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 104, NUMBER 2
PARTS A AND B

CONTENTS

AUGUST 2021

The Table of Contents is a total listing of Parts A and B.
Part A consists of pages L022101–024316, and Part B pages 024401–027101.

PART A

LETTERS

Statistical Physics

Steps minimize dissipation in rapidly driven stochastic systems *(6 pages)* L022101
Steven Blaber, Miranda D. Louwerse, and David A. Sivak

Improved bound on entropy production in a quantum annealer *(5 pages)* L022102
Michele Campisi and Lorenzo Buffoni

Clausius inequality for finite baths reveals universal efficiency improvements *(6 pages)* L022103
Philipp Strasberg, María García Díaz, and Andreu Riera-Campeny

Nonlinear Dynamics and Chaos

Algebraic approach to the Kuramoto model *(5 pages)* L022201
Lyle Muller, Ján Mináč, and Tung T. Nguyen

Asymmetry-induced isolated fully synchronized state in coupled oscillator populations *(6 pages)* L022202
Oleh E. Omel'chenko, Jorge Luis Ocampo-Espindola, and István Z. Kiss

Moving spiral wave chimeras *(6 pages)* L022203
Martin Bataille-Gonzalez, Marcel G. Clerc, and Oleh E. Omel'chenko

Biological Physics

Mechanics of cup-shaped caveolae *(6 pages)* L022401
Ahis Shrestha, Fabien Pinaud, and Christoph A. Haselwandter

Shear-induced phase transition and critical exponents in three-dimensional fiber networks *(5 pages)* L022402
Sadjad Arzash, Jordan L. Shivers, and Fred C. MacKintosh

Colloids, Complex Fluids, and Active Matter

Violation of triboelectric charge conservation on colliding particles *(4 pages)* L022601
Felix Jungmann, Hannah van Unen, Jens Teiser, and Gerhard Wurm

Copyright 2021 by American Physical Society

(Continued)

2470-0045(202108)104:2:A;1-4

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 104, NUMBER 2 AUGUST 2021

Liquid Crystals

Cooling a spherical nematic shell *(6 pages)* L022701
Gaetano Napoli and Luigi Vergori

Films and Interfaces

Kink propagation and solute partitioning in an atomic monolayer on a substrate *(6 pages)* L022801
Metehan Çam, Seth Lichter, and Christopher G. Goedde

Plasma Physics

Mitigation of magneto-Rayleigh-Taylor instability growth in a triple-nozzle, neutron-producing gas-puff *Z* pinch *(6 pages)* L023201
J. Narkis, F. Conti, A. L. Velikovich, and F. N. Beg

Fundamental interactions in a classical Wigner system *(5 pages)* L023202
Matthew Lippy, Hayden Bland, and Alexander Bataller

ARTICLES

Statistical Physics

Densest ternary sphere packings *(28 pages)* 024101
Ryotaro Koshoji and Taisuke Ozaki

Continuous nonequilibrium transition driven by heat flow *(8 pages)* 024102
Yirui Zhang, Marek Litniewski, Karol Makuch, Paweł J. Żuk, Anna Maciołek, and Robert Hołyst

Roughness in the periodic potential enhances transport in a driven inertial ratchet *(8 pages)* 024103
Archana G. R. and Debashis Barik

Fixed-dimension renormalization group analysis of conserved surface roughening *(19 pages)* 024104
Viktor Škultéty and Juha Honkonen

Time averaging and emerging nonergodicity upon resetting of fractional Brownian motion and heterogeneous diffusion processes *(27 pages)* 024105
Wei Wang, Andrey G. Cherstvy, Holger Kantz, Ralf Metzler, and Igor M. Sokolov

Extinctions of coupled populations, and rare event dynamics under non-Gaussian noise *(14 pages)* 024106
Tal Agranov and Guy Bunin

Robust parameter estimation based on the generalized log-likelihood in the context of Sharma-Taneja-Mittal measure *(10 pages)* 024107
Sérgio Luiz E. F. da Silva and G. Kaniadakis

Monte Carlo study of the two-dimensional kinetic Blume-Capel model in a quenched random crystal field *(10 pages)* 024108
Alexandros Vasilopoulos, Zeynep Demir Vatansever, Erol Vatansever, and Nikolaos G. Fytas

