Pradhan

Perturbing the shortest path on a critical directed square lattice *(4 pages)* 052143
Fabian Hillebrand, Mirko Luković, and Hans J. Herrmann

Asymptotic expansion and Padé approximants for gravity-driven flow of a heated granular gas: Competition between inelasticity and forcing, up to Burnett order *(28 pages)* 052144
Ramakrishna Rongali and Meheboob Alam

Overlaps between eigenvectors of correlated random matrices *(12 pages)* 052145
Joël Bun, Jean-Philippe Bouchaud, and Marc Potters

Isotensional and isometric force-extension response of chains with bistable units and Ising interactions *(18 pages)* 052146
Manon Benedito and Stefano Giordano

Critical-point behavior of a measurement-based quantum heat engine *(8 pages)* 052147
Suman Chand and Asoka Biswas

(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 98, NUMBER 5 NOVEMBER 2018

Clustering, intermittency, and scaling for passive particles on fluctuating surfaces *(15 pages)* 052148
Tapas Singha and Mustansir Barma

Nonlinear Dynamics and Chaos

Resonant localized modes in electrical lattices with second-neighbor coupling *(9 pages)* 052201
Xuan-Lin Chen, Saidou Abdoulkary, P. G. Kevrekidis, and L. Q. English

Interference effect in optomechanical stochastic resonance *(6 pages)* 052202
Min Xie, Bixuan Fan, Xiaoli He, and Qingqing Chen

Ring modes supported by concentrated cubic nonlinearity *(12 pages)* 052203
Elad Shamriz and Boris A. Malomed

Synchronization of chaotic systems: A microscopic description *(8 pages)* 052204
Nir Lahav, Irene Sendiña-Nadal, Chittaranjan Hens, Baruch Ksherim, Baruch Barzel, Reuven Cohen, and Stefano Boccaletti

Tripartite mutual information, entanglement, and scrambling in permutation symmetric systems with an application to quantum chaos *(16 pages)* 052205
Akshay Seshadri, Vaibhav Madhok, and Arul Lakshminarayan

Unpinning of scroll waves attached to multiple heterogeneities *(7 pages)* 052206
Dhriti Mahanta and Sumana Dutta

Semiclassical calculation of spectral correlation functions of chaotic systems *(12 pages)* 052207
Sebastian Müller and Marcel Novaes

Full perturbative calculation of spectral correlation functions for chaotic systems in the unitary symmetry class *(6 pages)* 052208
Sebastian Müller and Marcel Novaes

Using reservoir computers to distinguish chaotic signals *(7 pages)* 052209
T. L. Carroll

Bifurcation mechanism for emergence of spontaneous oscillations in coupled heterogeneous excitable units *(15 pages)* 052210
Kai Morino, Gouhei Tanaka, and Kazuyuki Aihara

Influence of time-delay feedback on extreme events in a forced Liénard system *(11 pages)* 052211
R. Suresh and V. K. Chandrasekar

Transition to high-dimensional chaos in nonsmooth dynamical systems *(9 pages)* 052212
Ru-Hai Du, Shi-Xian Qu, and Ying-Cheng Lai

Front propagation dynamics: Qualitative differences revealed by very high intensity fluctuations *(11 pages)* 052213
Sergio E. Mangioni and Javier Fernandez Acevedo

Experimental validation of phase space conduits of transition between potential wells *(6 pages)* 052214
Shane D. Ross, Amir E. BozorgMagham, Shibabrat Naik, and Lawrence N. Virgin

(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 98, NUMBER 5** **NOVEMBER 2018**

Recurrence plot analysis of irregularly sampled data *(8 pages)* 052215
Ibrahim Ozken, Deniz Eroglu, Sebastian F. M. Breitenbach, Norbert Marwan, Liangcheng Tan, Ugur Tirnakli, and Jürgen Kurths

Engineering separatrix volume as a control technique for dynamical transitions *(16 pages)* 052216
Timo Eichmann, Eike P. Thesing, and James R. Anglin

Planar and radial kinks in nonlinear Klein-Gordon models: Existence, stability, and dynamics *(13 pages)* 052217
P. G. Kevrekidis, I. Danaila, J.-G. Caputo, and R. Carretero-González

