

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 3
PARTS A AND B

CONTENTS

MARCH 2024

The Table of Contents is a total listing of Parts A and B.
Part A consists of pages L032101–034215, and Part B pages 034301–039901(E).

PART A

LETTERS

Statistical Physics

Arrhenius law for interacting diffusive systems (<i>6 pages</i>)	L032101
Vishwajeet Kumar, Arnab Pal, and Ohad Shpielberg	
First passage on disordered intervals (<i>6 pages</i>)	L032102
James Holehouse and S. Redner	
Fluctuation corrections to Lifshitz tails in disordered systems (<i>6 pages</i>)	L032103
Enrique Rozas Garcia and Johannes Hofmann	
Logarithmic or algebraic: Roughening of an active Kardar-Parisi-Zhang surface (<i>6 pages</i>)	L032104
Debayan Jana, Astik Haldar, and Abhik Basu	
Topological phases in the dynamics of the simple exclusion process (<i>6 pages</i>)	L032105
Juan P. Garrahan and Frank Pollmann	
Dynamically emergent correlations between particles in a switching harmonic trap (<i>6 pages</i>)	L032106
Marco Biroli, Manas Kulkarni, Satya N. Majumdar, and Grégory Schehr	
Signatures of quantum chaos and fermionization in the incoherent transport of bosonic carriers in the Bose-Hubbard chain (<i>5 pages</i>)	L032107
P. S. Muraev, D. N. Maksimov, and A. R. Kolovsky	
Multiple charge carrier species as a possible cause for triboelectric cycles (<i>6 pages</i>)	L032108
Juan Carlos Sobarzo and Scott Waitukaitis	

Nonlinear Dynamics and Chaos

Many-body quantum chaos in mixtures of multiple species (<i>6 pages</i>)	L032201
Vijay Kumar and Dibyendu Roy	

ARTICLES

Statistical Physics

Dynamics of quantum coherence and nonlocality of a two-spin system in the chemical compass (<i>10 pages</i>)	034101
Y. Aiache, K. El Anouz, N. Metwally, and A. El Allati	



