PHYSICAL REVIEW E **THIRD SERIES, VOLUME 96, NUMBER 1** **JULY 2017**

Aging in the three-dimensional random-field Ising model *(10 pages)* 013315
Sebastian von Ohr, Markus Manssen, and Alexander K. Hartmann

Identifying the linear phase of the relativistic Kelvin-Helmholtz instability and measuring its growth rate via radiation *(6 pages)* 013316
R. Pausch, M. Bussmann, A. Huebl, U. Schramm, K. Steiniger, R. Widera, and A. Debus

Lattice Boltzmann modeling and simulation of liquid jet breakup *(18 pages)* 013317
Shimpei Saito, Yutaka Abe, and Kazuya Koyama

In silico optimization of critical currents in superconductors *(14 pages)* 013318
Gregory Kimmel, Ivan A. Sadovskyy, and Andreas Glatz

Disentangling structural information from core-level excitation spectra *(8 pages)* 013319
Johannes Niskanen, Christoph J. Sahle, Keith Gilmore, Frank Uhlig, Jens Smiatek, and Alexander Föhlisch

COMMENTS

Comment on "Flow of wet granular materials: A numerical study" *(2 pages)* 016901
Bruno Chareyre

Reply to "Comment on 'Flow of wet granular materials: A numerical study' " *(2 pages)* 016902
Saeed Khamseh, Jean-Noël Roux, and François Chevoir

ERRATA

Publisher's Note: Asymmetric transmission of sound wave in cavitating liquids [Phys. Rev. E **95**, 033118 (2017)] *(1 page)* . . . . . 019901(E)
Xun Wang, Weizhong Chen, Shengde Liang, Taiyang Zhao, and Jinfu Liang

PHYSICAL REVIEW E **THIRD SERIES, VOLUME 96, NUMBER 1** **JULY 2017**

Collisional heating and adiabatic expansion of warm dense matter with intense relativistic electrons *(6 pages)* 013208
J. E. Coleman and J. Colgan

Computational Physics

Theory of wavelet-based coarse-graining hierarchies for molecular dynamics *(13 pages)* 013301
Berend Christopher Rinderspacher, Jaydeep P. Bardhan, and Ahmed E. Ismail

Revisiting the use of the immersed-boundary lattice-Boltzmann method for simulations of suspended particles *(12 pages)* 013302
L. Mountrakis, E. Lorenz, and A. G. Hoekstra

Impact of the kinetic boundary condition on porous media flow in the lattice Boltzmann formulation *(11 pages)* 013303
Shiwani Singh, Fei Jiang, and Takeshi Tsuji

Predictions of first passage times in sparse discrete fracture networks using graph-based reductions *(10 pages)* . . . 013304
Jeffrey D. Hyman, Aric Hagberg, Gowri Srinivasan, Jamaludin Mohd-Yusof, and Hari Viswanathan

Markov chain sampling of the O(n) loop models on the infinite plane *(10 pages)* 013305
Victor Herdeiro

Phase-field lattice Boltzmann modeling of boiling using a sharp-interface energy solver *(22 pages)* 013306
Mahmood Mohammadi-Shad and Taehun Lee

Adaptive numerical algorithms to simulate the dynamical Casimir effect in a closed cavity with different boundary conditions *(12 pages)* 013307
Paula I. Villar and Alejandro Soba

Long-time instability in the Runge-Kutta algorithm for a Nosé-Hoover heat bath of a harmonic chain and its stabilization *(7 pages)* 013308
Baiyili Liu and Shaoqiang Tang

Quantum dynamics of long-range interacting systems using the positive-P and gauge-P representations *(22 pages)* 013309
S. Wüster, J. F. Corney, J. M. Rost, and P. Deuar

Eigenvector centrality for geometric and topological characterization of porous media *(13 pages)* 013310
Joaquin Jimenez-Martinez and Christian F. A. Negre

Consistent lattice Boltzmann modeling of low-speed isothermal flows at finite Knudsen numbers in slip-flow regime: Application to plane boundaries *(27 pages)* 013311
Goncalo Silva and Viriato Semiao

Generalized network modeling: Network extraction as a coarse-scale discretization of the void space of porous media *(17 pages)* 013312
Ali Q. Raeini, Branko Bijeljic, and Martin J. Blunt

Multiple-relaxation-time lattice Boltzmann simulation for flow, mass transfer, and adsorption in porous media *(14 pages)* 013313
Qiang Ma, Zhenqian Chen, and Hao Liu

Lattice gas with molecular dynamics collision operator *(12 pages)* 013314
M. Reza Parsa and Alexander J. Wagner

(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 96, NUMBER 1** **JULY 2017**

Effect of polymer additives on heat transport and large-scale circulation in turbulent Rayleigh-Bénard convection *(11 pages)* 013111
Jian-Ping Cheng, Hong-Na Zhang, Wei-Hua Cai, Si-Ning Li, and Feng-Chen Li

Periodic jetting and monodisperse jet drops from oblique gas injection *(9 pages)* 013112
Oliver McRae, Antoine Gaillard, and James C. Bird

