

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 96, NUMBER 4
PARTS A AND B

CONTENTS

OCTOBER 2017

The Table of Contents is a total listing of Parts A and B.
Part A consists of pages 040201(R)–042312, and Part B pages 042401–049904(E).

PART A

RAPID COMMUNICATIONS

Nonlinear Dynamics and Chaos

- Chaos-assisted tunneling in the presence of Anderson localization (*5 pages*) 040201(R)
Elmer V. H. Doggen, Bertrand Georgeot, and Gabriel Lemarié

Biological Physics

- Scaling of the surface vasculature on the human placenta (*5 pages*) 040401(R)
A. S. Leonard, J. Lee, D. Schubert, L. A. Croen, M. D. Fallin, C. J. Newschaffer, C. K. Walker,
C. M. Salafia, S. P. Morgan, and D. D. Vvedensky

- Emergent Lévy behavior in single-cell stochastic gene expression (*5 pages*) 040402(R)
Chen Jia, Michael Q. Zhang, and Hong Qian

Colloids, Complex Fluids, and Active Matter

- Electrostatic double-layer interaction between stacked charged bilayers (*5 pages*) 040601(R)
Mafumi Hishida, Yoko Nomura, Ryo Akiyama, Yasuhisa Yamamura, and Kazuya Saito

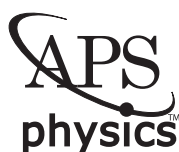
Liquid Crystals

- Visual evaluation of surface anchoring strength by electrohydrodynamic convection of a nematic liquid
crystal (*5 pages*) 040701(R)
Gyu Jin Choi, Jae Min Song, Chul Gyu Jhun, Jong-Hoon Huh, and Jin Seog Gwag

Granular Materials

- Liquidlike sloshing dynamics of monodisperse granulate (*4 pages*) 040901(R)
Kerstin Avila, Laura Steub, and Thorsten Pöschel

- Transient response in granular quasi-two-dimensional bounded heap flow (*5 pages*) 040902(R)
Hongyi Xiao, Julio M. Ottino, Richard M. Lueptow, and Paul B. Umbanhowar



Copyright 2017 by American Physical Society



2470-0045(201710)96:4:B;1-G

(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).

Fluid Dynamics

Formation and evolution of target patterns in Cahn-Hilliard flows (<i>5 pages</i>)	041101(R)
Xiang Fan, P. H. Diamond, and L. Chacón	

ARTICLES

Statistical Physics

Evolutionary games combining two or three pair coordinations on a square lattice (<i>7 pages</i>)	042101
Balázs Király and György Szabó	
Random Euclidean matching problems in one dimension (<i>20 pages</i>)	042102
Sergio Caracciolo, Matteo D'Achille, and Gabriele Sicuro	
Exponential bound in the quest for absolute zero (<i>7 pages</i>)	042103
Dionisis Stefanatos	
Diversity of charge orderings in correlated systems (<i>12 pages</i>)	042104
Konrad Jerzy Kapcia, Jan Barański, and Andrzej Ptok	
Static and dynamic properties of two-dimensional Coulomb clusters (<i>20 pages</i>)	042105
Biswarup Ash, J. Chakrabarti, and Amit Ghosal	
Transient anomalous diffusion regimes in reversible adsorbing systems (<i>7 pages</i>)	042106
Guillaume Dumazer, Eirik Flekkøy, François Renard, and Luiza Angheluta	
Dual lattice functional renormalization group for the Berezinskii-Kosterlitz-Thouless transition: Irrelevance of amplitude and out-of-plane fluctuations (<i>21 pages</i>)	042107
Jan Krieg and Peter Kopietz	
Tricriticality in crossed Ising chains (<i>9 pages</i>)	042108
T. Cary, R. R. P. Singh, and R. T. Scalettar	
Crossover from ballistic to normal heat transport in the ϕ^4 lattice: If nonconservation of momentum is the reason, what is the mechanism? (<i>10 pages</i>)	042109
Daxing Xiong, Danial Saadatmand, and Sergey V. Dmitriev	
Non-Poisson renewal events and memory (<i>13 pages</i>)	042112
Rohisha Tuladhar, Mauro Bologna, and Paolo Grigolini	
Perturbative dynamics of open quantum systems by renormalization group method (<i>9 pages</i>)	042113
Shingo Kukita	
Noisy independent component analysis of autocorrelated components (<i>11 pages</i>)	042114
Jakob Knollmüller and Torsten A. Enßlin	
Bak-Tang-Wiesenfeld model in the upper critical dimension: Induced criticality in lower-dimensional subsystems (<i>10 pages</i>)	042115
H. Dashti-Naserabadi and M. N. Najafi	
Percolation thresholds in hyperbolic lattices (<i>13 pages</i>)	042116
Stephan Mertens and Cristopher Moore	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW E

