PHYSICAL REVIEW E **THIRD SERIES, VOLUME 106, NUMBER 5** **NOVEMBER 2022**

Hard-sphere jamming through the lens of linear optimization *(22 pages)* 055310
Claudia Artiaco, Rafael Díaz Hernández Rojas, Giorgio Parisi, and Federico Ricci-Tersenghi

Variational inference of fractional Brownian motion with linear computational complexity *(12 pages)* 055311
Hippolyte Verdier, François Laurent, Alhassan Cassé, Christian L. Vestergaard, and Jean-Baptiste Masson

Invisible devices with natural materials designed by evolutionary optimization *(11 pages)* 055312
Bei Wu, Shuwen Xue, Zhibin Zhang, and Huanyang Chen

This paper was highlighted in the APS publication *Physics* (physics.aps.org).

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 106, NUMBER 5** **NOVEMBER 2022**

Ionization rate and plasma dynamics at 3.9 micron femtosecond photoionization of air *(6 pages)* 055210
Adam Patel, Claudia Gollner, Rokas Jutas, Valentina Shumakova, Mikhail N. Shneider, Audrius Pugzlys, Andrius Baltuska, and Alexey Shashurin

Magnetization of high-density plasma with a jet velocity of hundreds of km/s *(13 pages)* 055211
Tie-Huai Zhang, Wei-Min Wang, Yu-Tong Li, and Jie Zhang

Comparison of the static structure factor at long wavelengths for a dusty plasma liquid and other liquids *(10 pages)* 055212
Vitaliy Zhuravlyov, J. Goree, Jack F. Douglas, Paolo Elvati, and Angela Violi

Generation of terahertz radiation under the effect of a femtosecond pulse on plasma in a magnetic field *(6 pages)* 055213
K. N. Ovchinnikov and S. A. Uryupin

Predicting hot electron generation in inertial confinement fusion with particle-in-cell simulations *(6 pages)* 055214
S. H. Cao, D. Patel, A. Lees, C. Stoeckl, M. J. Rosenberg, V. Gopalaswamy, H. Wen, H. Huang, A. Shvydky, R. Betti, and C. Ren

Improving the feasibility of economical proton-boron-11 fusion via alpha channeling with a hybrid fast and thermal proton scheme *(14 pages)* 055215
Ian E. Ochs, Elijah J. Kolmes, Mikhail E. Mlodik, Tal Rubin, and Nathaniel J. Fisch

Computational Physics

End-to-end three-dimensional designing of complex disordered materials from limited data using machine learning *(11 pages)* 055301
Serveh Kamrava and Hossein Mirzaee

Transparent boundary condition for simulating rogue wave solutions in the nonlinear Schrödinger equation *(8 pages)* 055302
Chenxi Zheng and Shaoqiang Tang

Generalizability of reservoir computing for flux-driven two-dimensional convection *(21 pages)* 055303
Florian Heyder, Juan Pedro Mellado, and Jörg Schumacher

Pore-network extraction using discrete Morse theory: Preserving the topology of the pore space *(21 pages)* 055304
Andrey S. Zubov, Dmitry A. Murygin, and Kirill M. Gerke

Multiple-distribution-function lattice Boltzmann method for convection-diffusion-system-based incompressible Navier-Stokes equations *(17 pages)* 055305
Zhenhua Chai, Baochang Shi, and Chengjie Zhan

Lifted directed-worm algorithm *(9 pages)* 055306
Hidemaro Suwa

Essentially entropic lattice Boltzmann model: Theory and simulations *(18 pages)* 055307
Mohammad Atif, Praveen Kumar Kolluru, and Santosh Ansumali

Thermal lattice Boltzmann model for liquid-vapor phase change *(12 pages)* 055308
Lei Wang, Jiangxu Huang, and Kun He

Nonisothermal cellular automata simulation of two-dimensional snow crystal growth *(9 pages)* 055309
X. Y. Xu and W. Wang

(Continued)

This paper was highlighted in the APS publication *Physics* (physics.aps.org).