Magnetic-field-driven alteration in capillary filling dynamics in a narrow fluidic channel *(14 pages)* 013113
Srinivas R. Gorthi, Pranab Kumar Mondal, and Gautam Biswas

Electro-osmosis of nematic liquid crystals under weak anchoring and second-order surface effects *(15 pages)* 013114
Antarip Poddar, Jayabrata Dhar, and Suman Chakraborty

Formation of liquid drops at an orifice and dynamics of pinch-off in liquid jets *(11 pages)* 013115
Manash Pratim Borthakur, Gautam Biswas, and Dipankar Bandyopadhyay

Molecular-dynamics study on characteristics of energy and tangential momentum accommodation coefficients *(8 pages)* 013116
Hiroki Yamaguchi, Yu Matsuda, and Tomohide Niimi

Passive scalar transport by a non-Gaussian turbulent flow in the Batchelor regime *(8 pages)* 013117
A. S. Il'yn, V. A. Sirota, and K. P. Zybin

Doubly excited pulse waves on thin liquid films flowing down an inclined plane: An experimental and numerical study *(12 pages)* 013118
Idris Adebayo, Zhihua Xie, Zhizhao Che, and Omar K. Matar

Linear stability of layered two-phase flows through parallel soft-gel-coated walls *(16 pages)* 013119
B. Dinesh and S. Pushpavanam

Plasma Physics

Laser opacity in underdense preplasma of solid targets due to quantum electrodynamics effects *(6 pages)* 013201
W.-M. Wang, P. Gibbon, Z.-M. Sheng, Y.-T. Li, and J. Zhang

Ionization-potential depression and dynamical structure factor in dense plasmas *(8 pages)* 013202
Chengliang Lin, Gerd Röpke, Wolf-Dietrich Kraeft, and Heidi Reinholz

Observation of a strong-coupling effect on electron-ion collisions in ultracold plasmas *(5 pages)* 013203
Wei-Ting Chen, Craig Witte, and Jacob L. Roberts

First-principles equation of state and shock compression predictions of warm dense hydrocarbons *(6 pages)* 013204
Shuai Zhang, Kevin P. Driver, François Soubiran, and Burkhard Militzer

Interaction between a tubular beam of charged particles and a dispersive metamaterial of cylindrical configuration *(12 pages)* 013205
Yu. O. Averkov, Yu. V. Prokopenko, and V. M. Yakovenko

Thomas-Fermi simulations of dense plasmas without pseudopotentials *(8 pages)* 013206
C. E. Starrett

Modification of magnetohydrodynamic waves by the relativistic Hall effect *(8 pages)* 013207
Yohei Kawazura

(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 96, NUMBER 1** **JULY 2017**

Propulsion via flexible flapping in granular media *(7 pages)* 012907
Zhiwei Peng, Yang Ding, Kyle Pietrzyk, Gwynn J. Elfring, and On Shun Pak

Solid Mechanics

Contact of a spherical probe with a stretched rubber substrate *(10 pages)* 013001
Christian Frétigny and Antoine Chateauminois

Stiffening thermal membranes by cutting *(6 pages)* 013002
Emily R. Russell, Rastko Sknepnek, and Mark Bowick

Nonlinear mechanics of rigidifying curves *(9 pages)* 013003
Salem Al Mosleh and Christian Santangelo

Thermodynamic dislocation theory of high-temperature deformation in aluminum and steel *(6 pages)* 013004
K. C. Le, T. M. Tran, and J. S. Langer

Crack-tip process zone as a bifurcation problem *(19 pages)* 013005
Alexei Boulbitch, Yury M. Gufan, and Alexander L. Korzhenevskii

Fluid Dynamics

Acoustic streaming in a microfluidic channel with a reflector: Case of a standing wave generated by two counterpropagating leaky surface waves *(11 pages)* 013101
Alexander A. Doinikov, Pierre Thibault, and Philippe Marmottant

Analytical scalings of the linear Richtmyer-Meshkov instability when a rarefaction is reflected *(42 pages)* 013102
F. Cobos-Campos and J. G. Wouchuk

Instabilities of conducting fluid layers in weak time-dependent magnetic fields *(5 pages)* 013103
I. Cortés-Domínguez and J. Burguete

Apparent slip of shear thinning fluid in a microchannel with a superhydrophobic wall *(12 pages)* 013104
Stanislav Patlazhan and Sergei Vagner

Boundary-layer effects in droplet splashing *(8 pages)* 013105
Guillaume Riboux and José Manuel Gordillo

Derivation of stable Burnett equations for rarefied gas flows *(13 pages)* 013106
Narendra Singh, Ravi Sudam Jadhav, and Amit Agrawal

Front roughening of flames in discrete media *(9 pages)* 013107
Fredric Lam, XiaoCheng Mi, and Andrew J. Higgins

Stability of the fluid interface in a Hele-Shaw cell subjected to horizontal vibrations *(18 pages)* 013108
T. P. Lyubimova, D. V. Lyubimov, E. S. Sadilov, and D. M. Popov

Orientational dynamics of a triaxial ellipsoid in simple shear flow: Influence of inertia *(13 pages)* 013109
Tomas Rosén, Yusuke Kotsubo, Cyrus K. Aidun, Minh Do-Quang, and Fredrik Lundell