THIRD SERIES, VOLUME 96, NUMBER 4

OCTOBER 2017

Boltzmann kinetic equation for a strongly confined gas of hard spheres (<i>9 pages</i>)	042117
J. Javier Brey, M. I. García de Soria, and P. Maynar	
Underdamped stochastic harmonic oscillator driven by Lévy noise (<i>7 pages</i>)	042118
Bartłomiej Dybiec, Ewa Gudowska-Nowak, and Igor M. Sokolov	
Quantum work fluctuations in connection with the Jarzynski equality (<i>12 pages</i>)	042119
Juan D. Jaramillo, Jiawen Deng, and Jiangbin Gong	
Multichain models of conserved lattice gas (<i>12 pages</i>)	042120
Arijit Chatterjee and P. K. Mohanty	
Energy transport in the presence of long-range interactions (<i>7 pages</i>)	042121
Debarshee Bagchi	
Analysis of crackling noise using the maximum-likelihood method: Power-law mixing and exponential damping (<i>9 pages</i>)	042122
Ekhard K. H. Salje, Antoni Planes, and Eduard Vives	
Forward, backward, and weighted stochastic bridges (<i>11 pages</i>)	042123
Peter D. Drummond	
Roles of energy eigenstates and eigenvalues in equilibration of isolated quantum systems (<i>8 pages</i>)	042124
Shaoqi Zhu (朱少奇) and Biao Wu (吴飙)	
Kinetic approach to condensation: Diatomic gases with dipolar molecules (<i>15 pages</i>)	042125
E. S. Benilov and M. S. Benilov	
Similarity of ensembles of trajectories of reversible and irreversible growth processes (<i>7 pages</i>)	042126
Katherine Klymko, Juan P. Garrahan, and Stephen Whitelam	
Ordering kinetics in the random-bond XY model (<i>8 pages</i>)	042127
M. Kumar, S. Chatterjee, R. Paul, and S. Puri	
Local-stability analysis of a low-dissipation heat engine working at maximum power output (<i>9 pages</i>)	042128
I. Reyes-Ramírez, J. Gonzalez-Ayala, A. Calvo Hernández, and M. Santillán	
Stochastic thermodynamics of interacting degrees of freedom: Fluctuation theorems for detached path probabilities (<i>9 pages</i>)	042129
Jannik Ehrich and Andreas Engel	
Stochastic efficiency of an isothermal work-to-work converter engine (<i>11 pages</i>)	042130
Deepak Gupta and Sanjib Sabhapandit	
Finite-size effects in canonical and grand-canonical quantum Monte Carlo simulations for fermions (<i>11 pages</i>)	042131
Zhenjiu Wang, Fakher F. Assaad, and Francesco Parisen Toldin	
Space-time-modulated stochastic processes (<i>12 pages</i>)	042132
Massimiliano Giona	
Relativistic analysis of stochastic kinematics (<i>18 pages</i>)	042133
Massimiliano Giona	

(Continued)