2470-0045(202403)109:3:A;1-0

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW E

THIRD SERIES, VOLUME 109, NUMBER 3

MARCH 2024

Topological Kolmogorov complexity and the Berezinskii-Kosterlitz-Thouless mechanism (<i>13 pages</i>)	034102
Vittorio Vitale, Tiago Mendes-Santos, Alex Rodriguez, and Marcello Dalmonte	
Intermittent random walks under stochastic resetting (<i>11 pages</i>)	034103
Rosa Flaquer-Galmés, Daniel Campos, and Vicenç Méndez	
 Shape effects in the fluctuations of random isochrones on a square lattice (<i>8 pages</i>)	034104
Iván Álvarez Domenech, Javier Rodríguez-Laguna, Rodolfo Cuerno, Pedro Córdoba-Torres, and Silvia N. Santalla	
Thermodynamics and stochastic thermodynamics of strongly coupled systems (<i>17 pages</i>)	034105
Xiangjun Xing and Mingnan Ding	
Interplay between Markovianity and progressive quenching (<i>17 pages</i>)	034106
Charles Moslonka and Ken Sekimoto	
Standard and inverse site percolation of triangular tiles on triangular lattices: Isotropic and perfectly oriented deposition and removal (<i>18 pages</i>)	034107
N. M. De La Cruz Feliz, F. M. L. Pimentel, N. De La Cruz Félix, and A. J. Ramirez-Pastor	
Universality of random-site percolation thresholds for two-dimensional complex noncompact neighborhoods (<i>7 pages</i>)	034108
Krzysztof Malarz	
Laser-type cooling with unfiltered sunlight (<i>8 pages</i>)	034109
Amanda Younes and Wesley C. Campbell	
Criticality in the fracture of silica glass: Insights from molecular mechanics (<i>12 pages</i>)	034110
Somar Shekh Alshabab, Bernd Markert, and Franz Bamer	
Tensor network methods for extracting conformal field theory data from fixed-point tensors and defect coarse graining (<i>32 pages</i>)	034111
Wenhan Guo and Tzu-Chieh Wei	
Thermodynamic precision in the nonequilibrium exchange scenario (<i>10 pages</i>)	034112
Donato Farina, Bilal Benazout, Federico Centrone, and Antonio Acín	
Unified perspective on exponential tilt and bridge algorithms for rare trajectories of discrete Markov processes (<i>17 pages</i>)	034113
Javier Aguilar and Riccardo Gatto	
Typicality in random quantum scattering (<i>12 pages</i>)	034114
Michele Avalle and Alessio Serafini	
Unlocking the potential of information flow: Maximizing free-energy transduction in a model of an autonomous rotary molecular motor (<i>11 pages</i>)	034115
Mathis Grelier, David A. Sivak, and Jannik Ehrich	
Exit times of totally asymmetric simple exclusion processes (<i>9 pages</i>)	034116
Jérôme Dorignac, Fred Geniet, and Estelle Pitard	
Transition-state theory reexamined (<i>5 pages</i>)	034117
Hans A. Weidenmüller	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW E	THIRD SERIES, VOLUME 109, NUMBER 3	MARCH 2024
Heat transport in an angular-momentum-conserving lattice (<i>8 pages</i>)		034118
Yachao Sun (孙亚超) and Lei Wang (王雷)		
Segregation disrupts the Arrhenius behavior of an isomerization reaction (<i>8 pages</i>)		034119
Shubham Thwal and Suman Majumder		
Being heterogeneous is disadvantageous: Brownian non-Gaussian searches (<i>7 pages</i>)		034120
Vittoria Sposini, Sankaran Nampoothiri, Aleksei Chechkin, Enzo Orlandini, Flavio Seno, and Fulvio Baldovin		
Information engine with feedback delay based on a two-level system (<i>10 pages</i>)		034121
Kiran V. and Toby Joseph		
Theory of melting lines (<i>10 pages</i>)		034122
K. Trachenko		
Exact fluctuation and long-range correlations in a single-file model under resetting (<i>13 pages</i>)		034123
Saikat Santra and Prashant Singh		
Limiting flux in quantum thermodynamics (<i>5 pages</i>)		034124
Domingos S. P. Salazar		
Finite-size scaling of the high-dimensional Ising model in the loop representation (<i>10 pages</i>)		034125
Tianning Xiao, Zhiyi Li, Zongzheng Zhou, Sheng Fang, and Youjin Deng		
Coexistence of distinct nonuniform nonequilibrium steady states in Ehrenfest multiurn model on a ring (<i>11 pages</i>)		034126
Chi-Ho Cheng (鄭智豪) and Pik-Yin Lai (黎璧賢)		
Universal fluctuations of global geometrical measurements in planar clusters (<i>11 pages</i>)		034127
Silvia N. Santalla, Ivan Álvarez Domenech, Daniel Villarrubia, Rodolfo Cuerno, and Javier Rodríguez-Laguna		
Structural transition, orientational order, and anomalous specific heat in a two-dimensional dimer crystal of core-softened particles (<i>21 pages</i>)		034128
D. Pini, T. Rovelli, F. Mambretti, and D. E. Galli		
Hidden Markov modeling of single-particle diffusion with stochastic tethering (<i>10 pages</i>)		034129
Amit Federbush, Amit Moscovich, and Yohai Bar-Sinai		
Entropy approximations for simple fluids (<i>8 pages</i>)		034130
Yang Huang and Michael Widom		
Discontinuous phase transition from ferromagnetic to oscillating states in a nonequilibrium mean-field spin model (<i>25 pages</i>)		034131
Laura Guislain and Eric Bertin		
Competition for resources in an exclusion model with biased lane-changing mechanism (<i>15 pages</i>)		034132
Ankita Gupta and Arvind Kumar Gupta		
Ordering kinetics of the two-dimensional voter model with long-range interactions (<i>11 pages</i>)		034133
Federico Corberi and Luca Saldone		

(Continued)