Calculating the rotational friction coefficient of fractal aerosol particles in the transition regime using extended Kirkwood-Riseman theory *(10 pages)* 013110
James Corson, George W. Mulholland, and Michael R. Zachariah

(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 96, NUMBER 1** **JULY 2017**

Influence of a dispersion of magnetic and nonmagnetic nanoparticles on the magnetic Fredericksz transition of the liquid crystal 5CB *(9 pages)* 012706
Ahmed Mouhli, Habib Ayeb, Tahar Othman, Jérôme Fresnais, Vincent Dupuis, Ian R. Nemitz, Joel S. Pendery, Charles Rosenblatt, Olivier Sandre, and Emmanuelle Lacaze

Enhancement of polar anchoring strength in a graphene-nematic suspension and its effect on nematic electro-optic switching *(7 pages)* 012707
Rajratan Basu

Theory of helicoids and skyrmions in confined cholesteric liquid crystals *(10 pages)* 012708
Sajedeh Afghah and Jonathan V. Selinger

Phase separation and folding in swelled nematoelastic films *(7 pages)* 012709
A. P. Zakharov and L. M. Pismen

Films and Interfaces

Multi-phase-field model for surface and phase-boundary diffusion *(10 pages)* 012801
Raphael Schiedung, Reza Darvishi Kamachali, Ingo Steinbach, and Fathollah Varnik

Near-field deformation of a liquid interface by atomic force microscopy *(7 pages)* 012802
C. Mortagne, V. Chireux, R. Ledesma-Alonso, M. Ogier, F. Risso, T. Ondarçuhu, D. Legendre, and Ph. Tordjeman

Spreading law of non-Newtonian power-law liquids on a spherical substrate by an energy-balance approach *(7 pages)* 012803
Masao Iwamatsu

Fragmentation approach to the point-island model with hindered aggregation: Accessing the barrier energy *(13 pages)* 012804
Diego Luis González, Alberto Pimpinelli, and T. L. Einstein

Granular Materials

Viscoinertial regime of immersed granular flows *(7 pages)* 012901
L. Amarsid, J.-Y. Delenne, P. Mutabaruka, Y. Monerie, F. Perales, and F. Radjai

Contact angle entropy and macroscopic friction in noncohesive two-dimensional granular packings *(13 pages)* . . . 012902
Juan C. Petit, Xavier García, Iván Sánchez, and Ernesto Medina

Anisotropic decay of the energy spectrum in two-dimensional dense granular flows *(12 pages)* 012903
Kuniyasu Saitoh and Hideyuki Mizuno

Geometrical properties of rigid frictionless granular packings as a function of particle size and shape *(10 pages)* 012904
Jean-François Camenen and Yannick Descantes

Linking initial microstructure and local response during quasistatic granular compaction *(15 pages)* 012905
R. C. Hurley, J. Lind, D. C. Pagan, M. A. Homel, M. C. Akin, and E. B. Herbold

Force distribution in a granular medium under dynamic loading *(6 pages)* 012906
Vyacheslav A. Danylenko, Sergiy V. Mykulyak, Volodymyr O. Polyakovskyi, Vasyl V. Kulich, and Ivan I. Oleynik

(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 96, NUMBER 1** **JULY 2017**

Self-assembly of rigid magnetic rods consisting of single dipolar beads in two dimensions *(9 pages)* 012603
Jorge L. C. Domingos, François M. Peeters, and W. P. Ferreira

Effect of particle-size dynamics on properties of dense spongy-particle systems: Approach towards equilibrium *(16 pages)* 012604
Monica E. A. Zakhari, Patrick D. Anderson, and Markus Hütter

Anomalous diffusion and stress relaxation in surfactant micelles *(6 pages)* 012605
Subas Dhakal and Radhakrishna Sureshkumar

Colloid-colloid hydrodynamic interaction around a bend in a quasi-one-dimensional channel *(8 pages)* 012606
Christopher Liepold, Ryan Zarcone, Tibor Heumann, Stuart A. Rice, and Binhua Lin

Orientational dynamics of fluctuating dipolar particles assembled in a mesoscopic colloidal ribbon *(6 pages)* 012607
Helena Massana-Cid, Fernando Martinez-Pedrero, Andrejs Cebers, and Pietro Tierno

Self-assembly processes of superparamagnetic colloids in a quasi-two-dimensional system *(10 pages)* 012608
N. Rojas, A. Darras, and G. Lumay

Relationship between the size of a camphor-driven rotor and its angular velocity *(8 pages)* 012609
Yuki Koyano, Marian Gryciuk, Paulina Skrobanska, Maciej Malecki, Yutaka Sumino, Hiroyuki Kitahata, and Jerzy Gorecki

Simulation and observation of line-slip structures in columnar structures of soft spheres *(6 pages)* 012610
J. Winkelmann, B. Haffner, D. Weaire, A. Mughal, and S. Hutzler

Impact of interaction range and curvature on crystal growth of particles confined to spherical surfaces *(12 pages)* 012611
Stefan Paquay, Gert-Jan Both, and Paul van der Schoot