Environmental rocking ratchet: Environmental rectification by a harmonically driven avoided crossing (<i>4 pages</i>)	042134
P. Nalbach, N. Klinkenberg, T. Palm, and N. Müller	
Inverse problem for multispecies ferromagneticlike mean-field models in phase space with many states (<i>11 pages</i>)	042135
Micaela Fedele and Cecilia Vernia	
Strong diffusion formulation of Markov chain ensembles and its optimal weaker reductions (<i>11 pages</i>)	042136
Marifi Güler	
Classifying Potts critical lines (<i>8 pages</i>)	042137
Gesualdo Delfino and Elena Tartaglia	
☞ Phase transitions in systems with aggregation and shattering (<i>10 pages</i>)	042138
P. L. Krapivsky, W. Otieno, and N. V. Brilliantov	
Stochastic maps, continuous approximation, and stable distribution (<i>10 pages</i>)	042139
David A. Kessler and Stanislav Burov	
Quantum fidelity approach to the ground-state properties of the one-dimensional axial next-nearest-neighbor Ising model in a transverse field (<i>9 pages</i>)	042140
O. F. de Alcantara Bonfim, B. Boechat, and J. Florencio	
Noise-induced drift in two-dimensional anisotropic systems (<i>6 pages</i>)	042141
Oded Farago	
Predictability and strength of a heterogeneous system: The role of system size and disorder (<i>7 pages</i>)	042142
Subhadeep Roy	
Rational extended thermodynamics of a rarefied polyatomic gas with molecular relaxation processes (<i>20 pages</i>)	042143
Takashi Arima, Tommaso Ruggeri, and Masaru Sugiyama	
Nonstationary Markovian replication process causing diverse diffusions (<i>7 pages</i>)	042144
Yichul Choi and Hyun-Joo Kim	
Cell-size distribution and scaling in a one-dimensional Kolmogorov-Johnson-Mehl-Avrami lattice model with continuous nucleation (<i>8 pages</i>)	042145
Zoltán Nédá, Ferenc Járai-Szabó, and Szilárd Boda	
☞ Classical many-particle systems with unique disordered ground states (<i>8 pages</i>)	042146
G. Zhang, F. H. Stillinger, and S. Torquato	
Entropy of level-cut random Gaussian structures at different volume fractions (<i>5 pages</i>)	042147
Stjepan Marčelja	
Critical phenomena of a hybrid phase transition in cluster merging dynamics (<i>7 pages</i>)	042148
K. Choi, Deokjae Lee, Y. S. Cho, J. C. Thiele, H. J. Herrmann, and B. Kahng	
Complete diagrammatics of the single-ring theorem (<i>13 pages</i>)	042149
Maciej A. Nowak and Wojciech Tarnowski	
Multiscale Granger causality (<i>7 pages</i>)	042150
Luca Faes, Giandomenico Nollo, Sebastiano Stramaglia, and Daniele Marinazzo	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW E

THIRD SERIES, VOLUME 96, NUMBER 4

OCTOBER 2017

Asymmetric noise-induced large fluctuations in coupled systems (<i>10 pages</i>)	042151
Ira B. Schwartz, Klimka Szwaykowska, and Thomas W. Carr	
Lognormal-like statistics of a stochastic squeeze process (<i>11 pages</i>)	042152
Dekel Shapira and Doron Cohen	
Generalized fractional diffusion equations for subdiffusion in arbitrarily growing domains (<i>6 pages</i>)	042153
C. N. Angstmann, B. I. Henry, and A. V. McGann	
 Action at a distance in classical uniaxial ferromagnetic arrays (<i>17 pages</i>)	042154
D. B. Abraham, A. Maciołek, A. Squarcini, and O. Vasilyev	
Quantum adiabatic protocols using emergent local Hamiltonians (<i>11 pages</i>)	042155
Ranjan Modak, Lev Vidmar, and Marcos Rigol	
Phase transitions in restricted Boltzmann machines with generic priors (<i>5 pages</i>)	042156
Adriano Barra, Giuseppe Genovese, Peter Sollich, and Daniele Tantari	
One-dimensional description of driven diffusion in periodic channels (<i>10 pages</i>)	042157
Pavol Kalinay	
Statistical characterization of discrete conservative systems: The web map (<i>10 pages</i>)	042158
Guiomar Ruiz, Ugur Tirnakli, Ernesto P. Borges, and Constantino Tsallis	
How anisotropy beats fractality in two-dimensional on-lattice diffusion-limited-aggregation growth (<i>6 pages</i>)	042159
Denis S. Grebenkov and Dmitry Beliaev	
Nonlinear Dynamics and Chaos	
Effect of high-order dispersion on three-soliton interactions for the variable-coefficients Hirota equation (<i>5 pages</i>)	042201
Wenjun Liu, Chunyu Yang, Mengli Liu, Weitian Yu, Yujia Zhang, and Ming Lei	
Increased persistence via asynchrony in oscillating ecological populations with long-range interaction (<i>10 pages</i>)	042202
Anubhav Gupta, Tanmoy Banerjee, and Partha Sharathi Dutta	
Estimation of the degree of dynamical instability from the information entropy of symbolic dynamics (<i>10 pages</i>)	042203
Takaya Miyano and Hiroshi Gotoda	
Intermittency and emergence of coherent structures in wave turbulence of a vibrating plate (<i>13 pages</i>)	042204
Nicolas Mordant and Benjamin Miquel	
Avoided level crossings in an elliptic billiard (<i>7 pages</i>)	042205
Ji-Hwan Kim, Jaewon Kim, Chang-Hwan Yi, Hyeon-Hye Yu, Ji-Won Lee, and Chil-Min Kim	
Semiclassical catastrophe theory of simple bifurcations (<i>14 pages</i>)	042206
A. G. Magner and K. Arita	
Multiscale permutation entropy analysis of laser beam wandering in isotropic turbulence (<i>7 pages</i>)	042207
Feliipe Olivares, Luciano Zunino, Damián Gulich, Darío G. Pérez, and Osvaldo A. Rosso	
Synchronization scenarios in the Winfree model of coupled oscillators (<i>11 pages</i>)	042208
Rafael Gallego, Ernest Montbrió, and Diego Pazó	