Nonlinear Dynamics and Chaos

Closed and open superconducting microwave waveguide networks as a model for quantum graphs (<i>14 pages</i>)	034201
Barbara Dietz, Tobias Klaus, Marco Masi, Maksym Miski-Oglu, Achim Richter, Tatjana Skipa, and Marcus Wunderle	
Quantum multifractality as a probe of phase space in the Dicke model (<i>14 pages</i>)	034202
M. A. Bastarrachea-Magnani, D. Villaseñor, J. Chávez-Carlos, S. Lerma-Hernández, L. F. Santos, and J. G. Hirsch	
Solutions of the Lippmann-Schwinger equation for confocal parabolic billiards (<i>15 pages</i>)	034203
Alberto Ruiz-Biestro and Julio C. Gutiérrez-Vega	
Near-integrable dynamics of the Fermi-Pasta-Ulam-Tsingou problem (<i>7 pages</i>)	034204
Andrew Hofstrand	
Quantum states resembling classical periodic trajectories in mesoscopic elliptic billiards (<i>11 pages</i>)	034205
Jesús G. Riestra and Julio C. Gutiérrez-Vega	
Chaos and localized phases in a two-body linear kicked rotor system (<i>10 pages</i>)	034206
Anjali Nambudiripad, J. Bharathi Kannan, and M. S. Santhanam	
☞ Interaction of soliton gases in deep-water surface gravity waves (<i>13 pages</i>)	034207
Loïc Fache, Félicien Bonnefoy, Guillaume Ducrozet, François Copie, Filip Novkoski, Guillaume Ricard, Giacomo Roberti, Eric Falcon, Pierre Suret, Gennady El, and Stéphane Randoux	
Collective dynamics of coupled Lorenz oscillators near the Hopf boundary: Intermittency and chimera states (<i>12 pages</i>)	034208
Anjuman Ara Khatun, Yusra Ahmed Muthanna, Nirmal Punetha, and Haider Hasan Jafri	
Tuning limit cycles with a noise: Survival and collapse (<i>9 pages</i>)	034209
Prasun Sarkar and Deb Shankar Ray	
Transient chaos and memory effect in the Rosenzweig-MacArthur system with dynamics of consumption rates (<i>8 pages</i>)	034210
Przemysław Gawroński, Jarosław Kwapien, and Krzysztof Kułakowski	
Rotating clusters in phase-lagged Kuramoto oscillators with higher-order interactions (<i>7 pages</i>)	034211
Bhuwan Moyal, Priyanka Rajwani, Subhasanket Dutta, and Sarika Jalan	
Bright traveling breathers in media with long-range nonconvex dispersion (<i>11 pages</i>)	034212
Sathyanarayanan Chandramouli, Yifeng Mao, and Mark A. Hoefer	
Chaos and anomalous transport in a semiclassical Bose-Hubbard chain (<i>16 pages</i>)	034213
Dragan Marković and Mihailo Čubrović	
Scaling properties of the action in the Riemann-Liouville fractional standard map (<i>4 pages</i>)	034214
J. A. Méndez-Bermúdez, R. Aguilar-Sánchez, José M. Sigarreta, and Edson D. Leonel	
Solvable dynamics of the three-dimensional Kuramoto model with frequency-weighted coupling (<i>7 pages</i>)	034215
Wei Zou	

(Continued)

PART B

Networks and Complex Systems

Efficient parameter inference in networked dynamical systems via steady states: A surrogate objective function approach integrating mean-field and nonlinear least squares (<i>15 pages</i>)	034301
Yanna Ding, Jianxi Gao, and Malik Magdon-Ismaïl	
Critical behavior of cascading failures in overloaded networks (<i>5 pages</i>)	034302
Ignacio A. Perez, Dana Ben Porath, Cristian E. La Rocca, Lidia A. Braunstein, and Shlomo Havlin	
Cavity approach for the approximation of spectral density of graphs with heterogeneous structures (<i>13 pages</i>) . . .	034303
Grover E. C. Guzman, Peter F. Stadler, and Andre Fujita	
Collective group drift in a partial-differential-equation-based opinion dynamics model with biased perception kernels (<i>11 pages</i>)	034304
Christian Koertje and Hiroki Sayama	
Gaussian universality of perceptrons with random labels (<i>18 pages</i>)	034305
Federica Gerace, Florent Krzakala, Bruno Loureiro, Ludovic Stephan, and Lenka Zdeborová	
Multiscaling behavior of braided channel networks: An alternative formulation of Taylor's law variate transformations (<i>13 pages</i>)	034306
Stefano Rizzello, Michele Scaraggi, Andrew D. Nelson, Leonardo Primavera, Gaetano Napoli, Guglielmo Stecca, Raffaele Vitolo, and Samuele De Bartolo	
Ordering dynamics of nonlinear voter models (<i>22 pages</i>)	034307
Lucía S. Ramirez, Federico Vazquez, Maxi San Miguel, and Tobias Galla	
Transition from time-variant to static networks: Timescale separation in N -intertwined mean-field approximation of susceptible-infectious-susceptible epidemics (<i>18 pages</i>)	034308
Robin Persoons, Mattia Sensi, Bastian Prasse, and Piet Van Mieghem	
Framework to generate hypergraphs with community structure (<i>18 pages</i>)	034309
Nicolò Ruggeri, Federico Battiston, and Caterina De Bacco	
 Identifying hubs in directed networks (<i>14 pages</i>)	034310
Alec Kirkley	
Early warning indicators of war and peace through the landscapes and flux quantifications (<i>16 pages</i>)	034311
Linqi Wang, Kun Zhang, and Jin Wang	