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 106, NUMBER 5 NOVEMBER 2022

Circulating Marangoni flows within droplets in smectic films *(28 pages)* 055105
E. S. Pikina, M. A. Shishkin, K. S. Kolegov, B. I. Ostrovskii, and S. A. Pikin

Stationary localized solutions in binary convection in slightly inclined rectangular cells *(12 pages)* 055106
Arantxa Alonso, Oriol Batiste, and Isabel Mercader

Finite flame thickness effects on Kolmogorov-Petrovsky-Piskunov turbulent burning velocities *(6 pages)* 055107
Sukruth Somappa, Vishal Acharya, and Tim Lieuwen

Cavity deformation and bubble entrapment during the impact of droplets on a liquid pool *(12 pages)* 055108
Zhigang Xu, Tianyou Wang, and Zhizhao Che

Controlling fluid adhesion force with electric fields *(9 pages)* 055109
Pedro H. A. Anjos, Francisco M. Rocha, and Eduardo O. Dias

Plasma Physics

Multiphase nonlinear electron plasma waves *(11 pages)* 055201
Vadim R. Munirov, Lazar Friedland, and Jonathan S. Wurtele

Injection of electron beams into two laser wakefields and generation of electron rings *(7 pages)* 055202
Q. Chen, Dominika Maslarova, J. Wang, S. Li, and D. Umstadter

High-current space-charge-limited pulses using ultrashort laser pulses *(8 pages)* 055203
Channprit Kaur, Karumudi Rambabu, and Robert Fedosejevs

Hot-electron preheat and mitigation in polar-direct-drive experiments at the National Ignition Facility *(6 pages)* 055204
A. A. Solodov, M. J. Rosenberg, M. Stoeckl, A. R. Christopherson, R. Betti, P. B. Radha, C. Stoeckl, M. Hohenberger, B. Bachmann, R. Epstein, R. K. Follett, W. Seka, J. F. Myatt, P. Michel, S. P. Regan, J. P. Palastro, D. H. Froula, E. M. Campbell, and V. N. Goncharov

Experimental evidence of early-time saturation of the ion-Weibel instability in counterstreaming plasmas of CH, Al, and Cu *(9 pages)* 055205
M. J.-E. Manuel, M. B. P. Adams, S. Ghosh, F. N. Beg, S. Bolaños, C. M. Huntington, R. Jonnalagadda, D. Kawahito, B. B. Pollock, B. A. Remington, J. S. Ross, D. D. Ryutov, H. Sio, G. F. Swadling, P. Tzeferacos, and H.-S. Park

Nonlinear electrostatic ion cyclotron wave collapse and formation of wave packets in the presence of trapped electrons *(7 pages)* 055206
Akash Biswas, Debkumar Chakraborty, and Samiran Ghosh

Detection of current-sheet and bipolar ion flows in a self-generated antiparallel magnetic field of laser-produced plasmas for magnetic reconnection research *(12 pages)* 055207
T. Morita, T. Kojima, S. Matsuo, S. Matsukiyo, S. Isayama, R. Yamazaki, S. J. Tanaka, K. Aihara, Y. Sato, J. Shiota, Y. Pan, K. Tomita, T. Takezaki, Y. Kuramitsu, K. Sakai, S. Egashira, H. Ishihara, O. Kuramoto, Y. Matsumoto, K. Maeda, and Y. Sakawa

Diagnostics of highly charged plasmas with multicomponent 1+ ion injection *(12 pages)* 055208
M. Luntinen, V. Toivanen, H. Koivisto, J. Angot, T. Thuillier, O. Tarvainen, and G. Castro

Minimum stabilizing energy release for mixing processes *(10 pages)* 055209
E. J. Kolmes and N. J. Fisch

(Continued)

This paper was highlighted in the APS publication *Physics* (physics.aps.org).

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 106, NUMBER 5 NOVEMBER 2022

Films and Interfaces

Structure of electrolyte solutions at nonuniformly charged surfaces on a variety of length scales *(11 pages)* 054801
Markus Bier, Maximilian Mußotter, and S. Dietrich

Critical effects and scaling at meniscus osculation transitions *(8 pages)* 054802
Andrew O. Parry, Martin Pospíšil, and Alexandr Malijevský

Theory of the oscillatory instability of a rigid tip scraped over a polymer surface *(11 pages)* 054803
R. Mark Bradley and Patrick D. Shipman

Granular Materials

Gardner-like crossover from variable to persistent force contacts in granular crystals *(6 pages)* 054901
Lars Kool, Patrick Charbonneau, and Karen E. Daniels

Onset and dynamics of avalanches in a rotating cylinder: From experimental data to a geometric model *(10 pages)* 054902
Christopher P. McLaren, Bernhard J. Leistner, Sebastian Pinzello, Eduardo Cano-Pleite, and Christoph R. Müller

Bulk modulus along jamming transition lines of bidisperse granular packings *(13 pages)* 054903
Juan C. Petit, Nishant Kumar, Stefan Luding, and Matthias Sperl

Penetrating a granular medium by successive impacts *(7 pages)* 054904
Antoine Seguin, Yann Bertho, and Baptiste Darbois Texier