Liquid Crystals

Definite existence of subphases with eight- and ten-layer unit cells as studied by complementary methods, electric-field-induced birefringence and microbeam resonant x-ray scattering *(12 pages)* 012701
Zhengyu Feng, A. D. L. Chandani Perera, Atsuo Fukuda, Jagdish K. Vij, Ken Ishikawa, Atsuo Iida, and Yoichi Takanishi

Graphene as transmissive electrodes and aligning layers for liquid-crystal-based electro-optic devices *(7 pages)* 012702
Rajratan Basu and Samuel A. Shalov

Nonlinear continuous-wave optical propagation in nematic liquid crystals: Interplay between reorientational and thermal effects *(13 pages)* 012703
Alessandro Alberucci, Urszula A. Laudyn, Armando Piccardi, Michał Kwasny, Bartlomiej Klus, Mirosław A. Karpierz, and Gaetano Assanto

Theory of microphase separation in bidisperse chiral membranes *(8 pages)* 012704
Raunak Sakhardande, Stefan Stanojeviea, Arvind Baskaran, Aparna Baskaran, Michael F. Hagan, and Bulbul Chakraborty

Role of anchoring energy on the texture of cholesteric droplets: Finite-element simulations and experiments *(13 pages)* 012705
Guilhem Poy, Felix Bunel, and Patrick Oswald

(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 96, NUMBER 1** **JULY 2017**

Minimum energy paths for conformational changes of viral capsids *(13 pages)* 012407
Paolo Cermelli, Giuliana Indelicato, and Emilio Zappa

Multivalent ligand-receptor-mediated interaction of small filled vesicles with a cellular membrane *(10 pages)* 012408
Vladimir P. Zhdanov

Random blebbing motion: A simple model linking cell structural properties to migration characteristics *(16 pages)* 012409
Thomas E. Woolley, Eamonn A. Gaffney, and Alain Goriely

Coupling of lipid membrane elasticity and in-plane dynamics *(7 pages)* 012410
Kuan-Yu Tsang, Yei-Chen Lai, Yun-Wei Chiang, and Yi-Fan Chen

Additive scaling law for structural organization of chromatin in chicken erythrocyte nuclei *(6 pages)* 012411
E. G. Iashina, E. V. Velichko, M. V. Filatov, W. G. Bouwman, C. P. Duif, A. Brulet, and S. V. Grigoriev

Alternative steady states in ecological networks *(10 pages)* 012412
Yael Fried, Nadav M. Shnerb, and David A. Kessler

Turing mechanism for homeostatic control of synaptic density during *C. elegans* growth *(5 pages)* 012413
Heather A. Brooks and Paul C. Bressloff

Fisher waves: An individual-based stochastic model *(13 pages)* 012414
B. Houchmandzadeh and M. Vallade

Generalized run-and-turn motions: From bacteria to Lévy walks *(18 pages)* 012415
François Detcheverry

Dynamics of a bilayer membrane coupled to a two-dimensional cytoskeleton: Scale transfers of membrane deformations *(10 pages)* 012416
Ryuichi Okamoto, Shigeyuki Komura, and Jean-Baptiste Fournier

Correcting binding parameters for interacting ligand-lattice systems *(6 pages)* 012417
Jordan Hervy and Dominique J. Bicout

Polymers

Marginally compact fractal trees with semiflexibility *(15 pages)* 012501
Maxim Dolgushev, Adrian L. Hauber, Philipp Pelagejcev, and Joachim P. Wittmer

Microscopic muon dynamics in the polymer electrolyte poly(ethylene oxide) *(6 pages)* 012502
Iain McKenzie and Stephen P. Cottrell

Statistics of randomly cross-linked polymer models to interpret chromatin conformation capture data *(8 pages)* 012503
O. Shukron and D. Holcman

Colloids, Complex Fluids, and Active Matter

Colloidal dynamics over a tilted periodic potential: Forward and reverse transition probabilities and entropy production in a nonequilibrium steady state *(9 pages)* 012601
Xiao-guang Ma, Yun Su, Pik-Yin Lai, and Penger Tong

Dislocation-free growth of quasicrystals from two seeds due to additional phasonic degrees of freedom *(8 pages)* 012602
M. Schmiedeberg, C. V. Achim, J. Hielscher, S. C. Kapfer, and H. Löwen

(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 96, NUMBER 1** **JULY 2017**

Takeover times for a simple model of network infection *(16 pages)* 012313
Bertrand Ottino-Löffler, Jacob G. Scott, and Steven H. Strogatz

Controllability of flow-conservation networks *(9 pages)* 012314
Chen Zhao, An Zeng, Rui Jiang, Zhengzhong Yuan, and Wen-Xu Wang

Social contagion with degree-dependent thresholds *(7 pages)* 012315
Eun Lee and Petter Holme

Macroscopic and microscopic spectral properties of brain networks during local and global synchronization *(10 pages)* 012316
Vladimir A. Maksimenko, Annika Lüttjohann, Vladimir V. Makarov, Mikhail V. Goremyko, Alexey A. Koronovskii, Vladimir Nedaivozov, Anastasia E. Runnova, Gilles van Luijtelaar, Alexander E. Hramov, and Stefano Boccaletti

