

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 99, NUMBER 4
PARTS A AND B

CONTENTS

APRIL 2019

*The Table of Contents is a total listing of Parts A and B.
Part A consists of pages 040101(R)–042311, and Part B pages 042401–049901(E).*

PART A

RAPID COMMUNICATIONS

Statistical Physics

- Synergy as a warning sign of transitions: The case of the two-dimensional Ising model (*5 pages*) 040101(R)
D. Marinazzo, L. Angelini, M. Pellicoro, and S. Stramaglia

Nonlinear Dynamics and Chaos

- Pattern selection and regulation using noise in a liquid metal (*5 pages*) 040201(R)
Pawan Kumar, J. M. Cruz, and P. Parmananda

Networks and Complex Systems

- Critical transitions in heterogeneous networks: Loss of low-degree nodes as an early warning signal (*5 pages*) 040301(R)
Alessandro Loppini, Simonetta Filippi, and H. Eugene Stanley

Films and Interfaces

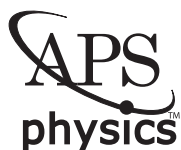
- Geometry-induced interface pinning at completely wet walls (*6 pages*) 040801(R)
Alexandr Malijevský

Granular Materials

- Crackling to periodic dynamics in granular media (*6 pages*) 040901(R)
Aghil Abed Zadeh, Jonathan Barés, and Robert P. Behringer

Plasma Physics

- Spontaneous transport barriers quench turbulent resistivity in two-dimensional magnetohydrodynamics (*6 pages*) 041201(R)
Xiang Fan, P. H. Diamond, and L. Chacón



Copyright 2019 by American Physical Society



2470-0045(201904)99:4:B;1-X

(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).

ARTICLES

Statistical Physics

Diffusion in a bistable system: The eigenvalue spectrum of the Fokker-Planck operator and Kramers' reaction rate theory (<i>12 pages</i>)	042101
Yahui Zhan and Bernie D. Shizgal	
Thermal rectification and heat amplification in a nonequilibrium V-type three-level system (<i>11 pages</i>)	042102
Chen Wang, Dazhi Xu, Huan Liu, and Xianlong Gao	
Nonequilibrium dynamics with finite-time repeated interactions (<i>11 pages</i>)	042103
Stella Seah, Stefan Nimmrichter, and Valerio Scarani	
Large deviations of the length of the longest increasing subsequence of random permutations and random walks (<i>7 pages</i>)	042104
Jörn Börjes, Hendrik Schawe, and Alexander K. Hartmann	
Role of coherence in the nonequilibrium thermodynamics of quantum systems (<i>7 pages</i>)	042105
G. Francica, J. Goold, and F. Plastina	
Quadratic unconstrained binary optimization formulation for rectified-linear-unit-type functions (<i>5 pages</i>)	042106
Go Sato, Makiko Konoshima, Takuya Ohwa, Hirotaka Tamura, and Jun Ohkubo	
Change of entropy for the one-dimensional ballistic heat equation: Sinusoidal initial perturbation (<i>9 pages</i>)	042107
Aleksei A. Sokolov, Anton M. Krivtsov, Wolfgang H. Müller, and Elena N. Vilchevskaya	
Gaussian statistics as an emergent symmetry of the stochastic scalar Burgers equation (<i>7 pages</i>)	042108
Enrique Rodríguez-Fernández and Rodolfo Cuerno	
Typology of phase transitions in Bayesian inference problems (<i>49 pages</i>)	042109
Federico Ricci-Tersenghi, Guilhem Semerjian, and Lenka Zdeborová	
Effects of competition between random sequential nucleation of point-sized seeds and island growth by adsorption of finite-sized grains (<i>7 pages</i>)	042110
Aklima Khanam, Jonathan A. D. Wattis, and M. Kamrul Hassan	
Models of infiltration into homogeneous and fractal porous media with localized sources (<i>11 pages</i>)	042111
Fabio D. A. Aarão Reis and Vaughan R. Voller	
Continuous cascades in the wavelet space as models for synthetic turbulence (<i>20 pages</i>)	042113
Jean-François Muzy	
☞ Data-driven inference of hidden nodes in networks (<i>9 pages</i>)	042114
Danh-Tai Hoang, Junghyo Jo, and Vipul Periwal	
Physical limitations of work extraction from temporal correlations (<i>7 pages</i>)	042115
Elan Stopnitzky, Susanne Still, Thomas E. Ouldridge, and Lee Altenberg	
Random-matrix behavior of quantum nonintegrable many-body systems with Dyson's three symmetries (<i>12 pages</i>)	042116
Ryusuke Hamazaki and Masahito Ueda	