Solid Mechanics

Explicit kinematic equations for degree-4 rigid origami vertices, Euclidean and non-Euclidean *(10 pages)* 055001
Riccardo Foschi, Thomas C. Hull, and Jason S. Ku

Controlling the configuration space topology of mechanical structures *(13 pages)* 055002
M. Berry, David Limberg, M. E. Lee-Trimble, Ryan Hayward, and C. D. Santangelo

Rigidity transitions in zero-temperature polygons *(11 pages)* 055003
M. C. Gandikota, Amanda Parker, and J. M. Schwarz

Universal mechanical instabilities in the energy landscape of amorphous solids: Evidence from athermal quasistatic expansion *(8 pages)* 055004
Umang A. Dattani, Smarajit Karmakar, and Pinaki Chaudhuri

Fluid Dynamics

Instability of liquid film flow inside of a vertical tube in presence of an interfacial surfactant *(21 pages)* 055101
Neha Jain, Gaurav Sharma, and Susmita Das

Theoretical model of the Leidenfrost temperature *(13 pages)* 055102
Sergey Gavrilyuk and Henri Gouin

Giant vortex dynamics in confined bacterial turbulence *(6 pages)* 055103
L. Puggioni, G. Boffetta, and S. Musacchio

Spontaneous separation and evaporation mechanism of self-rewetting fluid droplets on chemically stripe-patterned surfaces: A lattice Boltzmann study *(15 pages)* 055104
Yue Yu, Zhuohui Yin, Qing Li, and Shi Tang

(Continued)

This paper was highlighted in the APS publication *Physics* (physics.aps.org).

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 106, NUMBER 5** **NOVEMBER 2022**

Brownian dynamics simulations of hard rods in external fields and with contact interactions *(11 pages)* 054606
Alexander P. Antonov, Sören Schweers, Artem Ryabov, and Philipp Maass

Broken living layers: Dislocations in active smectic liquid crystals *(20 pages)* 054607
Frank Jülicher, Jacques Prost, and John Toner

Flocking in one dimension: Asters and reversals *(16 pages)* 054608
Brieuc Benvegnen, Hugues Chaté, Pavel L. Krapivsky, Julien Tailleur, and Alexandre Solon

Effect of boundaries on displacements and motion in two-dimensional fluid or elastic films and membranes *(10 pages)* 054609
Tyler Lutz, Sonja K. Richter, and Andreas M. Menzel

Active nematic defects in compressible and incompressible flows *(9 pages)* 054610
Supavit Pokawanvit, Zhitao Chen, Zhihong You, Luiza Angheluta, M. Cristina Marchetti, and Mark J. Bowick

Low-frequency vibrational states in ideal glasses with random pinning *(7 pages)* 054611
Kumpei Shiraishi, Yusuke Hara, and Hideyuki Mizuno

Signal propagation and linear response in the delay Vicsek model *(12 pages)* 054612
Daniel Geiß, Klaus Kroy, and Viktor Holubec

Near- and far-field hydrodynamic interaction of two chiral squirmers *(11 pages)* 054613
Ruma Maity and P. S. Burada

Shape matters: Competing mechanisms of particle shape segregation *(7 pages)* 054614
D. Hernández-Delfin, D. R. Tunuguntla, T. Weinhart, R. C. Hidalgo, and A. R. Thornton

Distance-as-time in physical aging *(14 pages)* 054615
Ian M. Douglass and Jeppe C. Dyre

Rheology of periodically sheared suspensions undergoing reversible-irreversible transition *(8 pages)* 054616
Zhouyang Ge and Gwynn J. Elfring

Harvesting information to control nonequilibrium states of active matter *(17 pages)* 054617
Rémi Goerlich, Luís Barbosa Pires, Giovanni Manfredi, Paul-Antoine Hervieux, and Cyriaque Genet

Liquid Crystals

Self-growing nano-liquid-crystal film from dynamic swollen hydrogel substrates *(13 pages)* 054701
Jize Sui

Comparative dielectric and thermally stimulated-depolarization-current studies of the liquid crystal dimers 1″,9″-bis(4-cyanobiphenyl-4′-yl) nonane and heptane and a binary mixture between them, close to the glass transition *(9 pages)* 054702
Jordi Sellarès, José Antonio Diego, David O. López, Josep Salud, Beatriz Robles-Hernández, María Rosario de la Fuente, Juan Carlos Cañadas, Miguel Mudarra, Victor López de Rioja, Rafael Levit, and Sergio Diez-Berart

