PHYSICAL REVIEW E **THIRD SERIES, VOLUME 109, NUMBER 4** **APRIL 2024**

Computational Physics

Hybrid lattice-Boltzmann–finite-difference approach for the simulation of micro-phase-change-material slurry in convective flow *(21 pages)* 045301
Anas Ghannam, Eiyad Abu-Nada, and Anas Alazzam

Auto-ejection of liquid from a nozzle *(22 pages)* 045302
Fang Shan, Zhenhua Chai, and Baochang Shi

Klein-Gordon equation on a Lagrange mesh *(7 pages)* 045303
Daniel Baye

Metastable and unstable hydrodynamics in multiphase lattice Boltzmann *(11 pages)* 045304
Matteo Lulli, Luca Biferale, Giacomo Falcucci, Mauro Sbragaglia, Dong Yang, and Xiaowen Shan

Corner transfer matrix renormalization group approach in the zoo of Archimedean lattices *(26 pages)* 045305
I. V. Lukin and A. G. Sotnikov

Blume-Capel model analysis with a microcanonical population annealing method *(9 pages)* 045306
Vyacheslav Mozolenko and Lev Shchur

Implementation of contact line motion based on the phase-field lattice Boltzmann method *(15 pages)* 045307
Long Ju, Zhaoli Guo, Bicheng Yan, and Shuyu Sun

Reduced dimensional Monte Carlo method: Preliminary integrations *(24 pages)* 045308
Jarod Tall and Steven Tomsovic

ERRATA

Erratum: Improving the feasibility of economical proton-boron-11 fusion via alpha channeling with a hybrid fast and thermal proton scheme [Phys. Rev. E **106**, 055215 (2022)] *(1 page)* . . . . . 049901(E)
Ian E. Ochs, Elijah J. Kolmes, Mikhail E. Mlodik, Tal Rubin, and Nathaniel J. Fisch

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 109, NUMBER 4** **APRIL 2024**

Extremely large water droplet impact onto a deep liquid pool *(10 pages)* 045107
Sandip Dighe, Dilip Kumar Maity, Jeffrey N. Fonnesbeck, Som Dutta, and Tadd Truscott

Iterative methods for Navier-Stokes inverse problems *(13 pages)* 045108
Liam O'Connor, Daniel Lecoanet, Evan H. Anders, Kyle C. Augustson, Keaton J. Burns, Geoffrey M. Vasil, Jeffrey S. Oishi, and Benjamin P. Brown

Induced-charge electrophoresis of a tilted metal nanowire near an insulating wall *(9 pages)* 045109
Jose Eladio Flores-Mena, Pablo García-Sánchez, and Antonio Ramos

Plasma Physics

Mutual interactions between plasma filaments in a tokamak evidenced by fast imaging and machine learning *(10 pages)* 045201
Sarah Chouchene, Frédéric Brochard, Nicolas Lemoine, Jordan Cavalier, Mikael Desecures, and Vladimir Weinzettl

Inclusive curvaturelike framework for describing dissipation: Metriplectic 4-bracket dynamics *(22 pages)* 045202
Philip J. Morrison and Michael H. Updike

State-resolved modeling of electronic excitation in weakly ionized oxygen mixtures *(24 pages)* 045203
Timothy T. Aiken and Iain D. Boyd

Dielectronic satellite emission from a solid-density Mg plasma: Relationship to models of ionization potential depression *(11 pages)* 045204
G. Pérez-Callejo, T. Gawne, T. R. Preston, P. Hollebon, O. S. Humphries, H.-K. Chung, G. L. Dakovski, J. Krzywinski, M. P. Minitti, T. Burian, J. Chalupský, V. Hájková, L. Juha, V. Vozda, U. Zastrau, S. M. Vinko, S. J. Rose, and J. S. Wark

Mechanism studies for relativistic attosecond electron bunches from laser-illuminated nanotargets *(11 pages)* 045205
F. Tan, S. Y. Wang, Y. X. Zhang, Z. M. Zhang, B. Zhu, Y. C. Wu, M. H. Yu, Y. Yang, G. li, T. K. Zhang, Y. H. Yan, F. Lu, W. Fan, W. M. Zhou, Y. Q. Gu, and B. Qiao