Universal properties of the Kardar-Parisi-Zhang equation with quenched columnar disorders *(11 pages)* 024109
Astik Haldar

Stochastic model for football's collective dynamics *(14 pages)* 024110
A. Chacoma, N. Almeira, J. I. Perotti, and O. V. Billoni

(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 104, NUMBER 2** **AUGUST 2021**

Nonhydrodynamic initial conditions are not soon forgotten *(6 pages)* 024111
T. R. Kirkpatrick, D. Belitz, and J. R. Dorfman

Asymmetric excitation of left- and right-tail extreme events probed using a Hawkes model: Application to financial returns *(14 pages)* 024112
Matthew F. Tomlinson, David Greenwood, and Marcin Mucha-Kruczyński

Integral decomposition for the solutions of the generalized Cattaneo equation *(11 pages)* 024113
K. Górska

Zeroth-order phase transition in the Blume-Emery-Griffiths model without bilinear exchange coupling *(5 pages)* 024114
Ji-Xuan Hou

Inertia triggers nonergodicity of fractional Brownian motion *(12 pages)* 024115
Andrey G. Cherstvy, Wei Wang, Ralf Metzler, and Igor M. Sokolov

Response and flux of information in extended nonequilibrium dynamics *(9 pages)* 024116
Camilla Sarra, Marco Baldovin, and Angelo Vulpiani

Generating discrete-time constrained random walks and Lévy flights *(14 pages)* 024117
Benjamin De Bruyne, Satya N. Majumdar, and Grégory Schehr

Tensor network simulation for the frustrated J_1-J_2 Ising model on the square lattice *(7 pages)* 024118
Hong Li and Li-Ping Yang

Inference of stochastic time series with missing data *(12 pages)* 024119
Sangwon Lee, Vipul Periwal, and Junghyo Jo

Potential-driven random walks on interconnected systems *(15 pages)* 024120
Barbara Benigni, Riccardo Gallotti, and Manlio De Domenico

Mori-Zwanzig projection operator formalism: Particle-based coarse-grained dynamics of open classical systems far from equilibrium *(11 pages)* 024121
Sergei Izvekov

Critical behavior of magnetic polymers in two and three dimensions *(11 pages)* 024122
Damien Paul Foster and Debjyoti Majumdar

Attraction and condensation of driven tracers in a narrow channel *(10 pages)* 024123
Asaf Miron, David Mukamel, and Harald A. Posch

Density functional for the lattice gas from fundamental measure theory *(16 pages)* 024124
M. Maeritz and M. Oettel

Noise-to-noise ratios in correlation length calculations near criticality *(5 pages)* 024125
Avishay Efrat

Dipolar Ising model: Phases, growth laws, and universality *(7 pages)* 024126
Shikha Kumari, Sanjay Puri, and Varsha Banerjee

Complexity and information geometry in the transverse XY model *(10 pages)* 024127
Nitesh Jaiswal, Mamta Gautam, and Tapobrata Sarkar

(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 104, NUMBER 2** **AUGUST 2021**

Structural properties of additive binary hard-sphere mixtures. II. Asymptotic behavior and structural crossovers *(14 pages)* 024128
Sławomir Pieprzyk, Santos B. Yuste, Andrés Santos, Mariano López de Haro, and Arkadiusz C. Brańka

High-capacity and high-power collective charging with spin chargers *(10 pages)* 024129
Yong Huangfu and Jun Jing

Polar swimmers induce several phases in active nematics *(9 pages)* 024130
Pranay Bimal Sampat and Shradha Mishra

Large heat-capacity jump in cooling-heating of fragile glass from kinetic Monte Carlo simulations based on a two-state picture *(11 pages)* 024131
Chun-Shing Lee, Hai-Yao Deng, Cho-Tung Yip, and Chi-Hang Lam

Arcsine law and multistable Brownian dynamics in a tilted periodic potential *(8 pages)* 024132
J. Spiechowicz and J. Łuczka

Stochastic resonance of abundance fluctuations and mean time to extinction in an ecological community *(8 pages)* 024133
Jong Il Park, Beom Jun Kim, and Hye Jin Park