Interplay among inertia, time delay, and frustration on synchronization dynamics *(5 pages)* 052218
Fuli Dai, Shijie Zhou, Thomas Peron, Wei Lin, and Peng Ji

Guiding-center motion for electrons in strong laser fields *(11 pages)* 052219
J. Dubois, S. A. Berman, C. Chandre, and T. Uzer

Riemann problems and dispersive shocks in self-focusing media *(7 pages)* 052220
Gino Biondini

Effective nonlinear model for electron transport in deformable helical molecules *(8 pages)* 052221
E. Díaz, A. Contreras, J. Hernández, and F. Domínguez-Adame

Complete synchronization of chaotic maps under advection *(8 pages)* 052222
M. Contreras and C. Anteneodo

Stabilization of thermoacoustic oscillators by delay coupling *(8 pages)* 052223
H. Hyodo and T. Biwa

Macroscopic oscillations of a quadratic integrate-and-fire neuron network with global distributed-delay coupling *(11 pages)* 052224
Irmantas Ratas and Kestutis Pyragas

Capture and chaotic scattering of a charged particle by a magnetic monopole under a uniform electric field *(10 pages)* 052225
Kou Misaki and Naoto Nagaosa

Identification of suitable embedding dimensions and lags for time series generated by chaotic, finite-dimensional systems *(15 pages)* 052226
Alessio Perinelli and Leonardo Ricci

Autoresonance in a strongly nonlinear chain driven at one end *(8 pages)* 052227
Agnessa Kovaleva

Periodicity of quantum correlations in the quantum kicked top *(11 pages)* 052228
Udaysinh T. Bhosale and M. S. Santhanam

Characteristics of chaos evolution in one-dimensional disordered nonlinear lattices *(10 pages)* 052229
B. Senyange, B. Many Manda, and Ch. Skokos

Kuramoto model of weakly conformed oscillators *(4 pages)* 052230
Hung-Yi Ly, Huan-Yu Kuo, and Kuo-An Wu

(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 98, NUMBER 5 NOVEMBER 2018

PART B

Networks and Complex Systems

Effects of sampling interaction partners and competitors in evolutionary games *(12 pages)* 052301
Christoph Hauert and Jacek Miękisz

Reactive random walkers on complex networks *(14 pages)* 052302
Giulia Cencetti, Federico Battiston, Duccio Fanelli, and Vito Latora

Variability of collective dynamics in random tree networks of strongly coupled stochastic excitable elements *(17 pages)* 052303
Ali Khaledi-Nasab, Justus A. Kromer, Lutz Schimansky-Geier, and Alexander B. Neiman

Identifying exogenous and endogenous activity in social media *(8 pages)* 052304
Kazuki Fujita, Alexey Medvedev, Shinsuke Koyama, Renaud Lambiotte, and Shigeru Shinomoto

Percolation of hierarchical networks and networks of networks *(10 pages)* 052305
Louis M. Shekhtman and Shlomo Havlin

Anisotropic opinion dynamics with an adaptive social rule *(8 pages)* 052306
Juan Neirotti

Random walk on temporal networks with lasting edges *(16 pages)* 052307
Julien Petit, Martin Gueuning, Timoteo Carletti, Ben Lauwens, and Renaud Lambiotte

Topological percolation on hyperbolic simplicial complexes *(16 pages)* 052308
Ginestra Bianconi and Robert M. Ziff

Stable information transfer network facilitates the emergence of collective behavior of bird flocks *(8 pages)* 052309
Jiaping Ren, Wanxuan Sun, Dinesh Manocha, Aming Li, and Xiaogang Jin

Temporal connectivity in finite networks with nonuniform measures *(14 pages)* 052310
Pete Pratt, Carl P. Dettmann, and Woon Hau Chin

Close and ordinary social contacts: How important are they in promoting large-scale contagion? *(15 pages)* 052311
Peng-Bi Cui (崔鹏碧), Wei Wang, Shi-Min Cai, Tao Zhou, and Ying-Cheng Lai

Critical phenomena of information spreading dynamics on networks with cliques *(11 pages)* 052312
Wei Wang, Ze-Xun Wang, and Shi-Min Cai