(Continued)

Breather solutions of a fourth-order nonlinear Schrödinger equation in the degenerate, soliton, and rogue wave limits (<i>13 pages</i>)	042209
Amdad Chowdury, Wieslaw Krolikowski, and N. Akhmediev	
Coherent motion of chaotic attractors (<i>9 pages</i>)	042210
Patrick Louodop, Suman Saha, Robert Tchitnga, Paulsamy Muruganandam, Syamal K. Dana, and Hilda A. Cerdeira	
Early warning signal for interior crises in excitable systems (<i>5 pages</i>)	042211
Rajat Karnatak, Holger Kantz, and Stephan Bialonski	
Symmetry breaking in two interacting populations of quadratic integrate-and-fire neurons (<i>9 pages</i>)	042212
Irmantas Ratas and Kestutis Pyragas	
Mixing and transport from combined stretching-and-folding and cutting-and-shuffling (<i>13 pages</i>)	042213
Lachlan D. Smith, Paul B. Umbanhowar, Julio M. Ottino, and Richard M. Lueptow	
Coupling-enhanced stochastic resonance (<i>10 pages</i>)	042214
C. Nicolis and G. Nicolis	
Chaotic behavior in Casimir oscillators: A case study for phase-change materials (<i>8 pages</i>)	042215
Fatemeh Tajik, Mehdi Sedighi, Mohammad Khorrami, Amir Ali Masoudi, and George Palasantzas	
Design of coupling parameters for inducing amplitude death in Cartesian product networks of delayed coupled oscillators (<i>9 pages</i>)	042216
Yoshiki Sugitani and Keiji Konishi	
Embedding the dynamics of a single delay system into a feed-forward ring (<i>9 pages</i>)	042217
Vladimir Klinshov, Dmitry Shchapin, Serhiy Yanchuk, Matthias Wolfrum, Otti D’Huys, and Vladimir Nekorkin	
Effect of mobility ratio on interaction between the fingers in unstable growth processes (<i>12 pages</i>)	042218
Agnieszka Budek, Kamil Kwiatkowski, and Piotr Szymczak	
Complete delocalization in a defective periodic structure (<i>8 pages</i>)	042219
Behrooz Yousefzadeh and Chiara Daraio	
Plain and oscillatory solitons of the cubic complex Ginzburg-Landau equation with nonlinear gradient terms (<i>9 pages</i>)	042220
M. Facão and M. I. Carvalho	
Networks and Complex Systems	
Impact of environmental colored noise in single-species population dynamics (<i>9 pages</i>)	042301
Tommaso Spanio, Jorge Hidalgo, and Miguel A. Muñoz	
Diffusion dynamics and synchronizability of hierarchical products of networks (<i>10 pages</i>)	042302
Per Sebastian Skardal	
Spectral estimation of the percolation transition in clustered networks (<i>11 pages</i>)	042303
Pan Zhang	
Mapping and discrimination of networks in the complexity-entropy plane (<i>10 pages</i>)	042304
Marc Wiedermann, Jonathan F. Donges, Jürgen Kurths, and Reik V. Donner	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW E