Explosive percolation on directed networks due to monotonic flow of activity *(11 pages)* 012317
Alex Waagen, Raissa M. D'Souza, and Tsai-Ching Lu

Visibility graphs of random scalar fields and spatial data *(11 pages)* 012318
Lucas Lacasa and Jacopo Iacovacci

Inferring network structure from cascades *(5 pages)* 012319
Sushrut Ghonge and Dervis Can Vural

Detection of nonstationary transition to synchronized states of a neural network using recurrence analyses *(9 pages)* 012320
R. C. Budzinski, B. R. R. Boaretto, T. L. Prado, and S. R. Lopes

Optimal allocation of resources for suppressing epidemic spreading on networks *(8 pages)* 012321
Hanshuang Chen, Guofeng Li, Haifeng Zhang, and Zhonghuai Hou

PART B

Biological Physics

Dynamical crossover in a stochastic model of cell fate decision *(8 pages)* 012401
Hiroki Yamaguchi, Kyogo Kawaguchi, and Takahiro Sagawa

Stochastic and information-thermodynamic structures of population dynamics in a fluctuating environment *(16 pages)* 012402
Tetsuya J. Kobayashi and Yuki Sughiyama

Information propagation in a noisy gene cascade *(12 pages)* 012403
D. Monteoliva and L. Diambra

Optomechanical proposal for monitoring microtubule mechanical vibrations *(9 pages)* 012404
Sh. Barzanjeh, V. Salari, J. A. Tuszynski, M. Cifra, and C. Simon

Balancing specificity, sensitivity, and speed of ligand discrimination by zero-order ultraspecificity *(14 pages)* 012405
Masashi K. Kajita, Kazuyuki Aihara, and Tetsuya J. Kobayashi

Optimal information transfer in enzymatic networks: A field theoretic formulation *(13 pages)* 012406
Himadri S. Samanta, Michael Hinczewski, and D. Thirumalai

(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 96, NUMBER 1** **JULY 2017**

Optimizing mutual synchronization of rhythmic spatiotemporal patterns in reaction-diffusion systems *(12 pages)* 012224
Yoji Kawamura, Sho Shirasaka, Tatsuo Yanagita, and Hiroya Nakao

Light propagation in binary kagome ribbons with evolving disorder *(9 pages)* 012225
A. Radosavljević, G. Gligorić, P. P. Beličev, A. Maluckov, and M. Stepić

Mean-field dynamics of a population of stochastic map neurons *(12 pages)* 012226
Igor Franović, Oleg V. Maslennikov, Iva Bačić, and Vladimir I. Nekorkin

Traveling waves in a spring-block chain sliding down a slope *(9 pages)* 012227
J. E. Morales, G. James, and A. Tonnelier

Networks and Complex Systems

Mean-field approach to evolving spatial networks, with an application to osteocyte network formation *(21 pages)* 012301
Jake P. Taylor-King, David Basanta, S. Jonathan Chapman, and Mason A. Porter

Fluctuations in percolation of sparse complex networks *(9 pages)* 012302
Ginestra Bianconi

Hawkes process model with a time-dependent background rate and its application to high-frequency financial data *(10 pages)* 012303
Takahiro Omi, Yoshito Hirata, and Kazuyuki Aihara

Exact solution of the isotropic majority-vote model on complete graphs *(6 pages)* 012304
Agata Fronczak and Piotr Fronczak

Discrete-time dynamic network model for the spread of susceptible-infective-recovered diseases *(7 pages)* 012305
Sanjeev Kumar Chauhan

Social contagions on weighted networks *(7 pages)* 012306
Yu-Xiao Zhu, Wei Wang, Ming Tang, and Yong-Yeol Ahn

Scaling properties of multilayer random networks *(8 pages)* 012307
J. A. Méndez-Bermúdez, Guilherme Ferraz de Arruda, Francisco A. Rodrigues, and Yamir Moreno

Low-algorithmic-complexity entropy-deceiving graphs *(12 pages)* 012308
Hector Zenil, Narsis A. Kiani, and Jesper Tegnér

Pendular behavior of public transport networks *(9 pages)* 012309
Mirian M. Izawa, Fernando A. Oliveira, Daniel O. Cajueiro, and Bernardo A. Mello

Dynamical properties of the herding voter model with and without noise *(7 pages)* 012310
Liudmila Rozanova and Marián Boguñá

Solution to urn models of pairwise interaction with application to social, physical, and biological sciences *(13 pages)* 012311
William Pickering and Chjan Lim

Graph spectral characterization of the XY model on complex networks *(8 pages)* 012312
Paul Expert, Sarah de Nigris, Taro Takaguchi, and Renaud Lambiotte

(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 96, NUMBER 1** **JULY 2017**

Nonlinear dispersive waves in repulsive lattices *(9 pages)* 012208
A. Mehrem, N. Jiménez, L. J. Salmerón-Contreras, X. García-Andrés, L. M. García-Raffi, R. Picó, and V. J. Sánchez-Morcillo

Reconstructing networks of pulse-coupled oscillators from spike trains *(8 pages)* 012209
Rok Cestnik and Michael Rosenblum

Boundary in the dynamic phase of globally coupled oscillatory and excitable units *(6 pages)* 012210
Hiroaki Daido