Relevance of backtracking paths in recurrent-state epidemic spreading on networks *(7 pages)* 052313
Claudio Castellano and Romualdo Pastor-Satorras

Examination of Markov-chain approximation in football games based on time evolution of ball-passing networks *(12 pages)* 052314
Ken Yamamoto and Takuma Narizuka

Explosive synchronization in phase-frustrated multiplex networks *(8 pages)* 052315
Pitambar Khanra, Prosenjit Kundu, Chittaranjan Hens, and Pinaki Pal

Large algebraic connectivity fluctuations in spatial network ensembles imply a predictive advantage from node location information *(11 pages)* 052316
Matthew Garrod and Nick S. Jones

(Continued)

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 98, NUMBER 5** **NOVEMBER 2018**

Kinetic theory for financial Brownian motion from microscopic dynamics *(31 pages)* 052317
Kiyoshi Kanazawa, Takumi Sueshige, Hideki Takayasu, and Misako Takayasu

Biological Physics

Conduction delays can enhance formation of up and down states in spiking neuronal networks *(7 pages)* 052401
Pavel M. Esir, Susan Yu. Gordleeva, Alexander Yu. Simonov, Alexander N. Pisarchik, and Victor B. Kazantsev

Engineered cardiac tissue analyzed using the mechanical bidomain model *(6 pages)* 052402
Kharananda Sharma and Bradley J. Roth

Stochastic activation in a genetic switch model *(17 pages)* 052403
John Hertz, Joanna Tyrcha, and Alvaro Correales

Propagating speed waves in flocks: A mathematical model *(12 pages)* 052404
Andrea Cavagna, Daniele Conti, Irene Giardina, and Tomas S. Grigera

Bacterial flagellar bundling and unbundling via polymorphic transformations *(12 pages)* 052405
Wanho Lee, Yongsam Kim, Boyce E. Griffith, and Sookkyung Lim

Optimizing a jump-diffusion model of a starving forager *(11 pages)* 052406
Nikhil Krishnan and Zachary P. Kilpatrick

Entrapment of pusher and puller bacteria near a solid surface *(5 pages)* 052407
Kuan-Ting Wu, Yi-Teng Hsiao, and Wei-Yen Woon

Computing transition rates for rare events: When Kramers theory meets the free-energy landscape *(10 pages)* 052408
François Sicard

Mechanical oscillations in biological tissues as a result of delayed rest-length changes *(7 pages)* 052409
José J. Muñoz, Mónica Dingle, and Manuel Wenzel

Heterogeneity and nonaffinity of cell-induced matrix displacements *(13 pages)* 052410
Brian Burkel, Maria Proestaki, Stephen Tyznik, and Jacob Notbohm

Nonlinear concentration patterns and bands in autochemotactic suspensions *(12 pages)* 052411
Enkeleida Lushi, Raymond E. Goldstein, and Michael J. Shelley

Effects of neighboring microtubules on the microscopic dynamics of kinesin transport *(11 pages)* 052412
Kejie Chen, Woochul Nam, and Bogdan I. Epureanu

Transient drift of *Escherichia coli* under a diffusing step nutrient profile *(12 pages)* 052413
Sibendu Samanta, Ritwik Layek, Shantimoy Kar, Sudipta Mukhopadhyay, and Suman Chakraborty

Improved control effect of absence seizures by autaptic connections to the subthalamic nucleus *(9 pages)* 052414
Denggui Fan and Qingyun Wang

Embryonic inversion in *Volvox carteri*: The flipping and peeling of elastic lips *(11 pages)* 052415
Pierre A. Haas and Raymond E. Goldstein

Polymers

Testing the physics of knots with a Feringa nanoengine *(9 pages)* 052501
M. Lang, C. Schuster, R. Dockhorn, M. Wengenmayr, and J.-U. Sommer

(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 98, NUMBER 5 NOVEMBER 2018

Colloids, Complex Fluids, and Active Matter

Self-assembly of complex structures in colloid-polymer mixtures *(14 pages)* 052601
Erdal C. Oğuz, Aleksandar Mijailović, and Michael Schmiedeberg