Deceleration of fast ion rarefied beam due to Cherenkov interaction with ion-acoustic waves *(7 pages)* 045206
A. A. Shelkovoy and S. A. Uryupin

Numerical investigation of nonequilibrium electron effects on the collisional ionization rate in the collisional-radiative model *(8 pages)* 045207
M. S. Cho, H.-K. Chung, M. E. Foord, S. B. Libby, and B. I. Cho

Nonlocal contributions to the turbulent cascade in magnetohydrodynamic plasmas *(13 pages)* 045208
J. Friedrich, M. Wilbert, and R. Marino

Validation of implosion modeling through direct-drive shock timing experiments at the National Ignition Facility *(8 pages)* 045209
A. Srinivasan, T. R. Boehly, M. C. Marshall, D. N. Polsin, P. B. Radha, M. J. Rosenberg, A. Shvydky, D. Cao, V. N. Goncharov, S. X. Hu, J. Marozas, S. Miller, S. P. Regan, P. M. Celliers, D. E. Fratanduono, and M. Hohenberger

Nonideal effects on ionization potential depression and ionization balance in dense Al and Au plasmas *(15 pages)* 045210
Yihua Huang, Zhenhao Liang, Jiaolong Zeng, and Jianmin Yuan

(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 109, NUMBER 4 APRIL 2024

Granular Materials

Spectral holographic trapping: Creating dynamic force landscapes with polyphonic waves *(7 pages)* 044901
Mia C. Morrell, Julianne E. Lee, and David G. Grier

Dynamic screening by plasticity in amorphous solids *(9 pages)* 044902
H. George E. Hentschel, Anna Pomyalov, Itamar Procaccia, and Oran Szachter

Universal stress correlations in crystalline and amorphous packings *(7 pages)* 044903
Roshan Maharana, Debankur Das, Pinaki Chaudhuri, and Kabir Ramola

Estimating angoricity and granular equations of state for monodisperse packings of frictional hard spheres in a wide range of densities *(15 pages)* 044904
Vasili Baranau and Ulrich Tallarek

Reversible, irreversible, and mixed regimes for periodically driven disks in random obstacle arrays *(9 pages)* 044905
D. Minogue, M. R. Eskildsen, C. Reichhardt, and C. J. O. Reichhardt

Experimental observation and pressure drop modeling of plug formation in horizontal millifluidic hydraulic conveying *(8 pages)* 044906
Marc Fischer, Etienne Gagnepain, and Guillaume Dumazer

Particle fracture regimes from impact simulations *(12 pages)* 044907
Duc Chung Vu, Lhassan Amarsid, Jean-Yves Delenne, Vincent Richefeu, and Farhang Radjai

Geometric cohesion in two-dimensional systems composed of star-shaped particles *(11 pages)* 044908
David Aponte, Nicolas Estrada, Jonathan Barés, Mathieu Renouf, and Emilien Azéma

Solid Mechanics

Indentation of an elastic arch on a frictional substrate: Pinning, unfolding, and snapping *(8 pages)* 045001
Keisuke Yoshida and Hirofumi Wada

Fluid Dynamics

Connecting finite-time Lyapunov exponents with supersaturation and droplet dynamics in a turbulent bulk flow *(14 pages)* 045101
Vladyslav Pushenko and Jörg Schumacher

Optimal external forces of the lock-in phenomena for flow past an inclined plate in uniform flow *(15 pages)* 045102
Makoto Iima

Breaking the symmetry of a wavy channel alters the route to chaotic flow *(14 pages)* 045103
Mohammad Hossein Doranehgard, Nader Karimi, Iman Borazjani, and Larry K. B. Li

Microscopic self-dynamics in liquid Ne-D_2 mixtures: Quantum features and itinerant oscillators reexamined *(18 pages)* 045104
Daniele Colognesi, Ubaldo Bafile, Eleonora Guarini, and Martin Neumann

Turbulence spreading by resonant wave-wave interactions: A fractional kinetics approach *(18 pages)* 045105
Alexander V. Milovanov and Jens Juul Rasmussen

Vortex polarization and circulation statistics in isotropic turbulence *(7 pages)* 045106
L. Moriconi, R. M. Pereira, and V. J. Valadão