(Continued)

Universality and quasicritical exponents of one-dimensional models displaying a quasitransition at finite temperatures (<i>10 pages</i>)	042117
Onofre Rojas, Jozef Strečka, Marcelo Leite Lyra, and Sergio Martins de Souza	
Flux and storage of energy in nonequilibrium stationary states (<i>5 pages</i>)	042118
Robert Holyst, Anna Maciołek, Yirui Zhang, Marek Litniewski, Piotr Knychała, Maciej Kasprzak, and Michał Banaszak	
Recurrence dynamics of particulate transport with reversible blockage: From a single channel to a bundle of coupled channels (<i>13 pages</i>)	042119
Chloé Barré, Gregory Page, Julian Talbot, and Pascal Viot	
Local smoothing in sandpiles: Spanning avalanches, bifurcation, and temporal oscillations (<i>6 pages</i>)	042120
M. N. Najafi and Z. Moghadam	
Quantum optical two-atom thermal diode (<i>12 pages</i>)	042121
Cahit Kargı, M. Tahir Naseem, Tomáš Opatrný, Özgür E. Müstecaplıoğlu, and Gershon Kurizki	
Condensation of fluctuations in the Ising model: A transition without spontaneous symmetry breaking (<i>9 pages</i>)	042122
Annalisa Fierro, Antonio Coniglio, and Marco Zannetti	
Coordinating dynamical routes with statistical physics on space-time networks (<i>11 pages</i>)	042123
Chi Ho Yeung	
Statistical mechanics of a single active slider on a fluctuating interface (<i>13 pages</i>)	042124
F. Cagnetta, M. R. Evans, and D. Marenduzzo	
Subdiffusion in an external force field (<i>15 pages</i>)	042125
Yao Chen, Xudong Wang, and Weihua Deng	
Fractional Laplacians in bounded domains: Killed, reflected, censored, and taboo Lévy flights (<i>22 pages</i>)	042126
Piotr Garbaczewski and Vladimir Stepanovich	
Nanoparticles in dilute gases: Fundamental equivalence between momentum accommodation and surface adsorption (<i>11 pages</i>)	042127
Changran Liu and Hai Wang	
Effect of a magnetic field on the thermodynamic uncertainty relation (<i>8 pages</i>)	042128
Hyun-Myung Chun, Lukas P. Fischer, and Udo Seifert	
Quantum to classical transition in an information ratchet (<i>8 pages</i>)	042129
Josey Stevens and Sebastian Deffner	
Thermal power of heat flow through a qubit (<i>14 pages</i>)	042130
Erik Aurell and Federica Montana	
Jamming and percolation for deposition of k^2 -mers on square lattices: A Monte Carlo simulation study (<i>11 pages</i>)	042131
A. J. Ramirez-Pastor, P. M. Centres, E. E. Vogel, and J. F. Valdés	
Large fluctuations of a Kardar-Parisi-Zhang interface on a half line: The height statistics at a shifted point (<i>14 pages</i>)	042132
Tomer Asida, Eli Livne, and Baruch Meerson	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW E	THIRD SERIES, VOLUME 99, NUMBER 4	APRIL 2019
Self-assembly of a dimer system (20 pages)		042133
Mobolaji Williams		
Bacterial range expansions on a growing front: Roughness, fixation, and directed percolation (19 pages)		042134
Jordan M. Horowitz and Mehran Kardar		
Autonomous thermal machine for amplification and control of energetic coherence (14 pages)		042135
Gonzalo Manzano, Ralph Silva, and Juan M. R. Parrondo		
Transient response of an electrolyte to a thermal quench (12 pages)		042136
Mathijs Janssen and Markus Bier		
Three-state model with competing antiferromagnetic and pairing interactions (9 pages)		042137
Sergio A. Cannas and Daniel A. Stariolo		
Infinite ergodic theory for heterogeneous diffusion processes (15 pages)		042138
N. Leibovich and E. Barkai		
Eigenstate thermalization hypothesis and out of time order correlators (12 pages)		042139
Laura Foini and Jorge Kurchan		
Melting of a two-dimensional monodisperse cluster crystal to a cluster liquid (11 pages)		042140
Wenlong Wang, Rogelio Díaz-Méndez, Mats Wallin, Jack Lidmar, and Egor Babaev		
Anomalous diffusion behavior in parliamentary presence (8 pages)		042141
Denner S. Vieira, Jesus M. E. Riveiros, Max Jauregui, and Renio S. Mendes		
Landau-Zener Lindblad equation and work extraction from coherences (7 pages)		042142
Juzar Thingna, Massimiliano Esposito, and Felipe Barra		
Dynamic resettlement as a mechanism of phase transitions in urban configurations (12 pages)		042143
Bohdan Slavko, Kirill Glavatskiy, and Mikhail Prokopenko		
Metathermotics: Nonlinear thermal responses of core-shell metamaterials (7 pages)		042144
Shuai Yang, LiuJun Xu, and Jiping Huang		
Collectively enhanced thermalization via multiqubit collisions (9 pages)		042145
Angsar Manatuly, Wolfgang Niedenzu, Ricardo Román-Ancheyta, Barış Çakmak, Özgür E. Müstecaplıoğlu, and Gershon Kurizki		
Quenched disorder in the contact process on bipartite sublattices (7 pages)		042146
M. N. Gonzaga, C. E. Fiore, and M. M. de Oliveira		
Ising distribution as a latent variable model (17 pages)		042147
Adrien Wohrer		
Mobile-to-clogging transition in a Fermi-like model of counterflowing particles (6 pages)		042148
Roberto da Silva and Eduardo V. Stock		
Statistical testing approach for fractional anomalous diffusion classification (10 pages)		042149
Aleksander Weron, Joanna Janczura, Ewa Boryczka, Titiwat Sungkaworn, and Davide Calebiro		