Phase diagrams of the antiferromagnetic XY model on a triangular lattice with higher-order interactions *(12 pages)* 024134
M. Lach and M. Žukovič

Eigenstate thermalization on average *(9 pages)* 024135
Joe Dunlop, Oliver Cohen, and Anthony J. Short

Diagnosing first- and second-order phase transitions with probes of quantum chaos *(15 pages)* 024136
Kyoung-Bum Huh, Kazuki Ikeda, Viktor Jahnke, and Keun-Young Kim

High-dimensional percolation criticality and hints of mean-field-like caging of the random Lorentz gas *(17 pages)* 024137
Benoit Charbonneau, Patrick Charbonneau, Yi Hu, and Zhen Yang

Magnetization profiles at the upper critical dimension as solutions of the integer Yamabe problem *(12 pages)* 024138
Alessandro Galvani, Giacomo Gori, and Andrea Trombettoni

Superstatistics and quantum entanglement in the isotropic spin-$1/2$ XX dimer from a nonadditive thermodynamics perspective *(7 pages)* 024139
Jorge David Castaño-Yepes and Cristian Felipe Ramirez-Gutierrez

Excess and loss of entropy production for different levels of coarse graining *(8 pages)* 024140
Pierpaolo Bilotto, Lorenzo Caprini, and Angelo Vulpiani

Nonlinear Dynamics and Chaos

Collective coordinate framework to study solitary waves in stochastically perturbed Korteweg–de Vries equations *(13 pages)* 024201
Madeleine Cartwright and Georg A. Gottwald

Metacommunity persistence to environmental change: Stabilizing and destabilizing effects of individual species dispersal *(14 pages)* 024202
Ramesh Arumugam, V. K. Chandrasekar, and D. V. Senthilkumar

Kuramoto model with run-and-tumble dynamics *(8 pages)* 024203
Derek Frydel

(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 104, NUMBER 2** **AUGUST 2021**

Bistability in the synchronization of identical neurons *(10 pages)* 024204
B. R. R. Boaretto, R. C. Budzinski, K. L. Rossi, C. Manchein, T. L. Prado, U. Feudel, and S. R. Lopes

Learning Hamiltonian dynamics with reservoir computing *(12 pages)* 024205
Han Zhang, Huawei Fan, Liang Wang, and Xingang Wang

Chaos in the quantum Duffing oscillator in the semiclassical regime under parametrized dissipation *(12 pages)* . . . 024206
Andrew D. Maris, Bibek Pokharel, Sharan Ganjam Seshachallam, Moses Z. R. Misplon, and Arjendu K. Pattanayak

Symbiotic solitons in quasi-one- and quasi-two-dimensional spin-1 condensates *(11 pages)* 024207
S. K. Adhikari

Time reversal symmetry and the difference between relaxations and building-up periods *(7 pages)* 024208
Philipp G. Meyer and Holger Kantz

Operating regimes of cavity solitons by virtue of a graphene flake saturable absorber *(12 pages)* 024209
Jaspreet Kaur Nagi and Soumendu Jana

Multiscale physics of rotating detonation waves: Autosolitons and modulational instabilities *(17 pages)* 024210
James Koch, Mitsuru Kurosaka, Carl Knowlen, and J. Nathan Kutz

Period-doubling route to mixed-mode chaos *(25 pages)* 024211
Naziru M. Awal and Irving R. Epstein

Stability and superfluidity of the Bose-Einstein condensate in a two-leg ladder with magnetic field *(11 pages)* 024212
Yue Jian, Xin Qiao, Jun-Cheng Liang, Zi-Fa Yu, Ai-Xia Zhang, and Ju-Kui Xue

Applications of optimal nonlinear control to a whole-brain network of FitzHugh-Nagumo oscillators *(19 pages)* 024213
Teresa Chouzouris, Nicolas Roth, Caglar Cakan, and Klaus Obermayer

Quantum Turing bifurcation: Transition from quantum amplitude death to quantum oscillation death *(6 pages)* . . . 024214
Biswabibek Bandyopadhyay, Taniya Khatun, and Tanmoy Banerjee