(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 109, NUMBER 4** **APRIL 2024**

Effect of loops on the mean-square displacement of Rouse-model chromatin *(22 pages)* 044502
Tianyu Yuan, Hao Yan, Mary Lou P. Bailey, Jessica F. Williams, Ivan Surovtsev, Megan C. King, and Simon G. J. Mochrie

Colloids, Complex Fluids, and Active Matter

Superparamagnetic effects in the linear magnetic response of polydisperse ensembles of nanoparticles suspended in a fluid *(17 pages)* 044601
I. S. Poperechny

Wrinkling instabilities of swelling hydrogels *(17 pages)* 044602
Joseph J. Webber and M. Grae Worster

Solvable model of driven matter with pinning *(13 pages)* 044603
Gourab Kumar Sar, Dibakar Ghosh, and Kevin O'Keeffe

Homogeneous crystallization in four-dimensional Lennard-Jones liquids *(8 pages)* 044604
Robert S. Hoy

Emergent gauge symmetry in active Brownian matter *(14 pages)* 044605
Nathan Silvano and Daniel G. Barci

Liquid Crystals

Anchoring-mediated stick-slip winding of cholesteric liquid crystals *(8 pages)* 044701
Weichao Zheng

Structural parameters of twist-bend nematics and splay-bend nematics in Dozov's theory *(10 pages)* 044702
Michał Szmigielski and Mariola Buczkowska

Energy dissipation mechanism of annihilating reverse tilt domains for various applied voltages *(8 pages)* 044703
Takuya Yanagimachi

Features of director reorientation in a thin nematic film under the influence of crossed electric and magnetic fields *(7 pages)* 044704
Izabela Śliwa, Pavel V. Maslennikov, and Alex V. Zakharov

Modeling of a light-fueled self-paddling boat with a liquid crystal elastomer-based motor *(11 pages)* 044705
Haiyang Wu, Chongfeng Zhao, Yuntong Dai, and Kai Li

Films and Interfaces

Periodical alternation between precipitation and dissolution of camphor solid film on an ethanol solution *(8 pages)* 044801
Yuhei Onishi, Hiroyuki Kitahata, and Nobuhiko J. Suematsu

Plastic instability of annular crystalline membrane in circular confinement *(7 pages)* 044802
Honghui Sun and Zhenwei Yao

Memristive arrangements of nanofluidic pores *(8 pages)* 044803
Patricio Ramirez, Sergio Portillo, Javier Cervera, Juan Bisquert, and Salvador Mafe

(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 109, NUMBER 4** **APRIL 2024**

Information geometric bound on general chemical reaction networks *(12 pages)* 044308
Tsuyoshi Mizohata, Tetsuya J. Kobayashi, Louis-S. Bouchard, and Hideyuki Miyahara

Meta predictive learning model of languages in neural circuits *(14 pages)* 044309
Chan Li, Junbin Qiu, and Haiping Huang

Socioeconomic agents as active matter in nonequilibrium Sakoda-Schelling models *(18 pages)* 044310
Ruben Zakine, Jérôme Garnier-Brun, Antoine-Cyrus Becharat, and Michael Benzaquen

Regulation of phonon localization on thermal transport in complex networks *(9 pages)* 044311
Kezhao Xiong, Yuqi Liu, Man Zhou, Hang Dong, and Zhengxin Yan

Dynamical phase transitions in graph cellular automata *(19 pages)* 044312
Freya Behrens, Barbora Hudcová, and Lenka Zdeborová

Turbulence hierarchy in foreign exchange markets *(9 pages)* 044313
Giovani L. Vasconcelos, Lucas R. C. Ribeiro, Antônio M. S. Macêdo, Iván R. R. González, Raydonal Ospina, and Arthur A. Brum

Cluster formation due to repulsive spanning trees in attractively coupled networks *(17 pages)* 044314
Sayantan Nag Chowdhury, Md Sayeed Anwar, and Dibakar Ghosh

Localization transition in non-Hermitian systems depending on reciprocity and hopping asymmetry *(14 pages)* 044315
Daniil Kochergin, Vasilii Tiselko, and Arsenii Onuchin