Electrically driven torsional distortions in twisted nematic films *(7 pages)* 054703
Izabela Ślìwa, Pavel V. Maslennikov, and Alex V. Zakharov

(Continued)

This paper was highlighted in the APS publication *Physics* (physics.aps.org).
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 106, NUMBER 5** **NOVEMBER 2022**

Energetic convenience of cell division in biological tissues *(11 pages)* 054405
Marco Picchi Scardaoni

Stochastic model of translocation of knotted proteins *(6 pages)* 054406
Karol Capała and Piotr Szymczak

Effect of nonlocal grazing on dry-land vegetation dynamics *(13 pages)* 054407
Mrinal Kanti Pal and Swarup Poria

Microtubule organization and cell geometry *(17 pages)* 054408
Panayiotis Foteinopoulos and Bela M. Mulder

Emerging diversity in a population of evolving intransitive dice *(6 pages)* 054409
Julius B. Kirkegaard and Kim Sneppen

Closed-form modeling of neuronal spike train statistics using multivariate Hawkes cumulants *(11 pages)* 054410
Nicolas Privault and Michèle Thieullen

Optimality of intercellular signaling: Direct transport versus diffusion *(16 pages)* 054411
Hyunjoong Kim, Yoichiro Mori, and Joshua B. Plotkin

Tipping points in spatial ecosystems driven by short-range correlated noise *(9 pages)* 054412
Krishnendu Pal, Smita Deb, and Partha Sharathi Dutta

Picking winners in cell-cell collisions: Wetting, speed, and contact *(21 pages)* 054413
Pedrom Zadeh and Brian A. Camley

Polymers

Conformation and dynamics of a tethered active polymer chain *(9 pages)* 054501
Chao Wang, Yanli Zhou, Xiao Yang, Yingcai Chen, Yifan Shen, and Mengbo Luo

Topology-driven spatial organization of ring polymers under confinement *(22 pages)* 054502
Debarshi Mitra, Shreerang Pande, and Apratim Chatterji

Colloids, Complex Fluids, and Active Matter

Evidence for growing structural correlation length in colloidal supercooled liquids *(5 pages)* 054601
Jiankai Hu, Luhui Ning, Rui Liu, Mingcheng Yang, and Ke Chen

Nonequilibrium dynamical structure factor of a dilute suspension of active particles in a viscoelastic fluid *(12 pages)* 054602
Juan Ruben Gomez-Solano, Rosalío F. Rodríguez, and Elizabeth Salinas-Rodríguez

Densest plane group packings of regular polygons *(11 pages)* 054603
Miloslav Torda, John Y. Goulermas, Vitaliy Kurlin, and Graeme M. Day

Structure of saturated random-sequential-adsorption ellipse packings *(7 pages)* 054604
Pedro Abritta and Robert S. Hoy

Sound attenuation in two-dimensional glasses at finite temperatures *(9 pages)* 054605
Licun Fu and Lijin Wang

(Continued)

This paper was highlighted in the APS publication *Physics* (physics.aps.org).
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 106, NUMBER 5 NOVEMBER 2022

Free-energy density functional for Strauss's model of transitive networks *(12 pages)* 054305
Diego Escribano and José A. Cuesta

Statistical physics of the development of Kerner's synchronized-to-free-flow instability at a moving bottleneck in vehicular traffic *(21 pages)* 054306
Vincent Wiering, Sergey L. Klenov, Boris S. Kerner, and Michael Schreckenberg

Local and global ordering dynamics in multistate voter models *(17 pages)* 054307
Lucía Ramirez, Maxi San Miguel, and Tobias Galla

Entropy of labeled versus unlabeled networks *(11 pages)* 054308
Jeremy Paton, Harrison Hartle, Huck Stepanyants, Pim van der Hoorn, and Dmitri Krioukov

Indirect transmission and disinfection strategies on heterogeneous networks *(12 pages)* 054309
Su Zhong, Xiaoqun Wu, Yanting Li, and Congying Liu

Finite-size scaling of human-population distributions over fixed-size cells and its relation to fractal spatial structure *(9 pages)* 054310
Álvaro Corral and Montserrat García del Muro

Nonequilibrium dynamics in a three-state opinion-formation model with stochastic extreme switches *(9 pages)* 054311
Kathakali Biswas and Parongama Sen

Mean-field models of dynamics on networks via moment closure: An automated procedure *(25 pages)* 054312
Bert Wuyts and Jan Sieber