Extreme spectral asymmetry of Akhmediev breathers and Fermi-Pasta-Ulam recurrence in a Manakov system *(10 pages)* 024215
Shao-Chun Chen, Chong Liu, Xiankun Yao, Li-Chen Zhao, and Nail Akhmediev

Low-order modeling of the mutual synchronization between two turbulent thermoacoustic oscillators *(11 pages)* 024216
Yu Guan, Kihun Moon, Kyu Tae Kim, and Larry K. B. Li

Dynamical route to ergodicity and quantum scarring in kicked coupled top *(13 pages)* 024217
Debabrata Mondal, Sudip Sinha, and S. Sinha

Effect of gravity on synchronization of two coupled buoyancy-induced turbulent flames *(10 pages)* 024218
Takumi Tokami, Masaharu Toyoda, Takaya Miyano, Isao T. Tokuda, and Hiroshi Gotoda

Fractional nonlinear electrical lattice *(7 pages)* 024219
Mario I. Molina

Estimating the variance of Shannon entropy *(8 pages)* 024220
Leonardo Ricci, Alessio Perinelli, and Michele Castelluzzo

(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 104, NUMBER 2** **AUGUST 2021**

Q-switching bifurcation dynamics of passively mode-locked lasers *(8 pages)* 024221
N. Akhmediev and J. M. Soto-Crespo

Matter waves in atomic-molecular condensates with Feshbach resonance management *(9 pages)* 024222
F. Kh. Abdullaev, M. Ögren, and J. S. Yuldashev

Delay-time distribution in the scattering of short Gaussian pulses in microwave networks *(8 pages)* 024223
Małgorzata Białous, Piotr Dulian, Adam Sawicki, and Leszek Sirko

Ratchet universality in coupled dissipative oscillators without external bias *(7 pages)* 024224
Pedro J. Martínez and Ricardo Chacón

Networks and Complex Systems

Layer reconstruction and missing link prediction of a multilayer network with maximum *a posteriori* estimation *(11 pages)* 024301
Junyao Kuang and Caterina Scoglio

Asymmetry-induced order in multilayer networks *(8 pages)* 024302
Everton S. Medeiros, Ulrike Feudel, and Anna Zakharova

Symbiotic and antagonistic disease dynamics on networks using bond percolation *(9 pages)* 024303
Peter Mann, V. Anne Smith, John B. O. Mitchell, and Simon Dobson

Exact formula for bond percolation on cliques *(10 pages)* 024304
Peter Mann, V. Anne Smith, John B. O. Mitchell, Christopher Jefferson, and Simon Dobson

Breakdown of random matrix universality in Markov models *(13 pages)* 024305
Faheem Mosam, Diego Vidaurre, and Eric De Giuli

Microscopic edge-based compartmental modeling method for analyzing the susceptible-infected-recovered epidemic spreading on networks *(14 pages)* 024306
Qingchu Wu and Shufang Chen

Towards the Heider balance: Cellular automaton with a global neighborhood *(9 pages)* 024307
Malgorzata J. Krawczyk, Krzysztof Kulakowski, and Zdzislaw Burda

Agent-based neutral competition in two-community networks *(12 pages)* 024308
Kota Ishida, Beata Oborny, and Michael T. Gastner

Detecting hidden layers from spreading dynamics on complex networks *(13 pages)* 024309
Łukasz G. Gajewski, Jan Chołoniewski, and Mateusz Wilinski

Balanced-imbalanced transitions in indirect reciprocity dynamics on networks *(9 pages)* 024310
Koji Oishi, Shuhei Miyano, Kimmo Kaski, and Takashi Shimada

Optimally coordinated traffic diversion by statistical physics *(12 pages)* 024311
Tak Shing Tai and Chi Ho Yeung

Pedestrian flow in two dimensions: Optimal psychological stress leads to less evacuation time and decongestion *(10 pages)* 024312
M. Ramírez, B. A. Toledo, F. Torres, J. Rogan, J. A. Valdivia, and P. Correa-Burrows

Impact of field heterogeneity on the dynamics of the forced Kuramoto model *(10 pages)* 024313
S. Yoon, E. A. P. Wright, J. F. F. Mendes, and A. V. Goltsev