Properties and relative measure for quantifying quantum synchronization *(10 pages)* 012211
Wenlin Li, Wenzhao Zhang, Chong Li, and Heshan Song

Metal nanospheres under intense continuous-wave illumination: A unique case of nonperturbative nonlinear nanophotonics *(10 pages)* 012212
I. Gurwich and Y. Sivan

Finite-size scaling in the system of coupled oscillators with heterogeneity in coupling strength *(7 pages)* 012213
Hyunsuk Hong

Perturbation scheme for a fluxon in a curved Josephson junction *(7 pages)* 012214
T. Dobrowolski and A. Jarmoliński

Extremal-point density of scaling processes: From fractional Brownian motion to turbulence in one dimension *(11 pages)* 012215
Yongxiang Huang (黄永祥), Lipo Wang (王利坡), F. G. Schmitt, Xiaobo Zheng (郑小波), Nan Jiang (姜楠), and Yulu Liu (刘宇陆)

Extreme and superextreme events in a loss-modulated CO_2 laser: Nonlinear resonance route and precursors *(12 pages)* 012216
Cristian Bonatto and Antonio Endler

Counting statistics of chaotic resonances at optical frequencies: Theory and experiments *(13 pages)* 012217
Domenico Lippolis, Li Wang, and Yun-Feng Xiao

Length of excitable knots *(4 pages)* 012218
Fabian Maucher and Paul Sutcliffe

Rogue wave solutions for the infinite integrable nonlinear Schrödinger equation hierarchy *(8 pages)* 012219
A. Ankiewicz and N. Akhmediev

From Kardar-Parisi-Zhang scaling to explosive desynchronization in arrays of limit-cycle oscillators *(8 pages)* . . . 012220
Roland Lauter, Aditi Mitra, and Florian Marquardt

Detection of time delays and directional interactions based on time series from complex dynamical systems *(8 pages)* 012221
Huanfei Ma, Siyang Leng, Chenyang Tao, Xiong Ying, Jürgen Kurths, Ying-Cheng Lai, and Wei Lin

Recurrence in the high-order nonlinear Schrödinger equation: A low-dimensional analysis *(7 pages)* 012222
Andrea Armaroli, Maura Brunetti, and Jérôme Kasparian

Optimizing stability of mutual synchronization between a pair of limit-cycle oscillators with weak cross coupling *(12 pages)* 012223
Sho Shirasaka, Nobuhiro Watanabe, Yoji Kawamura, and Hiroya Nakao

(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 96, NUMBER 1** **JULY 2017**

Endoreversible quantum heat engines in the linear response regime *(8 pages)* 012152
Honghui Wang, Jizhou He, and Jianhui Wang

Nonadiabatic dynamics of the excited states for the Lipkin-Meshkov-Glick model *(8 pages)* 012153
Wassilij Kopylov, Gernot Schaller, and Tobias Brandes

Pseudo-Hermitian anti-Hermitian ensemble of Gaussian matrices *(9 pages)* 012154
G. Marinello and M. P. Pato

Statistics, distillation, and ordering emergence in a two-dimensional stochastic model of particles in counterflowing streams *(11 pages)* 012155
Eduardo Velasco Stock, Roberto da Silva, and H. A. Fernandes

Physical insight into the thermodynamic uncertainty relation using Brownian motion in tilted periodic potentials *(9 pages)* 012156
Changbong Hyeon and Wonseok Hwang

Eigenstate thermalization in the two-dimensional transverse field Ising model. II. Off-diagonal matrix elements of observables *(10 pages)* 012157
Rubem Mondaini and Marcos Rigol

Decomposition of conditional probability for high-order symbolic Markov chains *(9 pages)* 012158
S. S. Melnik and O. V. Usatenko

Exact phase boundaries and topological phase transitions of the XYZ spin chain *(11 pages)* 012159
S. A. Jafari

Time-reversal symmetry for systems in a constant external magnetic field *(6 pages)* 012160
Sara Bonella, Alessandro Coretti, Lamberto Rondoni, and Giovanni Ciccotti

Nonlinear Dynamics and Chaos

Importance-sampling computation of statistical properties of coupled oscillators *(10 pages)* 012201
Shamik Gupta, Jorge C. Leitão, and Eduardo G. Altmann

Floquet analysis of Kuznetsov-Ma breathers: A path towards spectral stability of rogue waves *(8 pages)* 012202
J. Cuevas-Maraver, P. G. Kevrekidis, D. J. Frantzeskakis, N. I. Karachalios, M. Haragus, and G. James

Dynamics of scroll waves in a cylinder jacket geometry *(6 pages)* 012203
Christian Bruns and Marcus J. B. Hauser

Single and double linear and nonlinear flatband chains: Spectra and modes *(18 pages)* 012204
Krzysztof Zegadlo, Nir Dror, Nguyen Viet Hung, Marek Trippenbach, and Boris A. Malomed

Pace and patterns of magnetic swimmers in a billiard pool *(10 pages)* 012205
Florian J. Maier, Markus Sesselmann, Ingo Rehberg, and Reinhard Richter

Cascade replication of dissipative solitons *(5 pages)* 012206
Bogdan A. Kochetov and Vladimir R. Tuz