Finite-size correlation behavior near a critical point: A simple metric for monitoring the state of a neural network *(8 pages)* 054313
Eyisto J. Aguilar Trejo, Daniel A. Martin, Dulara De Zoysa, Zac Bowen, Tomas S. Grigera, Sergio A. Cannas, Wolfgang Losert, and Dante R. Chialvo

Feature-enriched core percolation in multiplex networks *(8 pages)* 054314
Yilun Shang

PART B

Biological Physics

Prevalence of mutualism in a simple model of microbial coevolution *(12 pages)* 054401
Luciano Stucchi, Javier Galeano, Juan Manuel Pastor, Jose María Iriondo, and José A. Cuesta

Vector-borne diseases with nonstationary vector populations: The case of growing and decaying populations *(11 pages)* 054402
Àlex Giménez-Romero, Rosa Flaquer-Galmés, and Manuel A. Matías

Using transcription-based detectors to emulate the behavior of sequential probability ratio-based concentration detectors *(9 pages)* 054403
Chun Tung Chou

Nonequilibrium dynamics of adaptation in sensory systems *(17 pages)* 054404
Daniele Conti and Thierry Mora

(Continued)

This paper was highlighted in the APS publication *Physics* (physics.aps.org).
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 106, NUMBER 5** **NOVEMBER 2022**

Phase space analysis of nonlinear wave propagation in a bistable mechanical metamaterial with a defect *(15 pages)* 054204
Mohammed A. Mohammed and Piyush Grover

Nonlinear beam tapering and two-dimensional ring solitons *(7 pages)* 054205
V. K. Mezentsev, E. Podivilov, I. A. Vaseva, M. P. Fedoruk, A. M. Rubenchik, and S. K. Turitsyn

Diffusion-controlled annihilation $A + B \rightarrow 0$: Coalescence, fragmentation, and collapse of nonidentical *A*-particle islands submerged in the *B*-particle sea *(20 pages)* 054206
Boris M. Shipilevsky

Domain walls in fractional media *(10 pages)* 054207
Shatrughna Kumar, Pengfei Li, and Boris A. Malomed

Diverse coherence-resonance chimeras in coupled type-I excitable systems *(7 pages)* 054208
Taniya Khatun, Biswabibek Bandyopadhyay, and Tanmoy Banerjee

Nonlinear Schrödinger equations with amplitude-dependent Wadati potentials *(7 pages)* 054209
Dmitry A. Zezyulin

Effect of mobility on collective phase dynamics of nonlocally coupled oscillators with a phase lag *(7 pages)* 054210
Bojun Li and Nariya Uchida

Pattern of inclusions inside rippled icicles *(10 pages)* 054211
John Ladan and Stephen W. Morris

Synchronization in the network-frustrated coupled oscillator with attractive-repulsive frequencies *(9 pages)* 054212
Benmesbah Yasmine, Yongge Li, Wantao Jia, and Yong Xu

Vortex chaoticons in thermal nonlocal nonlinear media *(6 pages)* 054214
Qing Wang, Milivoj R. Belić, Dumitru Mihalache, Liangwei Zeng, Lingling Zhang, and Ji Lin

Eigenfunction and eigenmode-spacing statistics in chaotic photonic crystal graphs *(9 pages)* 054215
Shukai Ma, Thomas M. Antonsen, and Steven M. Anlage

How clock heterogeneity affects synchronization and can enhance stability *(14 pages)* 054216
Nirmal Punetha and Lucas Wetzel

Networks and Complex Systems

Role extraction for digraphs via neighborhood pattern similarity *(11 pages)* 054301
Giovanni Barbarino, Vanni Noferini, and Paul Van Dooren

Planted matching problems on random hypergraphs *(12 pages)* 054302
Urte Adomaityte, Anshul Toshniwal, Gabriele Sicuro, and Lenka Zdeborová

Detecting hyperbolic geometry in networks: Why triangles are not enough *(11 pages)* 054303
Riccardo Michielan, Nelly Litvak, and Clara Stegehuis

Mesoscopic architecture enhances communication across the macaque connectome revealing structure-function correspondence in the brain *(20 pages)* 054304
Anand Pathak, Shakti N. Menon, and Sitabhra Sinha

(Continued)

This paper was highlighted in the APS publication *Physics* (physics.aps.org).