(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 104, NUMBER 2 AUGUST 2021

Game-theoretic modeling of collective decision making during epidemics *(9 pages)* 024314
Mengbin Ye, Lorenzo Zino, Alessandro Rizzo, and Ming Cao

Shannon information criterion for low-high diversity transition in Moran and voter models *(12 pages)* 024315
Gabriella Dantas Franco, Flavia Maria Darcie Marquitti, Lucas D. Fernandes, Dan Braha, and Marcus Aloizio Martinez de Aguiar

Dynamics of majority rule on hypergraphs *(8 pages)* 024316
James Noonan and Renaud Lambiotte

PART B

Biological Physics

Hysteresis loop area scaling exponents in DNA unzipping by a periodic force: A Langevin dynamics simulation study *(8 pages)* 024401
Rajeev Kapri

Multilayer network structure enhances the coexistence of competitive species *(11 pages)* 024402
Cong Li, Tian-Jiao Feng, He-Lin Zhang, Da-Hua Chen, Ross Cressman, Jin-Bao Liao, and Yi Tao

Motor strategies and adiabatic invariants: The case of rhythmic motion in parabolic flights *(8 pages)* 024403
N. Boulanger, F. Buisseret, V. Dehouck, F. Dierick, and O. White

Two-cell interactions in autologous chemotaxis *(7 pages)* 024404
Aditya S. Khair

Increased oscillatory power in a computational model of the olfactory bulb due to synaptic degeneration *(14 pages)* 024405
J. Kendall Berry and Daniel Cox

Optogenetic control of intracellular flows and cell migration: A comprehensive mathematical analysis with a minimal active gel model *(15 pages)* 024406
Oliver M. Drozdowski, Falko Ziebert, and Ulrich S. Schwarz

Sparse generative modeling via parameter reduction of Boltzmann machines: Application to protein-sequence families *(20 pages)* 024407
Pierre Barrat-Charlaix, Anna Paola Muntoni, Kai Shimagaki, Martin Weigt, and Francesco Zamponi

Steady-state joint distribution for first-order stochastic reaction kinetics *(23 pages)* 024408
Youming Li, Da-Quan Jiang, and Chen Jia

Single-molecule force spectroscopy reveals structural differences of heparan sulfate chains during binding to vitronectin *(11 pages)* 024409
Katarzyna Herman, Joanna Zemła, Arkadiusz Ptak, and Małgorzata Lekka

Efficient and flexible methods for simulating models of time since infection *(12 pages)* 024410
Joseph D. Peterson and Ronojoy Adhikari

Mean-field interactions between living cells in linear and nonlinear elastic matrices *(12 pages)* 024411
Chaviva Sirote and Yair Shokef

Reaction-diffusion spatial modeling of COVID-19: Greece and Andalusia as case examples *(25 pages)* 024412
P. G. Kevrekidis, J. Cuevas-Maraver, Y. Drossinos, Z. Rapti, and G. A. Kevrekidis

(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 104, NUMBER 2** **AUGUST 2021**

Robust rhythmogenesis via spike-timing-dependent plasticity *(10 pages)* 024413
Gabi Socolovsky and Maoz Shamir

Extrusion of chromatin loops by a composite loop extrusion factor *(12 pages)* 024414
Hao Yan, Ivan Surovtsev, Jessica F. Williams, Mary Lou P. Bailey, Megan C. King, and Simon G. J. Mochrie

What the odor is not: Estimation by elimination *(10 pages)* 024415
Vijay Singh, Martin Tchernookov, and Vijay Balasubramanian

Background synaptic input modulates the visuospatial working memory *(10 pages)* 024416
Tao Wang, Jun Sun, Fan Yang, Jie Li, Wei Wang, and Feng Liu

Active elasticity drives the formation of periodic beading in damaged axons *(8 pages)* 024417
Davide Riccobelli

Polymers

Rheological properties of polymer chains at a copper oxide surface: Impact of the chain length, surface coverage, and grafted polymer shape *(15 pages)* 024501
José G. Solano Canchaya, Germain Clavier, Sébastien Garruchet, Benoit Latour, Nicolas Martzel, Julien Devémy, Florent Goujon, Alain Dequidt, Ronald Blaak, Etienne Munch, and Patrice Malfreyt