THIRD SERIES, VOLUME 96, NUMBER 4

OCTOBER 2017

Partial inertia induces additional phase transition in the majority vote model (<i>7 pages</i>)	042305
Pedro E. Harunari, M. M. de Oliveira, and C. E. Fiore	
Coupling of link- and node-ordering in the coevolving voter model (<i>8 pages</i>)	042306
J. Toruniewska, K. Kułakowski, K. Suchecki, and J. A. Hołyst	
Cover time for random walks on arbitrary complex networks (<i>9 pages</i>)	042307
Benjamin F. Maier and Dirk Brockmann	
Importance of small-degree nodes in assortative networks with degree-weight correlations (<i>8 pages</i>)	042308
Sijuan Ma, Ling Feng, Christopher Pineda Monterola, and Choy Heng Lai	
Clustering spectrum of scale-free networks (<i>15 pages</i>)	042309
Clara Stegehuis, Remco van der Hofstad, A. J. E. M. Janssen, and Johan S. H. van Leeuwen	
Epidemic spreading on activity-driven networks with attractiveness (<i>9 pages</i>)	042310
Iacopo Pozzana, Kaiyuan Sun, and Nicola Perra	
Macroscopic phase-resetting curves for spiking neural networks (<i>8 pages</i>)	042311
Grégory Dumont, G. Bard Ermentrout, and Boris Gutkin	
Relaxation time of the global order parameter on multiplex networks: The role of interlayer coupling in Kuramoto oscillators (<i>15 pages</i>)	042312
Alfonso Allen-Perkins, Thiago Albuquerque de Assis, Juan Manuel Pastor, and Roberto F. S. Andrade	

PART B

Biological Physics

Network patterns in exponentially growing two-dimensional biofilms (<i>10 pages</i>)	042401
Cameron Zachreson, Xinhui Yap, Erin S. Gloag, Raz Shimoni, Cynthia B. Whitchurch, and Milos Toth	
Model of chromosomal loci dynamics in bacteria as fractional diffusion with intermittent transport (<i>8 pages</i>)	042402
Marco Gherardi, Ludovico Calabrese, Mikhail Tamm, and Marco Cosentino Lagomarsino	
Iterated function systems for DNA replication (<i>17 pages</i>)	042403
Pierre Gaspard	
Biological cell as a soft magnetoelectric material: Elucidating the physical mechanisms underpinning the detection of magnetic fields by animals (<i>11 pages</i>)	042404
S. Krichen, L. Liu, and P. Sharma	
Opposing effects of cationic antimicrobial peptides and divalent cations on bacterial lipopolysaccharides (<i>12 pages</i>)	042405
Matthew Smart, Aruna Rajagopal, Wing-Ki Liu, and Bae-Yeun Ha	
Kinetics of lipid-nanoparticle-mediated intracellular mRNA delivery and function (<i>11 pages</i>)	042406
Vladimir P. Zhdanov	
Micromechanical model for protein materials: From macromolecules to macroscopic fibers (<i>7 pages</i>)	042407
G. Puglisi, D. De Tommasi, M. F. Pantano, N. M. Pugno, and G. Saccomandi	

(Continued)

Synchronized rotation in swarms of magnetotactic bacteria (<i>11 pages</i>)	042408
M. Belovs, R. Livanovičs, and A. Cēbers	
Irreversible thermodynamics of curved lipid membranes (<i>33 pages</i>)	042409
Amaresh Sahu, Roger A. Sauer, and Kranthi K. Mandadapu	
Numerical calculation on a two-step subdiffusion behavior of lateral protein movement in plasma membranes (<i>10 pages</i>)	042410
Tomonari Sumi, Atsushi Okumoto, Hitoshi Goto, and Hideo Sekino	
Resonant activation of population extinctions (<i>9 pages</i>)	042411
Christopher Spalding, Charles R. Doering, and Glenn R. Flierl	
Extinction dynamics from metastable coexistences in an evolutionary game (<i>5 pages</i>)	042412
Hye Jin Park and Arne Traulsen	
Kinetics of biochemical sensing by single cells and populations of cells (<i>7 pages</i>)	042413
David B. Saakian	
Polymers	
Elucidating fluctuating diffusivity in center-of-mass motion of polymer models with time-averaged mean-square-displacement tensor (<i>15 pages</i>)	042501
Tomoshige Miyaguchi	
Tensile elasticity of semiflexible polymers with hinge defects (<i>9 pages</i>)	042502
Panayotis Benetatos	
Colloids, Complex Fluids, and Active Matter	
Impact-induced solidlike behavior and elasticity in concentrated colloidal suspensions (<i>9 pages</i>)	042601
Baojin Chu and David R. Salem	
Suppression of crystalline fluctuations by competing structures in a supercooled liquid (<i>7 pages</i>)	042602
Pierre Ronceray and Peter Harrowell	
Diffusivity of <i>E. coli</i> -like microswimmers in confined geometries: The role of the tumbling rate (<i>7 pages</i>)	042603
Giorgia Guccione, Daniela Pimponi, Paolo Gualtieri, and Mauro Chinappi	
Test of the diffusing-diffusivity mechanism using near-wall colloidal dynamics (<i>12 pages</i>)	042604
Mpumelelo Matse, Mykyta V. Chubynsky, and John Bechhoefer	
Glassy swirls of active dumbbells (<i>9 pages</i>)	042605
Rituparno Mandal, Pranab Jyoti Bhuyan, Pinaki Chaudhuri, Madan Rao, and Chandan Dasgupta	
Direct measurement of the ballistic motion of a freely floating colloid in Newtonian and viscoelastic fluids (<i>5 pages</i>)	042606
Andrew P. Hammond and Eric I. Corwin	
Phase behavior and bulk structural properties of a microphase former with anisotropic competing interactions: A density functional theory study (<i>10 pages</i>)	042607
Daniel Stopper and Roland Roth	
Temperature dependence of the Landau-Placzek ratio in liquid water (<i>5 pages</i>)	042608
V. A. Zykova, Y. A. Karpegina, V. K. Malinovskiy, and N. V. Surovtsev	