Biological Physics

Ionic plasmon-polariton in application to neurosignaling (<i>25 pages</i>)	034401
J. E. Jacak and W. A. Jacak	
Main role of fractal-like nature of conformational space in subdiffusion in proteins (<i>9 pages</i>)	034402
Luca Maggi and Modesto Orozco	
Trapping and scattering of a multiflagellated bacterium by a hard surface (<i>8 pages</i>)	034403
Alexander P. Petroff and Schuyler McDonough	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW E

THIRD SERIES, VOLUME 109, NUMBER 3

MARCH 2024

Replicator-mutator dynamics of the rock-paper-scissors game: Learning through mistakes (<i>17 pages</i>)	034404
Suman Chakraborty, Ishita Agarwal, and Sagar Chakraborty	
Inertia suppresses signatures of activity of active Brownian particles in a harmonic potential (<i>11 pages</i>)	034405
A. Arredondo, C. Calavitta, M. Gomez, J. Mendez-Villanueva, W. W. Ahmed, and N. D. Brubaker	
Connecting polymer collapse and the onset of jamming (<i>17 pages</i>)	034406
Alex T. Grigas, Aliza Fisher, Mark D. Shattuck, and Corey S. O'Hern	

Polymers

From ionic clusters dynamics to network constraints in ionic polymer solutions (<i>8 pages</i>)	034501
Sidath Wijesinghe, Chathurika Kosgallana, Manjula Senanayake, Supun S. Mohottalalage, Piotr Zolnierczuk, Laura Stingaciu, Gary S. Grest, and Dvora Perahia	

Colloids, Complex Fluids, and Active Matter

Influence of anomalous agents on the dynamics of an active system (<i>7 pages</i>)	034601
Nikita P. Kryuchkov, Artur D. Nasyrov, Konstantin D. Gursky, and Stanislav O. Yurchenko	
Optimal gaits for inertia-dominated swimmers with passive elastic joints (<i>13 pages</i>)	034602
Nathan Justus and Ross Hatton	
Nonequilibrium response of magnetic nanoparticles to time-varying magnetic fields: Contributions from Brownian and Néel processes (<i>12 pages</i>)	034603
Patrick Ilg	
Transition condition between memories of vibration and flow in the memory effect of paste (<i>7 pages</i>)	034604
Chihiro Uemura, Akio Nakahara, Yousuke Matsuo, and Takahiro Iwata	
Rearrangements during slow compression of a jammed two-dimensional emulsion (<i>8 pages</i>)	034605
Xin Du and Eric R. Weeks	
Spinodal decomposition and phase separation in polar active matter (<i>24 pages</i>)	034606
Maxx Miller and John Toner	
Active osmoticlike pressure on permeable inclusions (<i>16 pages</i>)	034607
Mahmoud Sebtosheikh and Ali Naji	
Experimental examination of dipole-dipole cross-correlations by dielectric spectroscopy, depolarized dynamic light scattering, and computer simulations of molecular dynamics (<i>9 pages</i>)	034608
K. Koperwas, J. Gapiński, Z. Wojnarowska, A. Patkowski, and M. Paluch	

Liquid Crystals

Modeling the light-powered self-rotation of a liquid crystal elastomer fiber-based engine (<i>11 pages</i>)	034701
Yong Yu, Haoyu Hu, Yuntong Dai, and Kai Li	

Films and Interfaces

Kelvin equation for bridging transitions (<i>5 pages</i>)	034801
Alexandr Malijevský and Martin Pospíšil	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW E