Biological Physics

Energy condensation and dipole alignment in protein dynamics *(17 pages)* 044401
Alexander Tenenbaum

Subconductance states in a semimicroscopic model for a tetrameric pore *(12 pages)* 044402
L. Ramírez–Piscina and J. M. Sancho

Stability of a biomembrane tube covered with proteins *(15 pages)* 044403
Mathijs Janssen, Susanne Liese, Sami C. Al-Izzi, and Andreas Carlson

Statistically inferred neuronal connections in subsampled neural networks strongly correlate with spike train covariances *(22 pages)* 044404
Tong Liang and Braden A. W. Brinkman

Role of tumbling in bacterial scattering at convex obstacles *(8 pages)* 044405
Theresa Jakuszeit and Ottavio A. Croze

Effect of the degree of an initial mutant in Moran processes in structured populations *(11 pages)* 044406
Javad Mohamadichamgavi and Jacek Miękisz

How mutation accumulation depends on the structure of the cell lineage tree *(7 pages)* 044407
Imre Derényi, Márton C. Demeter, Mario Pérez-Jiménez, Dániel Grajzel, and Gergely J. Szöllősi

Polymers

Statistical field theory of polarizable polymer chains with nonlocal dipolar interactions *(11 pages)* 044501
Pratik Khandagale, Carlos Garcia-Cervera, Gal deBotton, Timothy Breitzman, Carmel Majidi, and Kaushik Dayal

(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 109, NUMBER 4** **APRIL 2024**

Bifurcation delay and front propagation in the real Ginzburg-Landau equation on a time-dependent domain *(21 pages)* 044210
Troy Tsubota, Chang Liu, Benjamin Foster, and Edgar Knobloch

Noise-induced excitation wave and its size distribution in coupled FitzHugh-Nagumo equations on a square lattice *(8 pages)* 044211
Hidetsugu Sakaguchi

Exotic swarming dynamics of high-dimensional swarmalators *(12 pages)* 044212
Akash Yadav, Krishnanand J, V. K. Chandrasekar, Wei Zou, Jürgen Kurths, and D. V. Senthilkumar

Master stability functions of networks of Izhikevich neurons *(13 pages)* 044213
Raul P. Aristides and Hilda A. Cerdeira

Using reservoir computing to construct scarred wave functions *(11 pages)* 044214
L. Domingo, J. Borondo, and F. Borondo

High-order rogue wave and mixed interaction patterns for the three-component Gross-Pitaevskii equations in $F = 1$ spinor Bose-Einstein condensates *(15 pages)* 044215
Xiao-Yong Wen, Zhe Lin, and Deng-Shan Wang

Multiple resonance in coupled Duffing oscillators and nonlinear normal modes *(10 pages)* 044216
Rosty B. Martinez Duque and Carlos E. Vásquez Romero

PART B

Networks and Complex Systems

Dissimilarity between synchronization processes on networks *(13 pages)* 044301
Alejandro P. Riascos

Predicting network congestion by extending betweenness centrality to interacting agents *(9 pages)* 044302
Marco Cogoni and Giovanni Busonera

Coarse graining and criticality in the human connectome *(11 pages)* 044303
Youssef Kora and Christoph Simon

Effect of constraint relaxation on the minimum vertex cover problem in random graphs *(18 pages)* 044304
Aki Dote and Koji Hukushima

Human learning of hierarchical graphs *(21 pages)* 044305
Xiaohuan Xia, Andrei A. Klishin, Jennifer Stiso, Christopher W. Lynn, Ari E. Kahn, Lorenzo Caciagli, and Dani S. Bassett

Critical properties of Heider balance on multiplex networks *(15 pages)* 044306
Krishnadas Mohandas, Krzysztof Suchecki, and Janusz A. Hołyst

Stochastic modeling of cascade dynamics: A unified approach for simple and complex contagions across homogeneous and heterogeneous threshold distributions on networks *(9 pages)* 044307
Fabian Tschofenig, Daniel Reisinger, Georg Jäger, Marie Lisa Kogler, Raven Adam, and Manfred Füllsack

(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 109, NUMBER 4** **APRIL 2024**

Lévy flights and Lévy walks under stochastic resetting *(9 pages)* 044147
Bartosz Żbik and Bartłomiej Dybiec