(Continued)

Free-energy barriers for crystal nucleation from fluid phases (<i>15 pages</i>)	042609
Peter Koß, Antonia Statt, Peter Virnau, and Kurt Binder	
Adiabatic elimination of inertia of the stochastic microswimmer driven by α -stable noise (<i>9 pages</i>)	042610
Joerg Noetel, Igor M. Sokolov, and Lutz Schimansky-Geier	
Diffusion, subdiffusion, and localization of active colloids in random post lattices (<i>8 pages</i>)	042611
Alexandre Morin, David Lopes Cardozo, Vijayakumar Chikkadi, and Denis Bartolo	
Liquid Crystals	
Design and investigation of de Vries liquid crystals based on 5-phenyl-pyrimidine and (<i>R,R</i>)-2,3-epoxyhexoxy backbone (<i>13 pages</i>)	042701
S. P. Sreenilayam, D. Rodriguez-Lojo, V. P. Panov, V. Swaminathan, J. K. Vij, Yu. P. Panarin, E. Gorecka, A. Panov, and P. J. Stevenson	
Topological defects in an unconfined nematic fluid induced by single and double spherical colloidal particles (<i>18 pages</i>)	042702
Yiwei Wang, Pingwen Zhang, and Jeff Z. Y. Chen	
Emergence of biaxial nematic phases in solutions of semiflexible dimers (<i>10 pages</i>)	042703
Arvin Vaghela, Paulo I. C. Teixeira, and Eugene M. Terentjev	
Observations of cavity polaritons in one-dimensional photonic crystals containing a liquid-crystalline semiconductor based on perylene bisimide units (<i>6 pages</i>)	042704
T. Sakata, M. Suzuki, T. Yamamoto, S. Nakanishi, M. Funahashi, and N. Tsurumachi	
Films and Interfaces	
Strongly nonlinear theory of rapid solidification near absolute stability (<i>14 pages</i>)	042801
Katarzyna N. Kowal, Anthony L. Altieri, and Stephen H. Davis	
Theory of nanobubble formation and induced force in nanochannels (<i>7 pages</i>)	042802
Noriyoshi Arai, Takahiro Koishi, and Toshikazu Ebisuzaki	
Topography- and topology-driven spreading of non-Newtonian power-law liquids on a flat and a spherical substrate (<i>11 pages</i>)	042803
Masao Iwamatsu	
Pinning of a drop by a junction on an incline (<i>10 pages</i>)	042804
Joël De Coninck, Juan Carlos Fernández Toledano, François Dunlop, and Thierry Huillet	
Granular Materials	
Force percolation transition of jammed granular systems (<i>6 pages</i>)	042901
Sudhir N. Pathak, Valentina Esposito, Antonio Coniglio, and Massimo Pica Ciamarra	
Energy decay in a tapped granular column: Can a one-dimensional toy model provide insight into fully three-dimensional systems? (<i>11 pages</i>)	042902
C. R. K. Windows-Yule, D. L. Blackmore, and A. D. Rosato	
Kinetic theory of shear thickening for a moderately dense gas-solid suspension: From discontinuous thickening to continuous thickening (<i>24 pages</i>)	042903
Hisao Hayakawa, Satoshi Takada, and Vicente Garzó	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW E