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW E

THIRD SERIES, VOLUME 99, NUMBER 4

APRIL 2019

Geometric properties of the Fortuin-Kasteleyn representation of the Ising model (<i>13 pages</i>)	042150
Pengcheng Hou, Sheng Fang, Junfeng Wang, Hao Hu, and Youjin Deng	
Consequences of residual-entropy hierarchy violation for behavior of the specific heat capacity in frustrated magnetic systems: An exact theoretical analysis (<i>16 pages</i>)	042151
E. Jurčišinová and M. Jurčišin	
Statistical mechanics of systems with long-range interactions and negative absolute temperature (<i>8 pages</i>)	042152
Fabio Miceli, Marco Baldovin, and Angelo Vulpiani	
Nonlinear Dynamics and Chaos	
Directed momentum current induced by the $\mathcal{PT}$ -symmetric driving (<i>7 pages</i>)	042201
Wen-Lei Zhao, Jiaozi Wang, Xiaohui Wang, and Peiqing Tong	
Quantum gears from planar rotors (<i>8 pages</i>)	042202
Zheng Liu, Joshua Leong, Stefan Nimmrichter, and Valerio Scarani	
Synchronization of chaotic systems and their machine-learning models (<i>7 pages</i>)	042203
Tongfeng Weng, Huijie Yang, Changgui Gu, Jie Zhang, and Michael Small	
Volterra-series approach to stochastic nonlinear dynamics: The Duffing oscillator driven by white noise (<i>7 pages</i>)	042204
Roman Belousov, Florian Berger, and A. J. Hudspeth	
$\mathcal{PT}$ -symmetric periodic structures with the modulation of the Kerr nonlinearity (<i>6 pages</i>)	042205
M. V. Komissarova, V. F. Marchenko, and P. Yu. Shestakov	
Doubly nonlinear waveguides with self-switching functionality selection capabilities (<i>14 pages</i>)	042206
Weijian Jiao and Stefano Gonella	
Leap-frog patterns in systems of two coupled FitzHugh-Nagumo units (<i>9 pages</i>)	042207
Sebastian Eydam, Igor Franović, and Matthias Wolfrum	
Extreme multistability in a Josephson-junction-based circuit (<i>5 pages</i>)	042208
Patrick Louodop, Robert Tchitnga, Fernando F. Fagundes, Michaux Kountchou, V. Kamdoun Tamba, Carlos L. Pando L., and Hilda A. Cerdeira	
Asymmetry and sign reversal of secondary Bjerknes force from strong nonlinear coupling in cavitation bubble pairs (<i>11 pages</i>)	042209
Vikash Pandey	
Possible origin of memory in earthquakes: Real catalogs and an epidemic-type aftershock sequence model (<i>8 pages</i>)	042210
Jingfang Fan, Dong Zhou, Louis M. Shekhtman, Avi Shapira, Rami Hofstetter, Warner Marzocchi, Yosef Ashkenazy, and Shlomo Havlin	
Symmetry-based analytical solutions to the $\chi^{(2)}$ nonlinear directional coupler (<i>6 pages</i>)	042211
David Barral, Kamel Bencheikh, Peter J. Olver, Nadia Belabas, and Juan Ariel Levenson	
Transfer entropy computation using the Perron-Frobenius operator (<i>17 pages</i>)	042212