Aging following a zero-temperature quench in the $d = 3$ Ising model *(8 pages)* 044148
Denis Gessert, Henrik Christiansen, and Wolfhard Janke

Mpemba meets Newton: Exploring the Mpemba and Kovacs effects in the time-delayed cooling law *(13 pages)* 044149
Andrés Santos

Occupation time of a system of Brownian particles on the line with steplike initial condition *(18 pages)* 044150
Ivan N. Burenev, Satya N. Majumdar, and Alberto Rosso

Large-W limit of the knapsack problem *(19 pages)* 044151
Mobolaji Williams

Percolation of straight slots on a square grid *(6 pages)* 044152
Alexander S. Balankin, M. A. Martinez-Cruz, F. J. Dorantes Benavidez, and Baltasar Mena

Nonlinear Dynamics and Chaos

Random matrix model of Kolmogorov-Zakharov turbulence *(10 pages)* 044201
Klaus M. Frahm and Dima L. Shepelyansky

Data-driven dimensionality reduction and causal inference for spatiotemporal climate fields *(21 pages)* 044202
Fabrizio Falasca, Pavel Perezhogin, and Laure Zanna

Sawtooth structure in tunneling probability for a periodically perturbed rounded-rectangular potential *(13 pages)* 044203
Kin'ya Takahashi and Kensuke S. Ikeda

Relativistic chaotic scattering: Unveiling scaling laws for trapped trajectories *(11 pages)* 044204
Fernando Blesa, Juan D. Bernal, Jesús M. Seoane, and Miguel A. F. M. Sanjuán

Kosambi-Cartan-Chern perspective on chaos: Unveiling hidden attractors in nonlinear autonomous systems *(10 pages)* 044205
Somnath Roy, Anirban Ray, and A. Roy Chowdhury

Universality and hysteresis in slow sweeping of bifurcations *(9 pages)* 044206
Roie Ezraty, Ido Levin, and Omri Gat

Slow dissipation and spreading in disordered classical systems: A direct comparison between numerics and mathematical bounds *(11 pages)* 044207
Wojciech De Roeck, Francois Huveneers, and Oskar A. Prośniak

Uncertainty quantification of time-average quantities of chaotic systems using sensitivity-enhanced polynomial chaos expansion *(10 pages)* 044208
Kyriakos D. Kantarakias and George Papadakis

Order, chaos, and dimensionality transition in a system of swarmalators *(17 pages)* 044209
Joao U. F. Lizárraga, Kevin P. O'Keeffe, and Marcus A. M. de Aguiar

(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 109, NUMBER 4** **APRIL 2024**

Weibull function to describe the cumulative size distribution of clumps formed by two-dimensional grains randomly arranged on a plane *(8 pages)* 044131
M. Fanfoni, B. Bonanni, R. Martini, S. Addessi, C. Goletti, and A. Sgarlata

Phase diagram of generalized totally asymmetric simple exclusion process on an open chain: Liggett-like boundary conditions *(14 pages)* 044132
Nadezhda Zh. Bunzarova, Nina C. Pesheva, and Alexander M. Povolotsky

Multifractal spectral features enhance classification of anomalous diffusion *(21 pages)* 044133
Henrik Seckler, Ralf Metzler, Damian G. Kelty-Stephen, and Madhur Mangalam

First-passage time of a Brownian searcher with stochastic resetting to random positions *(12 pages)* 044134
V. Méndez, R. Flaquer-Galmés, and D. Campos

Time-dependent properties of run-and-tumble particles. II. Current fluctuations *(24 pages)* 044135
Tanmoy Chakraborty and Punyabrata Pradhan

Role of interactions in nonequilibrium transformations *(10 pages)* 044136
Maria Rose and Sreekanth K. Manikandan

Kinetic glass transition in granular gases and nonlinear molecular fluids *(20 pages)* 044137
A. Patrón, B. Sánchez-Rey, and A. Prados

Conformally invariant free-parafermionic quantum chains with multispin interactions *(15 pages)* 044138
Francisco C. Alcaraz and Lucas M. Ramos

Unifying model for the rheological behavior of hygroresponsive materials *(10 pages)* 044139
Júlio O. Amando de Barros and Falk K. Wittel