Kardar-Parisi-Zhang equation in a half space with flat initial condition and the unbinding of a directed polymer from an attractive wall *(25 pages)* 024502
Guillaume Barraquand and Pierre Le Doussal

Spatial correlations of entangled polymer dynamics *(15 pages)* 024503
Jihong Ma, Jan-Michael Y. Carrillo, Changwoo Do, Wei-Ren Chen, Péter Falus, Zhiqiang Shen, Kunlun Hong, Bobby G. Sumpter, and Yangyang Wang

Colloids, Complex Fluids, and Active Matter

Effect of polydispersity on the dynamics of active Brownian particles *(8 pages)* 024601
Sameer Kumar, Jay Prakash Singh, Debaprasad Giri, and Shradha Mishra

Asymmetric assembly of Lennard-Jones Janus dimers *(9 pages)* 024602
Sina Safaei, Caleb Todd, Jack Yarndley, Shaun Hendy, and Geoff R. Willmott

Capture efficiency of magnetic nanoparticles through the compaction effect of a microparticles column *(12 pages)* 024603
K. B. Reynoso-Hernández, P. E. Guevara-Pantoja, and G. A. Caballero-Robledo

Computational approach to $(ZnS)_i$ nanoclusters in ionic liquids *(17 pages)* 024604
Jon Zubeltzu, Jon M. Matxain, and Elixabete Rezabal

Heat fluctuations in a harmonic chain of active particles *(20 pages)* 024605
Deepak Gupta and David A. Sivak

Liquid Crystals

Generation of hard twisted photons by charged particles in cholesteric liquid crystals *(18 pages)* 024701
O. V. Bogdanov, P. O. Kazinski, P. S. Korolev, and G. Yu. Lazarenko

Nanofluidics of nematic liquid crystals in hollow capillaries *(9 pages)* 024702
Izabela Śliwa, Pavel V. Maslennikov, and Alex V. Zakharov

(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 104, NUMBER 2** **AUGUST 2021**

Thin smectic liquid crystalline fibrils of chiral rodlike particles *(10 pages)* 024703
A. Kuhnhold and V. Tänzel

Derivation of coarse-grained force fields for buckling-induced topological defects of liquid crystals *(19 pages)* . . . 024704
Michiaki Sakamoto and Itsuo Hanasaki

Films and Interfaces

Interface thermal resistance induced by geometric shape mismatch: A multiparticle Lorentz gas model *(5 pages)* 024801
Tingting Wang, Yu Yang, Yuancheng Wu, Lei Xu, Dengke Ma, and Lifa Zhang

Granular Materials

Quasistatic kinetic avalanches and self-organized criticality in deviatorically loaded granular media *(19 pages)* . . . 024901
Jordi Baró, Mehdi Pouragha, Richard Wan, and Jörn Davidsen

Effect of two parallel intruders on total work during granular penetrations *(11 pages)* 024902
Swapnil Pravin, Brian Chang, Endao Han, Lionel London, Daniel I. Goldman, Heinrich M. Jaeger, and S. Tonia Hsieh

Linear response in the uniformly heated granular gas *(13 pages)* 024903
Bernardo Sánchez-Rey and Antonio Prados

Anomalous elasticity and plastic screening in amorphous solids *(10 pages)* 024904
Anaël Lemaître, Chandana Mondal, Michael Moshe, Itamar Procaccia, Saikat Roy, and Keren Screiber-Re'em

Solid Mechanics

Mathematical model and numerical analysis method for dynamic fracture in a residual stress field *(18 pages)* 025001
Sayako Hirobe, Kenji Imakita, Haruo Aizawa, Yasumasa Kato, Shingo Urata, and Kenji Oguni

Exceptional topology in ordinary soft matter *(14 pages)* 025002
Tsvi Tlusty

Chiral edge modes in evolutionary game theory: A kagome network of rock-paper-scissors cycles *(9 pages)* 025003
Tsuneya Yoshida, Tomonari Mizoguchi, and Yasuhiro Hatsugai

Indentation responses of pressurized ellipsoidal and cylindrical elastic shells: Insights from shallow-shell theory *(15 pages)* 025004
Wenqian Sun and Jayson Paulose