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 106, NUMBER 5** **NOVEMBER 2022**

Driven particle in a one-dimensional periodic potential with feedback control: Efficiency and power optimization *(10 pages)* 054146
Kiran V. and Toby Joseph

Lévy walkers inside spherical shells with absorbing boundaries: Towards settling the optimal Lévy walk strategy for random searches *(9 pages)* 054147
L. G. P. Caramês, Y. B. Matos, F. Bartumeus, C. G. Bezerra, T. Macrì, M. G. E. da Luz, E. P. Raposo, and G. M. Viswanathan

Typical perturbation theory: Conditions, accuracy, and comparison with a mesoscopic case *(11 pages)* 054148
Mats H. Lamann and Jochen Gemmer

Ordering through learning in two-dimensional Ising spins *(6 pages)* 054149
Pranay Bimal Sampat, Ananya Verma, Riya Gupta, and Shradha Mishra

Quantum mechanical interpretation of the minimum viscosity of metallic liquids *(8 pages)* 054150
A. K. Gangopadhyay, Z. Nussinov, and K. F. Kelton

Stochastic paths controlling speed and dissipation *(8 pages)* 054151
Rebecca A. Bone, Daniel J. Sharpe, David J. Wales, and Jason R. Green

Semi-Markov processes in open quantum systems: Connections and applications in counting statistics *(13 pages)* 054152
Fei Liu

Molecular dynamics simulations of binary sphere mixtures *(10 pages)* 054153
Joseph M. Monti and Gary S. Grest

Vortex motion and nonlinear response in coupled noisy phase oscillator lattices under shear stress *(8 pages)* 054154
Hidetsugu Sakaguchi

Noisy voter model: Explicit expressions for finite system size *(9 pages)* 054155
Florencia Perachia, P. Román, and Silvia A. Menchón

Memristive Ising circuits *(6 pages)* 054156
Vincent J. Dowling and Yuriy V. Pershin

From generalized Langevin stochastic dynamics to anomalous diffusion *(8 pages)* 054157
Rogelma M. S. Ferreira

Condensation induced by coupled transport processes *(8 pages)* 054158
Gabriele Gotti, Stefano Iubini, and Paolo Politi

Nonlinear Dynamics and Chaos

Modulational instability in nonlinear saturable media with competing nonlocal nonlinearity *(12 pages)* 054201
Conrad Bertrand Tabi, Hippolyte Tagwo, and Timoléon Crépin Kofané

Spherical wedge billiard: From chaos to fractals and Talbot carpets *(7 pages)* 054202
Tomáš Tyc and Darek Cidlinský

Phenomenology of quantum eigenstates in mixed-type systems: Lemon billiards with complex phase space structure *(15 pages)* 054203
Črt Lozej, Dragan Lukman, and Marko Robnik

(Continued)

This paper was highlighted in the APS publication *Physics* (physics.aps.org).
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 106, NUMBER 5** **NOVEMBER 2022**

Statistical mechanics of phase transitions in elastic media with vanishing thermal expansion *(26 pages)* 054128
Sudip Mukherjee and Abhik Basu

Most general class of quasiprobability distributions of work *(5 pages)* 054129
Gianluca Francica

Liquid-hexatic-solid phases in active and passive Brownian particles determined by stochastic birth and death events *(9 pages)* 054130
Alejandro Almodóvar, Tobias Galla, and Cristóbal López

Work extraction from single-mode thermal noise by measurements: How important is information? *(17 pages)* . . . 054131
Avijit Misra, Tomáš Opatrný, and Gershon Kurizki

Entropic exponents of grafted lattice stars *(9 pages)* 054132
E. J. Janse van Rensburg

Exact position distribution of a harmonically confined run-and-tumble particle in two dimensions *(14 pages)* 054133
Naftali R. Smith, Pierre Le Doussal, Satya N. Majumdar, and Grégory Schehr

Topological origin of the protein folding transition *(14 pages)* 054134
Loris Di Cairano, Riccardo Capelli, Ghofrane Bel-Hadj-Aissa, and Marco Pettini

Density matrix formulation of dynamical systems *(10 pages)* 054135
Swetamber Das and Jason R. Green

Renormalization group study of marginal ferromagnetism *(12 pages)* 054136
Andrea Cavagna, Antonio Culla, and Tomás S. Grigera

Entropy rate of random walks on complex networks under stochastic resetting *(8 pages)* 054137
Yating Wang and Hanshuang Chen

Size-independent scaling analysis for explosive percolation *(8 pages)* 054138
Kenta Hagiwara and Yukiyasu Ozeki

Reduced critical slowing down for statistical physics simulations *(14 pages)* 054139
Kurt Langfeld, Pavel Buividovich, P. E. L. Rakow, and James Roscoe

Tricritical behavior in a neural model with excitatory and inhibitory units *(7 pages)* 054140
Joaquin Almeira, Tomas S. Grigera, Dante R. Chialvo, and Sergio A. Cannas