David Diego, Kristian Agasøster Haaga, and Bjarte Hannisdal	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW E

THIRD SERIES, VOLUME 99, NUMBER 4

APRIL 2019

Resonance-assisted tunneling in four-dimensional normal-form Hamiltonians (<i>13 pages</i>)	042213
Markus Firmbach, Felix Fritzsche, Roland Ketzmerick, and Arnd Bäcker	
Effects of chaotic dynamics on quantum friction (<i>8 pages</i>)	042214
Gabriel G. Carlo, Leonardo Ermann, and Alejandro M.F. Rivas	
Investigation of the mechanism of emergence of autowave structures at the reaction front (<i>7 pages</i>)	042215
Eduard O. Yakupov, Andrey A. Polezhaev, Vladimir V. Gubernov, and Taisia P. Miroshnichenko	
Simultaneous unpinning of multiple vortices in two-dimensional excitable media (<i>9 pages</i>)	042216
Henrik tom Wörden, Ulrich Parlitz, and Stefan Luther	
Stabilization of steady states in an array of all-to-all coupled oscillators (<i>6 pages</i>)	042217
Arūnas Tamaševičius, Skaidra Bumelienė, and Elena Adomaitienė	
Networks and Complex Systems	
Fast consensus clustering in complex networks (<i>5 pages</i>)	042301
Aditya Tandon, Aiiad Albeshri, Vijey Thayanathan, Wade Alhalabi, and Santo Fortunato	
Fragility and anomalous susceptibility of weakly interacting networks (<i>7 pages</i>)	042302
Giacomo Rapisardi, Alex Arenas, Guido Caldarelli, and Giulio Cimini	
Multifractality in random networks with power-law decaying bond strengths (<i>7 pages</i>)	042303
Didier A. Vega-Oliveros, J. A. Méndez-Bermúdez, and Francisco A. Rodrigues	
Fixation time in evolutionary graphs: A mean-field approach (<i>7 pages</i>)	042304
Mahdi Hajihashemi and Keivan Aghababaei Samani	
Enhancing network synchronizability by strengthening a single node (<i>9 pages</i>)	042305
Huawei Fan, Yafeng Wang, Kai Yang, and Xingang Wang	
Mixing patterns and individual differences in networks (<i>9 pages</i>)	042306
George T. Cantwell and M. E. J. Newman	
Diffusion dynamics of a conductance-based neuronal population (<i>14 pages</i>)	042307
Argha Mondal, Sanjeev Kumar Sharma, Ranjit Kumar Upadhyay, M. A. Aziz-Alaoui, Prosenjit Kundu, and Chittaranjan Hens	
Generating random networks that consist of a single connected component with a given degree distribution (<i>15 pages</i>)	042308
Ido Tishby, Ofer Biham, Eytan Katzav, and Reimer Kühn	
Spectra of random networks with arbitrary degrees (<i>10 pages</i>)	042309
M. E. J. Newman, Xiao Zhang, and Raj Rao Nadakuditi	
Detectability of macroscopic structures in directed asymmetric stochastic block model (<i>7 pages</i>)	042310
Mateusz Wilinski, Piero Mazzarisi, Daniele Tantari, and Fabrizio Lillo	
Reconstruction of dynamic networks with time-delayed interactions in the presence of fast-varying noises (<i>8 pages</i>)	042311
Zhaoyang Zhang, Yang Chen, Yuanyuan Mi, and Gang Hu	