THIRD SERIES, VOLUME 96, NUMBER 4

OCTOBER 2017

Erosion and deposition processes in surface granular flows (<i>11 pages</i>)	042904
T. Trinh, P. Boltenhagen, R. Delannay, and A. Valance	
Compliant contact versus rigid contact: A comparison in the context of granular dynamics (<i>13 pages</i>)	042905
Arman Pazouki, Michał Kwarta, Kyle Williams, William Likos, Radu Serban, Paramsothy Jayakumar, and Dan Negrut	
Force fluctuations on a wall in interaction with a granular lid-driven cavity flow (<i>16 pages</i>)	042906
François Kneib, Thierry Faug, Gilles Nicolet, Nicolas Eckert, Mohamed Naaim, and Frédéric Dufour	
Microstructure as a function of the grain size distribution for packings of frictionless disks: Effects of the size span and the shape of the distribution (<i>8 pages</i>)	042907
Nicolas Estrada and W. F. Oquendo	
Solid Mechanics	
Acoustic manipulation: Bessel beams and active carriers (<i>11 pages</i>)	043001
Majid Rajabi and Alireza Mojahed	
Strength distribution of large unidirectional composite patches with realistic load sharing (<i>16 pages</i>)	043002
Ankit Gupta, Sivasambu Mahesh, and Shyam M. Keralavarma	
Fluid Dynamics	
Electric generation and ratcheted transport of contact-charged drops (<i>9 pages</i>)	043101
Charles A. Cartier, Jason R. Graybill, and Kyle J. M. Bishop	
Universality of oscillating boiling in Leidenfrost transition (<i>5 pages</i>)	043102
Mohammad Khavari and Tuan Tran	
Guidance of microswimmers by wall and flow: Thigmotaxis and rheotaxis of unsteady squirmers in two and three dimensions (<i>11 pages</i>)	043103
Kenta Ishimoto	
Langevin equation elucidates the mechanism of the Rayleigh-Bénard instability by coupling molecular motions and macroscopic fluctuations (<i>6 pages</i>)	043104
Jun Zhang and Thomas Önskog	
Origin of the inertial deviation from Darcy's law: An investigation from a microscopic flow analysis on two-dimensional model structures (<i>15 pages</i>)	043105
Mehrez Agnaou, Didier Lasseux, and Azita Ahmadi	
Limit regimes of ice formation in turbulent supercooled water (<i>11 pages</i>)	043106
Francesca De Santi and Piero Olla	
Dynamics of a thermally driven film climbing the outside of a vertical cylinder (<i>12 pages</i>)	043107
Linda B. Smolka	
Morphing continuum theory for turbulence: Theory, computation, and visualization (<i>9 pages</i>)	043108
James Chen	
Instabilities of convection patterns in a shear-thinning fluid between plates of finite conductivity (<i>20 pages</i>)	043109
Thomas Varé, Chérif Nouar, and Christel Métivier	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW E

THIRD SERIES, VOLUME 96, NUMBER 4

OCTOBER 2017

 Turbulent flow over craters on Mars: Vorticity dynamics reveal aeolian excavation mechanism (21 pages)	043110
William Anderson and Mackenzie Day	
Linear-shear-current modified Schrödinger equation for gravity waves in finite water depth (12 pages)	043111
B. Liao, G. Dong, Y. Ma, and J. L. Gao	
Effect of capillary condensation on gas transport properties in porous media (9 pages)	043112
Yuta Yoshimoto, Takuma Hori, Ikuya Kinefuchi, and Shu Takagi	
Plasma Physics	
Flame propagation in two-dimensional solids: Particle-resolved studies with complex plasmas (8 pages)	043201
S. O. Yurchenko, E. V. Yakovlev, L. Couëdel, N. P. Kryuchkov, A. M. Lipaev, V. N. Naumkin, A. Yu. Kislov, P. V. Ovcharov, K. I. Zaytsev, E. V. Vorob'ev, G. E. Morfill, and A. V. Ivlev	
Transport regimes spanning magnetization-coupling phase space (9 pages)	043202
Scott D. Baalrud and Jérôme Daligault	
Momentum transport and nonlocality in heat-flux-driven magnetic reconnection in high-energy-density plasmas (8 pages)	043203
Chang Liu, William Fox, Amitava Bhattacharjee, Alexander G. R. Thomas, and Archis S. Joglekar	
Dust coupling parameter of radio-frequency-discharge complex plasma under microgravity conditions (10 pages)	043204
D. I. Zhukhovitskii, V. N. Naumkin, A. I. Khusnulgin, V. I. Molotkov, and A. M. Lipaev	
Modeling of the interaction of an x-ray free-electron laser with large finite samples (9 pages)	043205
O. Peyrusse, J.-M. André, P. Jonnard, and J. Gaudin	
Ion-beam-plasma interaction effects on electrostatic solitary wave propagation in ultradense relativistic quantum plasmas (13 pages)	043206
I. S. Elkamash, I. Kourakis, and F. Haas	
Electrostatic fluctuations in collisional plasmas (15 pages)	043207
W. Rozmus, A. Brantov, C. Fortmann-Grote, V. Yu. Bychenkov, and S. Glenzer	
Collisional damping rates for electron plasma waves reassessed (6 pages)	043208
J. W. Banks, S. Brunner, R. L. Berger, W. J. Arrighi, and T. M. Tran	
Broadening of cyclotron resonance conditions in the relativistic interaction of an intense laser with overdense plasmas (8 pages)	043209
Takayoshi Sano, Yuki Tanaka, Natsumi Iwata, Masayasu Hata, Kunioki Mima, Masakatsu Murakami, and Yasuhiko Sentoku	
Temperature measurement of hohlraum radiation for energy loss experiments in indirectly laser heated carbon plasma (6 pages)	043210
D. Schumacher, S. Bedacht, A. Blažević, S. Busold, W. Cayzac, A. Frank, T. Heßling, D. Kraus, A. Ortner, G. Schaumann, and M. Roth	
Computational Physics	
Microstructure and mechanical properties of hyperuniform heterogeneous materials (12 pages)	043301
Yaopengxiao Xu, Shaohua Chen, Pei-En Chen, Wenxiang Xu, and Yang Jiao	