Detecting unstable periodic orbits in chaotic time series using synchronization *(7 pages)* 012207
Ali Azimi Olyaei, Christine Wu, and Witold Kinsner

(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 96, NUMBER 1** **JULY 2017**

Energy transfer in the nonequilibrium spin-boson model: From weak to strong coupling *(9 pages)* 012135
Junjie Liu, Hui Xu, Baowen Li, and Changqin Wu

Nonequilibrium fluctuations during diffusion in liquid layers *(11 pages)* 012136
Doriano Brogioli and Alberto Vailati

Modulated phases in a three-dimensional Maier-Saupe model with competing interactions *(8 pages)* 012137
P. F. Bienzobaz, Na Xu, and Anders W. Sandvik

Ballistic front dynamics after joining two semi-infinite quantum Ising chains *(22 pages)* 012138
Gabriele Perfetto and Andrea Gambassi

Production rate of the system-bath mutual information *(8 pages)* 012139
Sheng-Wen Li (李圣文)

Columnar-disorder phase boundary in a mixture of hard squares and dimers *(11 pages)* 012140
Dipanjan Mandal and R. Rajesh

Consistency of detrended fluctuation analysis *(10 pages)* 012141
O. Løvsletten

Aggregation-fragmentation-diffusion model for trail dynamics *(8 pages)* 012142
Kyle Kawagoe, Greg Huber, Marc Pradas, Michael Wilkinson, Alain Pumir, and Eli Ben-Naim

Parallel random target searches in a confined space *(9 pages)* 012143
Sunghan Ro and Yong Woon Kim

Shortcuts to isothermality and nonequilibrium work relations *(11 pages)* 012144
Geng Li, H. T. Quan, and Z. C. Tu

Ordering phenomena in a heterostructure of frustrated and unfrustrated triangular-lattice Ising layers *(13 pages)* 012145
Milan Žukovič, Yusuke Tomita, and Y. Kamiya

Hyperuniformity of initial conditions and critical decay of a diffusive epidemic process belonging to the Manna class *(9 pages)* 012146
Sungchul Kwon and Jin Min Kim

Coarsening with nontrivial in-domain dynamics: Correlations and interface fluctuations *(9 pages)* 012147
Barton L. Brown and Michel Pleimling

Time-delayed feedback control of diffusion in random walkers *(6 pages)* 012148
Hiroyasu Ando, Kohta Takehara, and Miki U. Kobayashi

Nonuniversality in the erosion of tilted landscapes *(10 pages)* 012149
Charlie Duclut and Bertrand Delamotte

Entropy production for complex Langevin equations *(7 pages)* 012150
Simone Borlenghi, Stefano Iubini, Stefano Lepri, and Jonas Fransson

Heat engines at optimal power: Low-dissipation versus endoreversible model *(4 pages)* 012151
Ramandeep S. Johal

(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 96, NUMBER 1** **JULY 2017**

Classification of universality classes for quasideterministic sandpile models *(8 pages)* 012117
Sang Bub Lee

Dynamically crowded solutions of infinitely thin Brownian needles *(14 pages)* 012118
Sebastian Leitmann, Felix Höfling, and Thomas Franosch

Quantum Hamiltonian daemons: Unitary analogs of combustion engines *(16 pages)* 012119
Eike P. Thesing, Lukas Gilz, and James R. Anglin

Phase diagram and criticality of the two-dimensional prisoner's dilemma model *(8 pages)* 012120
M. Santos, A. L. Ferreira, and W. Figueiredo

From thermal to excited-state quantum phase transition: The Dicke model *(14 pages)* 012121
P. Pérez-Fernández and A. Relaño

Smallest quantum thermal machine: The effect of strong coupling and distributed thermal tasks *(9 pages)* 012122
Zhong-Xiao Man and Yun-Jie Xia

Molecular kinetic analysis of a local equilibrium Carnot cycle *(8 pages)* 012123
Yuki Izumida and Koji Okuda

Dependence of the configurational entropy on amorphous structures of a hard-sphere fluid *(9 pages)* 012124
Arijit Mondal, Leishangthem Premkumar, and Shankar P. Das

Dynamic finite-size scaling at first-order transitions *(12 pages)* 012125
Andrea Pelissetto and Ettore Vicari

Continuous-time random walk under time-dependent resetting *(6 pages)* 012126
V. P. Shkilev

de Almeida–Thouless instability in short-range Ising spin glasses *(5 pages)* 012127
R. R. P. Singh and A. P. Young

Finite-size effect on optimal efficiency of heat engines *(38 pages)* 012128
Hiroyasu Tajima and Masahito Hayashi

Hybrid colored noise process with space-dependent switching rates *(9 pages)* 012129
Paul C. Bressloff and Sean D. Lawley

Extreme event statistics in a drifting Markov chain *(9 pages)* 012130
Farina Kindermann, Michael Hohmann, Tobias Lausch, Daniel Mayer, Felix Schmidt, and Artur Widera

Transport and diffusion properties of Brownian particles powered by a rotating wheel *(8 pages)* 012131
Bao-quan Ai