Dynamic magnetic response of a ferrofluid in a static uniform magnetic field *(14 pages)* 052602
Timur M. Batrudinov, Yuliya E. Nekhoroshkova, Egor I. Paramonov, Vladimir S. Zverev, Ekaterina A. Elfimova, Alexey O. Ivanov, and Philip J. Camp

Fractal aggregation of active particles *(6 pages)* 052603
M. Paoluzzi, M. Leoni, and M. C. Marchetti

Saddle-splay modulus of reverse microemulsions: Experimental determination using small-angle neutron scattering and dielectric relaxation spectroscopy *(9 pages)* 052604
P. M. Geethu, Indresh Yadav, Ethayaraja Mani, Vinod K. Aswal, and Dillip K. Satapathy

Importance of reorientational dynamics for the charge transport in ionic liquids *(9 pages)* 052605
P. Sippel, S. Krohns, D. Reuter, P. Lunkenheimer, and A. Loidl

Tuning phototactic robots with sensorial delays *(12 pages)* 052606
Maximilian Leyman, Freddie Ogemark, Jan Wehr, and Giovanni Volpe

Cluster crystals with combined soft- and hard-core repulsive interactions *(10 pages)* 052607
Lorenzo Caprini, Emilio Hernández-García, and Cristóbal López

Interacting passive advective scalars in an active medium *(10 pages)* 052608
Sk Raj Hossein, Rituparno Mandal, and Madan Rao

Population variability and temporal disorder disrupt coherent motion and biological functionality of active matter *(8 pages)* 052609
M. Leoni and T. B. Liverpool

Unraveling modular microswimmers: From self-assembly to ion-exchange-driven motors *(6 pages)* 052610
Benno Liebchen, Ran Niu, Thomas Palberg, and Hartmut Löwen

Liquid Crystals

Dynamics of phototunable two-dimensional polar wetting sheets of a dendritic liquid crystal *(7 pages)* 052701
Satoshi Aya, Takaaki Hikima, Osamu Haba, Koichiro Yonetake, and Fumito Araoka

Adsorption of the liquid crystal molecule 5CB on graphene *(5 pages)* 052702
Sean A. Fischer, Jakub Kołacz, Christopher M. Spillmann, and Daniel Gunlycke

Evidence of a first-order smectic-hexatic transition and its proximity to a tricritical point in smectic films *(8 pages)* 052703
Ivan A. Zaluzhnyy, Ruslan P. Kurta, Nastasia Mukharamova, Young Yong Kim, Ruslan M. Khubbutdinov, Dmitry Dzhigaev, Vladimir V. Lebedev, Elena S. Pikina, Efim I. Kats, Noel A. Clark, Michael Sprung, Boris I. Ostrovskii, and Ivan A. Vartanyants

State transition at electrohydrodynamic convection of twisted nematic liquid crystals *(6 pages)* 052704
Chul Gyu Jhun, Gyu Jin Choi, Dae Geon Ryu, Jong-Hoon Huh, and Jin Seog Gwag

Phase transitions in nanofilms of polar smectic liquid crystals with multilayer periodicity *(10 pages)* 052705
N. S. Shuravin, P. V. Dolganov, and V. K. Dolganov

(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 98, NUMBER 5** **NOVEMBER 2018**

Critical behavior of the optical birefringence at the nematic to twist-bend nematic phase transition *(5 pages)* 052706
Damian Pociecha, Catriona A. Crawford, Daniel A. Paterson, John M. D. Storey, Corrie T. Imrie, Nataša Vaupotič, and Ewa Gorecka

Effective dielectric tensor of deformed-helix ferroelectric liquid crystals with subwavelength pitch and large tilt angle *(10 pages)* 052707
Leonardo Silvestri, Hrishikesh Srinivas, and François Ladouceur

Films and Interfaces

Distributional fixed-point equations for island nucleation in one dimension: The inverse problem *(8 pages)* 052801
Hrvojka Krcelic, Michael Grinfeld, and Paul A. Mulheran

Physical mechanisms of the oscillatory 2λ-O mode in directional solidification *(18 pages)* 052802
Jihène Ghmadh, Jean-Marc Debierre, Marc Georgelin, Rahma Guérin, and Alain Pocheau