THIRD SERIES, VOLUME 109, NUMBER 3

MARCH 2024

Electrode process of mobile ions in generating space-charge polarization (<i>10 pages</i>)	034802
Atsushi Sawada and Takaaki Manaka	
Island density scaling in reversible submonolayer growth with attachment barriers (<i>8 pages</i>)	034803
Oliver Smirnov and Jacques G. Amar	
Granular Materials	
Dynamical yield criterion for granular matter from first principles (<i>12 pages</i>)	034901
O. Coquand and M. Sperl	
Electrostatic interactions between rough dielectric particles (<i>10 pages</i>)	034902
Matthew Gorman, Xuan Ruan, and Rui Ni	
Platonic solids bouncing on a vibrating plate (<i>12 pages</i>)	034903
Torsten Trittel, Dmitry Puzyrev, and Ralf Stannarius	
Solid Mechanics	
Geometric localization of waves on thin elastic structures (<i>20 pages</i>)	035001
Manu Mannattil and Christian D. Santangelo	
Highly stretchable graphene kirigami with tunable mechanical properties (<i>9 pages</i>)	035002
Pan Shi, Yao Chen, Jian Feng, and Pooya Sareh	
Fluid Dynamics	
Experimental investigation of walking drops: Wave field and interaction with slit structures (<i>21 pages</i>)	035101
Clive Ellegaard and Mogens T. Levinsen	
Numerical simulations of elastic-plastic Richtmyer-Meshkov instability of multiple interfaces (<i>14 pages</i>)	035102
Xiangyi Liu, Fenghui Lin, Zhiye Zhao, Nansheng Liu, and Xiyun Lu	
Correlations in a weakly interacting two-dimensional random flow (<i>15 pages</i>)	035103
I. V. Kolokolov, V. V. Lebedev, and V. M. Parfenyev	
Thermal and compositional driven convection in thin reaction fronts (<i>11 pages</i>)	035104
Johann Quenta and Desiderio A. Vasquez	
Plasma Physics	
Excited states in warm and hot dense matter (<i>9 pages</i>)	035201
C. E. Starrett, T. Q. Thelen, C. J. Fontes, and D. A. Rehn	
Universal scaling of transverse sound speed and its isomorphic property in Yukawa fluids (<i>9 pages</i>)	035202
Nichen Yu, Dong Huang, Shaoyu Lu, Sergey Khrapak, and Yan Feng	
Mode-coupled perturbation growth on the interfaces of cylindrical implosion: A comparison between theory and experiment (<i>12 pages</i>)	035203
Xinyu Zhang, Shuai Zhang, Zixiang Yan, Huiling Duan, Yongkun Ding, and Wei Kang	
From linear to nonlinear Breit-Wheeler pair production in laser-solid interactions (<i>8 pages</i>)	035204
Huai-Hang Song, Wei-Min Wang, Min Chen, and Zheng-Ming Sheng	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW E

THIRD SERIES, VOLUME 109, NUMBER 3

MARCH 2024

Efficient energy transport throughout conical implosions (<i>10 pages</i>)	035205
Yihang Zhang, Zhe Zhang, Xiaohui Yuan, Kevin Glize, Xu Zhao, Ke Fang, Chenglong Zhang, Yufeng Dong, Shaojun Wang, Xuejie Bai, Bingjun Li, Zhengdong Liu, Huigang Wei, Dawei Yuan, Fuyuan Wu, Yanfei Li, Jiayong Zhong, Yutong Li, and Jie Zhang	
Three-dimensional particle-in-cell simulations of laser-driven multiradiation sources based on double-layer targets (<i>7 pages</i>)	035206
Arianna Formenti, Marta Galbiati, and Matteo Passoni	
Large-scale kinetic simulations of colliding plasmas within a hohlraum of indirect-drive inertial confinement fusion (<i>9 pages</i>)	035207
Tianyi Liang, Dong Wu, Xiaochuan Ning, Lianqiang Shan, Zongqiang Yuan, Hongbo Cai, Zhengmao Sheng, and Xiantu He	
Pair filamentation and laser scattering in beam-driven QED cascades (<i>8 pages</i>)	035208
Kenan Qu, Alec Griffith, and Nathaniel J. Fisch	
Computational Physics	
Color-gradient-based phase-field equation for multiphase flow (<i>14 pages</i>)	035301
Reza Haghani, Hamidreza Erfani, James E. McClure, Eirik Grude Flekkøy, and Carl Fredrik Berg	
Chord length sampling with memory effects for spatially heterogeneous Markov media: Application to the rod model (<i>14 pages</i>)	035302
A. Tentori, C. Larmier, J. Durand, B. Cochet, and A. Zoia	
Nonisospectral water wave field: Fast and adaptive modal identification and prediction via reduced-order nonlinear solutions (<i>12 pages</i>)	035303
Long-Yuan Zhang, Jia-Zhi Li, Yu-Kun Chen, and Wen-Yang Duan	

ERRATA

Erratum: Large-scale kinetic roughening behavior of coffee-ring fronts [Phys. Rev. E 106 , 044801 (2022)] (<i>1 page</i>)	039901(E)
B. G. Barreales, J. J. Meléndez, R. Cuerno, and J. J. Ruiz-Lorenzo	