Fold analysis of crumpled sheets using microcomputed tomography *(7 pages)* 025005
Yumino Hayase, Hitoshi Aonuma, Satoshi Takahara, Takahiro Sakaue, Shun'ichi Kaneko, and Hiizu Nakanishi

Role of the crown in tree resistance against high winds *(6 pages)* 025006
Hsin-Huei Li, Yu-Chuan Cheng, Kai-Jie Yang, Chia-Ren Chu, and Tzay-Ming Hong

Real-space origin of topological band gaps, localization, and reentrant phase transitions in gyroscopic metamaterials *(26 pages)* 025007
Noah P. Mitchell, Ari M. Turner, and William T. M. Irvine

(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 104, NUMBER 2** **AUGUST 2021**

Dislocation avalanches from strain-controlled loading: A discrete dislocation dynamics study *(11 pages)* 025008
David Kurunczi-Papp and Lasse Laurson

Universal fluctuation of polygonal crack geometry in solidified lava *(9 pages)* 025009
Yuri Akiba, Aika Takashima, and Hiroyuki Shima

Thermally activated flow in models of amorphous solids *(7 pages)* 025010
Marko Popović, Tom W. J. de Geus, Wencheng Ji, and Matthieu Wyart

Fluid Dynamics

Droplet plume emission during plasmonic bubble growth in ternary liquids *(11 pages)* 025101
Xiaolai Li, Yibo Chen, Yuliang Wang, Kai Leong Chong, Roberto Verzicco, Harold J. W. Zandvliet, and Detlef Lohse

Competition of overstability and stabilizing effects in viscoelastic thermovibrational flow *(17 pages)* 025102
Alessio Boaro and Marcello Lappa

Two separate decay timescales of a detonation wave modeled by the Burgers equation and their relation to its chaotic dynamics *(8 pages)* 025103
S. S.-M. Lau-Chapdelaine and M. I. Radulescu

Dynamic measurement of the acoustic streaming time constant utilizing an optical tweezer *(11 pages)* 025104
Christoph Goering and Jürg Dual

Local wave-number model for inhomogeneous two-fluid mixing *(16 pages)* 025105
Nairita Pal, Ismael Boureima, Noah Braun, Susan Kurien, Praveen Ramaprabhu, and Andrew Lawrie

Spatial wake transition past a thin pitching plate *(11 pages)* 025106
Arnab Kumar De and Sandip Sarkar

Distribution of liquid flow in a pore network during evaporation *(14 pages)* 025107
Rui Wu and C. Y. Zhao

Turbulence and capillary waves on bubbles *(13 pages)* 025108
Peleg Emanuel and Alexander Feigel

Influence of particle-fluid density ratio on the dynamics of finite-size particles in homogeneous isotropic turbulent flows *(14 pages)* 025109
Jie Shen, Zhiming Lu, Lian-Ping Wang, and Cheng Peng

Linear analysis of Rayleigh-Taylor instability in viscoelastic materials *(15 pages)* 025110
J. N. Gou, W. T. Zan, Y. B. Sun, and C. Wang

Macroscopic and microscopic hydrodynamic mixing of stratified suspensions *(9 pages)* 025111
Yasufumi Yamamoto, Koki Yamada, Yohsuke Tanaka, and Shusaku Harada

Modeling transport of soft particles in porous media *(9 pages)* 025112
Shuaijun Li, Hong-hui Yu, and Jing Fan

Plasma Physics

Transition to turbulence in a five-mode Galerkin truncation of two-dimensional magnetohydrodynamics *(13 pages)* 025201
Francesco Carbone, Daniele Telloni, Gary Zank, and Luca Sorriso-Valvo

(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 104, NUMBER 2** **AUGUST 2021**

Unipolar terahertz pulse formation in a nonequilibrium plasma channel formed by an ultrashort uv laser pulse *(7 pages)* 025202
A. V. Bogatskaya, E. A. Volkova, and A. M. Popov

Local field correction to ionization potential depression of ions in warm or hot dense matter *(10 pages)* 025203
Xiaolei Zan, Chengliang Lin, Yong Hou, and Jianmin Yuan