(Continued)

Refined energy-conserving dissipative particle dynamics model with temperature-dependent properties and its application in solidification problem (12 pages)	043302
K. C. Ng and T. W. H. Sheu	
Hypernetted-chain-like closure of Ornstein-Zernike equation in multibody dissipative particle dynamics (9 pages)	043303
Chao-jie Mo, Li-zi Qin, and Li-jun Yang	
Reconstruction of a digital core containing clay minerals based on a clustering algorithm (12 pages)	043304
Yanlong He, Chunsheng Pu, Cheng Jing, Xiaoyu Gu, Qingdong Chen, Hongzhi Liu, Nasir Khan, and Qiaoling Dong	
Quantum Monte Carlo with variable spins: Fixed-phase and fixed-node approximations (9 pages)	043305
Cody A. Melton and Lubos Mitas	
Solid ^4He and the diffusion Monte Carlo method: A study of their properties (10 pages)	043306
E. J. Rugeles, Sebastian Ujevic, and S. A. Vitiello	
Control of accuracy in the Wang-Landau algorithm (7 pages)	043307
L. Yu. Barash, M. A. Fadeeva, and L. N. Shchur	
Capillary fluctuations of surface steps: An atomistic simulation study for the model Cu(111) system (10 pages)	043308
Rodrigo Freitas, Timofey Frolov, and Mark Asta	
Reconstruction of three-dimensional porous media using generative adversarial neural networks (17 pages)	043309
Lukas Mosser, Olivier Dubrule, and Martin J. Blunt	
General purpose graphics-processing-unit implementation of cosmological domain wall network evolution (6 pages)	043310
J. R. C. C. Correia and C. J. A. P. Martins	
Constant-pressure nested sampling with atomistic dynamics (13 pages)	043311
Robert J. N. Baldock, Noam Bernstein, K. Michael Salerno, Livia B. Pártay, and Gábor Csányi	
Effective optimization using sample persistence: A case study on quantum annealers and various Monte Carlo optimization methods (14 pages)	043312
Hamed Karimi, Gili Rosenberg, and Helmut G. Katzgraber	

ERRATA

Publisher's Note: Critical and Griffiths-McCoy singularities in quantum Ising spin glasses on d -dimensional hypercubic lattices: A series expansion study [Phys. Rev. E 96 , 022139 (2017)] (1 page)	049901(E)
R. R. P. Singh and A. P. Young	
Publisher's Note: Spreading law of non-Newtonian power-law liquids on a spherical substrate by an energy-balance approach [Phys. Rev. E 96 , 012803 (2017)] (1 page)	049902(E)
Masao Iwamatsu	
Publisher's Note: Generalized model for k -core percolation and interdependent networks [Phys. Rev. E 96 , 032317 (2017)] (1 page)	049903(E)
Nagendra K. Panduranga, Jianxi Gao, Xin Yuan, H. Eugene Stanley, and Shlomo Havlin	
Erratum: Bypass rewiring and robustness of complex networks [Phys. Rev. E 94 , 022310 (2016)] (1 page)	049904(E)
Junsang Park and Sang Geun Hahn	