Phase boundaries and the Widom line from the Ruppeiner geometry of fluids *(14 pages)* 054141
Karlo de Leon and Ian Vega

Anatomy of an extreme event: What can we infer about the history of a heavy-tailed random walk? *(8 pages)* 054142
Wesley W. Erickson and Daniel A. Steck

Dynamic phase transitions on the kagome Ising ferromagnet *(7 pages)* 054143
Zeynep Demir Vatansever

Ground-state energy distribution of disordered many-body quantum systems *(8 pages)* 054144
Wouter Buijsman, Talía L. M. Lezama, Tamar Leiser, and Lea F. Santos

Perturbative steady states of completely positive quantum master equations *(13 pages)* 054145
Jae Sung Lee and Joonhyun Yeo

(Continued)

This paper was highlighted in the APS publication *Physics* (physics.aps.org).

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 106, NUMBER 5** **NOVEMBER 2022**

Residual entropy of the dilute Ising chain in a magnetic field *(9 pages)* 054111
Yury Panov

Impurity reveals distinct operational phases in quantum thermodynamic cycles *(15 pages)* 054112
Aditya Prakash, Abhishek Kumar, and Colin Benjamin

Experimental verification of arcsine laws in mesoscopic nonequilibrium systems *(12 pages)* 054113
Raunak Dey, Avijit Kundu, Biswajit Das, and Ayan Banerjee

Heat transport and rectification via quantum statistical and coherence asymmetries *(10 pages)* 054114
Stephania Palafox, Ricardo Román-Ancheyta, Barış Çakmak, and Özgür E. Müstecaplıoğlu

Planted XY model: Thermodynamics and inference *(24 pages)* 054115
Siyu Chen, Guanhao Huang, Giovanni Piccioli, and Lenka Zdeborová

Diffusion with partial resetting *(13 pages)* 054116
Ofir Tal-Friedman, Yael Roichman, and Shlomi Reuveni

Brownian ratchet for directional nanoparticle transport by repetitive stretch-relaxation of DNA *(9 pages)* 054117
Inrok Oh, Jeongeun Song, Hye Ree Hyun, Sang Hak Lee, and Jun Soo Kim

Nonequilibrium steady state for harmonically confined active particles *(13 pages)* 054118
Naftali R. Smith and Oded Farago

Quantum enhancement of a single quantum battery by repeated interactions with large spins *(9 pages)* 054119
P. Chen, T. S. Yin, Z. Q. Jiang, and G. R. Jin

Thermodynamics and criticality of su(m) spin chains of Haldane-Shastry type *(11 pages)* 054120
Federico Finkel and Artemio González-López

Statistics of extreme turbulent circulation events from multifractality breaking *(8 pages)* 054121
L. Moriconi and R. M. Pereira

Shortcuts to adiabaticity for Lévy processes in harmonic traps *(14 pages)* 054122
Marco Baldovin, David Guéry-Odelin, and Emmanuel Trizac

Kinetic theory of one-dimensional inhomogeneous long-range interacting N-body systems at order $1/N^2$ without collective effects *(8 pages)* 054123
Jean-Baptiste Fouvry

Random matrix analysis of deep neural network weight matrices *(15 pages)* 054124
Matthias Thamm, Max Staats, and Bernd Rosenow

Continuum mechanics of nonideal crystals: Microscopic approach based on projection-operator formalism *(23 pages)* 054125
Florian Miserez, Saswati Ganguly, Rudolf Haussmann, and Matthias Fuchs

Unitary evolution for a two-level quantum system in fractional-time scenario *(11 pages)* 054126
D. Cius, L. Menon, Jr., M. A. F. dos Santos, A. S. M. de Castro, and Fabiano M. Andrade

Wave transmission and its universal fluctuations in one-dimensional systems with Lévy-like disorder: Schrödinger, Klein-Gordon, and Dirac equations *(9 pages)* 054127
Anderson L. R. Barbosa, Jonas R. F. Lima, and Luiz Felipe C. Pereira

(Continued)

This paper was highlighted in the APS publication *Physics* (physics.aps.org).
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 106, NUMBER 5 NOVEMBER 2022

Granular Materials

Secondary flow in ensembles of nonconvex granular particles under shear *(6 pages)* L052901
Mahdieh Mohammadi, Dmitry Puzyrev, Torsten Trittel, and Ralf Stannarius

Emergent power-law interactions in near-crystalline membranes *(6 pages)* L052902
Pappu Acharya, Debankur Das, Surajit Sengupta, and Kabir Ramola