Fluctuation-response relation as a probe of long-range correlations in nonequilibrium quantum and classical fluids *(24 pages)* 044140
T. R. Kirkpatrick and D. Belitz

Protecting information via probabilistic cellular automata *(12 pages)* 044141
Annie Ray, Raymond Laflamme, and Aleksander Kubica

Entangled unique coherent line in the ground-state phase diagram of the spin-1/2 XX chain model with three-spin interaction *(10 pages)* 044142
F. Khastehdel Fumani, S. Mahdavifar, and K. Afrousheh

Trapping of deformable active particles by a periodic background potential *(10 pages)* 044143
Jia-jian Li, Rui-xue Guo, and Bao-quan Ai

Transient temperature dynamics of reservoirs connected through an open quantum system *(10 pages)* 044144
I. V. Vovchenko, A. A. Zyablovsky, A. A. Pukhov, and E. S. Andrianov

Field-theoretic approach to neutron noise in nuclear reactors *(8 pages)* 044145
Benjamin Dechenaux

Deconfinement transitions in three-dimensional compact lattice Abelian Higgs models with multiple-charge scalar fields *(18 pages)* 044146
Claudio Bonati, Andrea Pelissetto, and Ettore Vicari

(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 109, NUMBER 4** **APRIL 2024**

Ergodic criterion of a random diffusivity model *(14 pages)* 044115
Zhongshuai Zhan and Xudong Wang

Effective mass approach to memory in non-Markovian systems *(7 pages)* 044116
M. Wiśniewski, J. Łuczka, and J. Spiechowicz

Estimating entanglement entropy via variational quantum circuits with classical neural networks *(11 pages)* 044117
Sangyun Lee, Hyukjoon Kwon, and Jae Sung Lee

Quantum Carnot thermal machines reexamined: Definition of efficiency and the effects of strong coupling *(9 pages)* 044118
Junjie Liu and Kenneth A. Jung

Optimal work extraction from quantum batteries based on the expected utility hypothesis *(13 pages)* 044119
Gianluca Francica and Luca Dell'Anna

Large deviations in statistics of the convex hull of passive and active particles: A theoretical study *(14 pages)* 044120
Soheli Mukherjee and Naftali R. Smith

Confined run-and-tumble particles with non-Markovian tumbling statistics *(10 pages)* 044121
Oded Farago and Naftali R. Smith

Antipersistent energy-current correlations in strong long-ranged Fermi-Pasta-Ulam-Tsingou-type models *(8 pages)* 044122
Daxing Xiong and Jianjin Wang

Effective Hamiltonian approach to kinetic Ising models: Application to an infinitely long-range Husimi-Temperley model *(15 pages)* 044123
V. I. Tokar

Thermal conduction force under standing and quasistanding temperature field *(7 pages)* 044124
Haohan Tan, Yuqian Zhao, and Jiping Huang

Two-dimensional open quantum system in dissipative bosonic heat bath, external magnetic field, and two time-dependent electric fields *(17 pages)* 044125
E. Kh. Alpomishev, G. G. Adamian, and N. V. Antonenko

Probe particles in odd active viscoelastic fluids: How activity and dissipation determine linear stability *(16 pages)* 044126
Charlie Duclut, Stefano Bo, Ruben Lier, Jay Armas, Piotr Surówka, and Frank Jülicher

Optimized finite-time work protocols for the Higgs RNA model with external force *(8 pages)* 044127
Peter Werner and Alexander K. Hartmann

Anisotropy-assisted thermodynamic advantage of a local-spin quantum thermal machine *(14 pages)* 044128
Chayan Purkait, Suman Chand, and Asoka Biswas

Universal and nonuniversal probability laws in Markovian open quantum dynamics subject to generalized reset processes *(12 pages)* 044129
Federico Carollo, Igor Lesanovsky, and Juan P. Garrahan

Eigen microstates in self-organized criticality *(9 pages)* 044130
Yongwen Zhang, Maoxin Liu, Gaoke Hu, Teng Liu, and Xiaosong Chen