Onset of inverse magnetic energy transfer in collisionless turbulent plasmas *(6 pages)* 025204
Z. H. Zhao, Y. Xie, Z. Lei, J. L. Jiao, W. M. Zhou, C. T. Zhou, S. P. Zhu, X. T. He, and B. Qiao

Uncovering turbulent plasma dynamics via deep learning from partial observations *(11 pages)* 025205
A. Mathews, M. Francisquez, J. W. Hughes, D. R. Hatch, B. Zhu, and B. N. Rogers

Reflection and transmission of an incident solitary wave at an interface of a binary complex plasma in a microgravity condition *(9 pages)* 025206
Xue-Ren Hong, Wei Sun, Mierk Schwabe, Cheng-Ran Du, and Wen-Shan Duan

Radial spatiotemporal evolution of rf magnetic field and plasma current in a very-high-frequency plasma source over a wide range of plasma density and pressure *(23 pages)* 025207
Jianping Zhao, Peter L. G. Ventzek, Barton Lane, Toshihiko Iwao, and Kiyotaka Ishibashi

Charged-particle chaotic dynamics in rotational discontinuities *(10 pages)* 025208
Francesco Malara, Silvia Perri, and Gaetano Zimbardo

Carbon ionization from a quantum average-atom model up to gigabar pressures *(7 pages)* 025209
Gérald Faussurier, Christophe Blancard, and Mandy Bethkenhagen

Scaling laws for laser-driven ion acceleration from nanometer-scale ultrathin foils *(7 pages)* 025210
X. F. Shen, B. Qiao, A. Pukhov, S. Kar, S. P. Zhu, M. Borghesi, and X. T. He

Computational Physics

High-order semi-Lagrangian kinetic scheme for compressible turbulence *(15 pages)* 025301
Dominik Wilde, Andreas Krämer, Dirk Reith, and Holger Foysi

Stochastic characterization and reconstruction of material microstructures for establishment of process-structure-property linkage using the deep generative model *(13 pages)* 025302
Satoshi Noguchi and Junya Inoue

Thermodynamics of hydrophobic-polar model proteins on the face-centered cubic lattice *(7 pages)* 025303
Matthew S. Wilson and David P. Landau

Steepest-descent algorithm for simulating plasma-wave caustics via metaplectic geometrical optics *(11 pages)* . . . 025304
Sean M. Donnelly, Nicolas A. Lopez, and I. Y. Dodin

Reducing autocorrelation time in determinant quantum Monte Carlo using the Wang-Landau algorithm: Application to the Holstein model *(5 pages)* 025305
Meng Yao, Da Wang, and Qiang-Hua Wang

Exact transparent boundary condition for the multidimensional Schrödinger equation in hyperrectangular computational domain *(9 pages)* 025306
R. M. Feshchenko and A. V. Popov

(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 104, NUMBER 2** **AUGUST 2021**

Schrödinger principal-component analysis: On the duality between principal-component analysis and the Schrödinger equation *(13 pages)* 025307
Ziming Liu, Sitian Qian, Yixuan Wang, Yuxuan Yan, and Tianyi Yang

Approximate optimization, sampling, and spin-glass droplet discovery with tensor networks *(13 pages)* 025308
Marek M. Rams, Masoud Mohseni, Daniel Eppens, Konrad Jałowiecki, and Bartłomiej Gardas

Consistent, explicit, and accessible Boltzmann collision operator for polyatomic gases *(7 pages)* 025309
Vladimir Djordjić, Milana Pavić-Čolić, and Manuel Torrilhon

Database-driven semigrand canonical Monte Carlo method: Application to segregation isotherm on defects in alloys *(15 pages)* 025310
Rodrigo Pinheiro Campos, Shuhei Shinzato, Akio Ishii, Shuichi Nakamura, and Shigenobu Ogata

Monte Carlo renormalization-group calculation for the $d = 3$ Ising model using a modified transformation *(4 pages)* 025311
Dorit Ron, Achi Brandt, and Robert H. Swendsen

COMMENTS

Comment on "Turbulent compressible fluid: Renormalization group analysis, scaling regimes, and anomalous scaling of advected scalar fields" *(4 pages)* 027101
Juha Honkonen