Mesoscopic approach to fluid-solid interaction: Apparent liquid slippage and its effect on permeability estimation *(17 pages)* 052803
Zi Li, Sergio Galindo-Torres, Alexander Scheuermann, and Ling Li

Evaporation kinetics of pure water drops: Thermal patterns, Marangoni flow, and interfacial temperature difference *(12 pages)* 052804
Tejaswi Josyula, Zhenying Wang, Alexandros Askounis, Daniel Orejon, Sivasankaran Harish, Yasuyuki Takata, Pallab Sinha Mahapatra, and Arvind Pattamatta

Granular Materials

Rapid multiscale modeling of flow in porous media *(13 pages)* 052901
Pejman Tahmasebi and Serveh Kamrava

Dynamics of silo deformation under granular discharge *(11 pages)* 052902
Claudia Colonnello and Miroslav Kramár

Ploughing friction on wet and dry sand *(5 pages)* 052903
R. W. Liefferink, B. Weber, and D. Bonn

Enskog kinetic theory for a model of a confined quasi-two-dimensional granular fluid *(18 pages)* 052904
Vicente Garzó, Ricardo Brito, and Rodrigo Soto

Characterizing the nature of the rigidity transition *(9 pages)* 052905
S. H. E. Rahbari, J. Vollmer, and Hyunggyu Park

Liquid redistribution in sheared wet granular media *(11 pages)* 052906
Sudeshna Roy, Stefan Luding, and Thomas Weinhart

Local dilation and compaction of granular materials induced by plate drag *(13 pages)* 052907
Murino Kobayakawa, Shinichiro Miyai, Takuya Tsuji, and Toshitsugu Tanaka

Effective diffusivity in lattices of impermeable superballs *(6 pages)* 052908
Magnus Röding

Erosion-deposition regime formation in granular column collapse over an erodible surface *(15 pages)* 052909
Yesheng Wu, Pingshan Li, and Dengming Wang

(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 98, NUMBER 5** **NOVEMBER 2018**

Rheology and structure of polydisperse three-dimensional packings of spheres *(11 pages)* 052910
David Cantor, Emilien Azéma, Philippe Sornay, and Farhang Radjai

Solid Mechanics

Effect of predeformation on the propagation of vector solitons in flexible mechanical metamaterials *(13 pages)* 053001
B. Deng, V. Tournat, and K. Bertoldi

Shear band broadening in simulated glasses *(11 pages)* 053002
Darius D. Alix-Williams and Michael L. Falk

Fluid Dynamics

Counterion flow through a deformable and charged nanochannel *(12 pages)* 053101
Mpumelelo Matse, Peter Berg, and Michael Eikerling

Axial and radial patterns of a bidispersed suspension in a fully filled horizontal rotating cylinder *(12 pages)* 053102
John C. Nasaba and Anugrah Singh

Particle velocity distributions and velocity fluctuations of non-Brownian settling particles by particle-resolved direct numerical simulation *(13 pages)* 053103
Ali Abbas Zaidi

Front evaporation effects on wicking in two- and three-dimensional porous domains *(10 pages)* 053104
Eric M. Benner and Dimiter N. Petsev

Negative acoustic radiation force induced on an elastic sphere by laser irradiation *(9 pages)* 053105
Hai-Qun Yu, Jie Yao, Da-Jian Wu, Xue-Wei Wu, and Xiao-Jun Liu

Three-dimensional transition of zero-pressure-gradient boundary layer by impulsively and nonimpulsively started harmonic wall excitation *(16 pages)* 053106
Pushpender Sharma, Tapan K. Sengupta, and Swagata Bhaumik

Impact of clogging on the transfer dynamics of hydraulic networks *(12 pages)* 053107
D. S. Griffani, P. Rognon, and I. Einav

Plasma Physics

Coupling between a laser and a prestructured target with an arbitrary structure period *(6 pages)* 053201
K. Q. Pan, S. E. Jiang, L. Guo, S. W. Li, Z. C. Li, D. Yang, C. Y. Zheng, B. H. Zhang, and X. T. He