(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 109, NUMBER 4 APRIL 2024

Plasma Physics

Nonlinear kinetic estimate of Raman reflectivity in a hohlraum plasma with a radiation hydrodynamics code *(6 pages)* L043201
D. Bénisti, O. Morice, C. Rousseaux, A. Debayle, P. E. Masson-Laborde, and P. Loiseau

ARTICLES

Statistical Physics

Temperature fluctuations in mesoscopic systems *(10 pages)* 044101
Zhaoyu Fei and Yu-Han Ma

Limits on quantum measurement engines *(11 pages)* 044102
Guillermo Perna and Esteban Calzetta

Hyperuniformity in two-dimensional periodic and quasiperiodic point patterns *(10 pages)* 044103
Akihisa Koga and Shiro Sakai

Thermodynamic geometry of a system with unified quantum statistics *(9 pages)* 044104
Habib Esmaili, Hosein Mohammadzadeh, Mehdi Biderang, and Morteza Nattagh Najafi

Universal slow dynamics of chemical reaction networks *(12 pages)* 044105
Masanari Shimada, Pegah Behrad, and Eric De Giuli

Dislike of general opinion makes for tight elections *(16 pages)* 044106
O. Devauchelle, P. Szymczak, and P. Nowakowski

Anomalous behavior in entanglement speed profile through spin chains *(9 pages)* 044107
Fatemeh Sadeghi, Mostafa Motamedifar, and Mojtaba Golshani

Sublattice-selective percolation on bipartite planar lattices *(11 pages)* 044108
Jonas Wattendorff and Stefan Wessel

Weak noise theory of the O'Connell-Yor polymer as an integrable discretization of the nonlinear Schrödinger equation *(36 pages)* 044109
Alexandre Krajenbrink and Pierre Le Doussal

Liquidus curve of a Lennard-Jones mixture *(7 pages)* 044110
Kengo Nishio

Quest for the golden ratio universality class *(12 pages)* 044111
Vladislav Popkov and G. M. Schütz

Glass transition of quantum hard spheres in high dimensions *(12 pages)* 044112
Michael Winer, Christopher L. Baldwin, Richard Barney, Victor Galitski, and Brian Swingle

Prediction of depinning transitions in interface models using Gini and Kolkata indices *(10 pages)* 044113
Diksha, Gunnemeda Eswar, and Soumyajyoti Biswas

Exact solution to quantum dynamical activity *(13 pages)* 044114
Tomohiro Nishiyama and Yoshihiko Hasegawa

(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 109, NUMBER 4
PARTS A AND B

CONTENTS

APRIL 2024

The Table of Contents is a total listing of Parts A and B.
Part A consists of pages 041001–044216, and Part B pages 044301–049901(E).

PART A

LETTERS

Perspectives

Physics-informed and data-driven discovery of governing equations for complex phenomena in heterogeneous media *(39 pages)* 041001
Muhammad Sahimi

Statistical Physics

Thermodynamic bounds on the asymmetry of cross-correlations with dynamical activity and entropy production *(6 pages)* L042101
Jie Gu

Dimensional crossover in Kardar-Parisi-Zhang growth *(5 pages)* L042102
Ismael S. S. Carrasco and Tiago J. Oliveira

Biological Physics

Transient crosslinking controls the condensate formation pathway within chromatin networks *(6 pages)* L042401
Zong-Pei Wu, Kerry S. Bloom, M. Gregory Forest, and Xue-Zheng Cao

Evidence of scale-free clusters of vegetation in tropical rainforests *(7 pages)* L042402
Pablo Villegas, Tommaso Gili, Guido Caldarelli, and Andrea Gabrielli

Colloids, Complex Fluids, and Active Matter

Shear flow of non-Brownian rod-sphere mixtures near jamming *(5 pages)* L042601
Carmine Anzivino, Christopher Ness, Amgad Salah Moussa, and Alessio Zaccone

Granular Materials

Loss of memory of an elastic line on its way to limit cycles *(6 pages)* L042901
Elisabeth Agoritsas and Jonathan Barés

Micromechanical origin of heat transfer to granular flow *(7 pages)* L042902
Xintong Zhang, Sarath Adapa, Tianshi Feng, Jian Zeng, Ka Man Chung, Clifford Ho, Kevin Albrecht, and Renkun Chen

(Continued)

2470-0045(202404)109:4:A;1-Z

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).