Kinetic Ising models with various single-spin-flip dynamics on quenched and annealed random regular graphs *(8 pages)* 012132
Arkadiusz Jędrzejewski, Anna Chmiel, and Katarzyna Sznajd-Weron

Transition probability generating function of a transitionless quantum parametric oscillator *(12 pages)* 012133
Hiroaki Mishima and Yuki Izumida

Classical ergodicity and quantum eigenstate thermalization: Analysis in fully connected Ising ferromagnets *(10 pages)* 012134
Takashi Mori

(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 96, NUMBER 1 JULY 2017

ARTICLES

Statistical Physics

Finite-time generalization of the thermodynamic uncertainty relation *(6 pages)* 012101
Patrick Pietzonka, Felix Ritort, and Udo Seifert

Iterative control strategies for nonlinear systems *(9 pages)* 012102
G. Forte and D. C. Vural

Ashkin-Teller criticality and weak first-order behavior of the phase transition to a fourfold degenerate state in two-dimensional frustrated Ising antiferromagnets *(7 pages)* 012103
R. M. Liu, W. Z. Zhuo, J. Chen, M. H. Qin, M. Zeng, X. B. Lu, X. S. Gao, and J.-M. Liu

Isotropic-nematic transition for hard rods on a three-dimensional cubic lattice *(10 pages)* 012104
A. Gschwind, M. Klopotek, Y. Ai, and M. Oettel

Ballistic aggregation in systems of inelastic particles: Cluster growth, structure, and aging *(10 pages)* 012105
Subhajit Paul and Subir K. Das

Force-linearization closure for non-Markovian Langevin systems with time delay *(13 pages)* 012106
Sarah A. M. Loos and Sabine H. L. Klapp

Supercritical Grüneisen parameter and its universality at the Frenkel line *(5 pages)* 012107
L. Wang, M. T. Dove, K. Trachenko, Yu. D. Fomin, and V. V. Brazhkin

One-dimensional long-range percolation: A numerical study *(9 pages)* 012108
G. Gori, M. Michelangeli, N. Defenu, and A. Trombettoni

Criticality in Brownian ensembles *(15 pages)* 012109
Suchetana Sadhukhan and Pragya Shukla

Determination of scale invariance in random-matrix spectral fluctuations without unfolding *(4 pages)* 012110
G. Torres-Vargas, R. Fossion, C. Tapia-Ignacio, and J. C. López-Vieyra

Dynamics and energy spectra of aperiodic discrete-time quantum walks *(14 pages)* 012111
N. Lo Gullo, C. V. Ambarish, Th. Busch, L. Dell'Anna, and C. M. Chandrashekar

Linear and nonlinear response of the Vlasov system with nonintegrable Hamiltonian *(11 pages)* 012112
Shun Ogawa

Interplay of different environments in open quantum systems: Breakdown of the additive approximation *(10 pages)* 012113
Giulio G. Giusteri, Filippo Recrosi, Gernot Schaller, and G. Luca Celardo

Requisite ingredients for thermal rectification *(7 pages)* 012114
Emmanuel Pereira

How fast does a random walk cover a torus? *(4 pages)* 012115
Peter Grassberger

Calculating how long it takes for a diffusion process to effectively reach steady state without computing the transient solution *(10 pages)* 012116
Elliot J. Carr

(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™

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 1
PARTS A AND B

CONTENTS

JULY 2017

The Table of Contents is a total listing of Parts A and B.
Part A consists of pages 010101(R)–012321, and Part B pages 012401–019901(E).

PART A

RAPID COMMUNICATIONS

Statistical Physics

How to determine a boundary condition for diffusion at a thin membrane from experimental data *(4 pages)* . . . . . 010101(R)
Tadeusz Kosztołowicz, Sławomir Wąsik, and Katarzyna D. Lewandowska

Diffusion in time-dependent random media and the Kardar-Parisi-Zhang equation *(6 pages)* . . . . . 010102(R)
Pierre Le Doussal and Thimothée Thiery

Statistical mechanics of stochastic growth phenomena *(6 pages)* . . . . . 010103(R)
Oleg Alekseev and Mark Mineev-Weinstein

Biological Physics

Quantifying the entropic cost of cellular growth control *(5 pages)* . . . . . 010401(R)
Daniele De Martino, Fabrizio Capuani, and Andrea De Martino

Phenomenological modeling of durotaxis *(6 pages)* . . . . . 010402(R)
Guangyuan Yu, Jingchen Feng, Haoran Man, and Herbert Levine

Granular Materials

Viscorotational shear instability of Keplerian granular flows *(5 pages)* . . . . . 010901(R)
Luka G. Poniatowski and Alexander G. Tevzadze

Plasma Physics

Dynamics of spinning particle pairs in a single-layer complex plasma crystal *(5 pages)* . . . . . 011201(R)
V. Nosenko, S. K. Zhdanov, H. M. Thomas, J. Carmona-Reyes, and T. W. Hyde

Computational Physics

Machine-learning approach for local classification of crystalline structures in multiphase systems *(5 pages)* . . . . . 011301(R)
C. Dietz, T. Kretz, and M. H. Thoma

Copyright 2017 by American Physical Society

(Continued)

2470-0045(201707)96:1:B;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).