High-energy velocity tails in uniformly heated granular materials *(5 pages)* L052903
Yangrui Chen and Jie Zhang

Plasma Physics

Measurements of ion-electron energy-transfer cross section in high-energy-density plasmas *(6 pages)* L053201
P. J. Adrian, R. Florido, P. E. Grabowski, R. Mancini, B. Bachmann, L. X. Benedict, M. Gatu Johnson, N. Kabadi, B. Lahmann, C. K. Li, R. D. Petrasso, H. G. Rinderknecht, S. P. Regan, F. H. Séguin, R. L. Singleton, Jr., H. Sio, G. D. Sutcliffe, H. D. Whitley, and J. A. Frenje

ARTICLES

Statistical Physics

Closest-vector problem and the zero-temperature p-spin landscape for lossy compression *(24 pages)* 054101
Alfredo Braunstein, Louise Budzynski, Stefano Crotti, and Federico Ricci-Tersenghi

Geometric quantum thermodynamics *(15 pages)* 054102
Fabio Anza and James P. Crutchfield

From random walks on networks to nonlinear diffusion *(12 pages)* 054103
Carles Falcó

Characteristic quantum phase in Heisenberg antiferromagnetic chain with exchange and single-ion anisotropies *(10 pages)* 054104
Yan-Wei Dai, Xi-Jing Liu, Sheng-Hao Li, and Ai-Min Chen

Incompleteness of the large-N analysis of the $O(N)$ models: Nonperturbative cuspy fixed points and their nontrivial homotopy at finite N *(29 pages)* 054105
S. Yabunaka, C. Fleming, and B. Delamotte

Local orderings in the melting process of a square crystal and in the resulting liquid *(10 pages)* 054106
E. O. Lima, P. C. N. Pereira, and S. W. S. Apolinario

Environment-mediated entropic uncertainty in charging quantum batteries *(8 pages)* 054107
Meng-Long Song, Li-Juan Li, Xue-Ke Song, Liu Ye, and Dong Wang

Optimizing Brownian heat engine with shortcut strategy *(12 pages)* 054108
Jin-Fu Chen

Coarse graining in time with the functional renormalization group: Relaxation in Brownian motion *(23 pages)* . . . 054109
Ashley Wilkins, Gerasimos Rigopoulos, and Enrico Masoero

Time to reach the maximum for a stationary stochastic process *(40 pages)* 054110
Francesco Mori, Satya N. Majumdar, and Grégory Schehr

(Continued)

This paper was highlighted in the APS publication *Physics* (physics.aps.org).

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 106, NUMBER 5
PARTS A AND B

CONTENTS

NOVEMBER 2022

The Table of Contents is a total listing of Parts A and B.
Part A consists of pages 050001–054314, and Part B pages 054401–055312.

PART A

EDITORIALS AND ANNOUNCEMENTS

Editorials and Announcements

Editorial: First Annual APS DSOFT Gallery of Soft Matter *(4 pages)* 050001
Olga Shishkov, Arielle Blonder, Savannah Gowen, Trevor J. Jones, Manon Jouanlanne, Qing Zhang, Emanuela Del Gado, and Irmgard Bischofberger

LETTERS

Statistical Physics

Sequence of phase transitions in a model of interacting rods *(6 pages)* L052101
Juliane U. Klamser, Tridib Sadhu, and Deepak Dhar

Stiffening or softening of elastic media: Anomalous elasticity near phase transitions *(6 pages)* L052102
Sudip Mukherjee and Abhik Basu

Nonlinear Dynamics and Chaos

Heterogeneity-induced synchronization in delay-coupled electronic oscillators *(6 pages)* L052201
Nirmal Punetha and Lucas Wetzel

Colloids, Complex Fluids, and Active Matter

Universal scaling for disordered viscoelastic matter near the onset of rigidity *(7 pages)* L052601
Danilo B. Liarte, Stephen J. Thornton, Eric Schwen, Itai Cohen, Debanjan Chowdhury, and James P. Sethna

Fitting an active Brownian particle's mean-squared displacement with improved parameter estimation *(7 pages)* L052602
Maximilian R. Bailey, Alexander R. Sprenger, Fabio Grillo, Hartmut Löwen, and Lucio Isa

Films and Interfaces

Universal fast mode regime in wetting kinetics *(6 pages)* L052801
Syed Shuja Hasan Zaidi, Prabhat K. Jaiswal, Madhu Priya, and Sanjay Puri

(Continued)

2470-0045(202211)106:5:B;1-1

This paper was highlighted in the APS publication *Physics* (physics.aps.org).

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).