High-angle deflection of the energetic electrons by a voluminous magnetic structure in near-normal intense laser-plasma interactions *(6 pages)* 053202
J. Peebles, A. V. Arefiev, S. Zhang, C. McGuffey, M. Spinks, J. Gordon, E. W. Gaul, G. Dyer, M. Martinez, M. E. Donovan, T. Ditmire, J. Park, H. Chen, H. S. McLean, M. S. Wei, S. I. Krasheninnikov, and F. N. Beg

Inverse polarity effect for electrical explosion of fine metal wires in vacuum *(7 pages)* 053203
G. S. Sarkisov, A. Hamilton, and V. I. Sotnikov

Meson-catalyzed fusion in ultradense plasmas *(11 pages)* 053204
C. Deutsch, J. P. Didelez, A. Bendib, and K. Bendib-Kalache

Entropy of plasmas described with regularized κ distributions *(6 pages)* 053205
H. Fichtner, K. Scherer, M. Lazar, H. J. Fahr, and Z. Vörös

(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 98, NUMBER 5 NOVEMBER 2018

Energy transfer between lasers in low-gas-fill-density hohlraums *(7 pages)* 053206
A. L. Kritcher, J. Ralph, D. E. Hinkel, T. Döppner, M. Millot, D. Mariscal, R. Benedetti, D. J. Strozzi, T. Chapman, C. Goyon, B. MacGowan, P. Michel, D. A. Callahan, and O. A. Hurricane

Electron acceleration induced by interaction of two relativistic laser pulses in underdense plasmas *(9 pages)* 053207
T. W. Huang, C. T. Zhou, R. X. Bai, L. B. Ju, K. Jiang, T. Y. Long, H. Zhang, S. Z. Wu, and S. C. Ruan

Computational Physics

Hydrodynamic interactions between solutes in multiparticle collision dynamics *(12 pages)* 053301
Vincent Dahirel, Xudong Zhao, Baptiste Couet, Guillaume Batôt, and Marie Jardat

Information estimation using nonparametric copulas *(15 pages)* 053302
Houman Safaai, Arno Onken, Christopher D. Harvey, and Stefano Panzeri

Introducing unsteady and nonuniform source terms in entropic lattice kinetic models using Fourier series *(20 pages)* 053303
Reza Khazaeli, Mohammad Reza Nazari, and Abed Zadehgol

Machine-learning solver for modified diffusion equations *(8 pages)* 053304
Qianshi Wei, Ying Jiang, and Jeff Z. Y. Chen

Identifying structural changes with unsupervised machine learning methods *(9 pages)* 053305
Nicholas Walker, Ka-Ming Tam, Brian Novak, and M. Jarrell

Efficient and quantitative analysis of photon density of states for two-dimensional photonic crystals with omnidirectional light propagation *(5 pages)* 053306
Ruei-Fu Jao and Ming-Chieh Lin

Introducing a quantum kinetic model using the generalized Boltzmann equation in the complex phase space *(7 pages)* 053307
Abed Zadehgol and Reza Khazaeli

Optimization of population annealing Monte Carlo for large-scale spin-glass simulations *(13 pages)* 053308
Amin Barzegar, Christopher Pattison, Wenlong Wang, and Helmut G. Katzgraber

Preconditioned multiple-relaxation-time lattice Boltzmann equation model for incompressible flow in porous media *(12 pages)* 053309
Xuhui Meng, Liang Wang, Xiaofan Yang, and Zhaoli Guo

Coupled discrete unified gas kinetic scheme for the thermal compressible flows in all Knudsen number regimes *(16 pages)* 053310
Hongtao Liu, Mingchi Kong, Qing Chen, Liang Zheng, and Yong Cao

Higher-order lattice Boltzmann model for thermohydrodynamics *(20 pages)* 053311
Mohammad Atif, Manjusha Namburi, and Santosh Ansumali

ERRATA

Erratum: Condensation, demixing, and orientational ordering of magnetic colloidal suspensions [Phys. Rev. E **91**, 052127 (2015)] *(1 page)* . . . . . 059901(E)
Stefanie M. Cattes, Sabine H. L. Klapp, and Martin Schoen