(Continued)

PART B

Biological Physics

Spatiotemporal dynamics of different growth-diffusion systems on a percolation lattice (<i>11 pages</i>)	042401
Yiqin Liang, Renlong Yang, Yifan Guo, Chongming Jiang, Lizhi Liu, Yanzi Wan, and Yuanzhi Shao	
Quantifying encoding redundancy induced by rate correlations in Poisson neurons (<i>11 pages</i>)	042402
Tim Herfurth and Tatjana Tchumatchenko	
Lane formation and critical coarsening in a model of bacterial competition (<i>11 pages</i>)	042403
Takuro Shimaya and Kazumasa A. Takeuchi	
Determination of effective brain connectivity from activity correlations (<i>5 pages</i>)	042404
J. N. MacLaurin and P. A. Robinson	
Morphological and dynamical properties of semiflexible filaments driven by molecular motors (<i>10 pages</i>)	042405
Nisha Gupta, Abhishek Chaudhuri, and Debasish Chaudhuri	
Network models for characterization of trabecular bone (<i>12 pages</i>)	042406
Avik Mondal, Chantal Nguyen, Xiao Ma, Ahmed E. Elbanna, and Jean M. Carlson	
Neural field theory of effects of brain modifications and lesions on functional connectivity: Acute effects, short-term homeostasis, and long-term plasticity (<i>8 pages</i>)	042407
P. A. Robinson	
Non-Markovian edge-based compartmental modeling (<i>7 pages</i>)	042408
V. P. Shkilev	
☞ Disruption of microbial communication yields a two-dimensional percolation transition (<i>10 pages</i>)	042409
Kalinga Pavan T. Silva, Tahir I. Yusufaly, Prithiviraj Chellamuthu, and James Q. Boedicker	
Pattern phase diagram of spiking neurons on spatial networks (<i>7 pages</i>)	042410
Dionysios Georgiadis and Didier Sornette	
Surface reaction-diffusion kinetics on lattice at the microscopic scale (<i>16 pages</i>)	042411
Wei-Xiang Chew, Kazunari Kaizu, Masaki Watabe, Sithi V. Muniandy, Koichi Takahashi, and Satya N. V. Arjunan	
Stress-stabilized subisostatic fiber networks in a ropelike limit (<i>8 pages</i>)	042412
Sadjad Arzash, Jordan L. Shivers, Albert J. Licup, Abhinav Sharma, and Fred C. MacKintosh	
Linking lineage and population observables in biological branching processes (<i>12 pages</i>)	042413
Reinaldo García-García, Arthur Genthon, and David Lacoste	
Deciphering the transport of elastic filaments by antagonistic motor proteins (<i>30 pages</i>)	042414
Stéphanie Portet, Cécile Leduc, Sandrine Etienne-Manneville, and John Dallon	
Many-body perturbation theory and fluctuation relations for interacting population dynamics (<i>12 pages</i>)	042415
Hideyuki Miyahara	
Exactly solvable model of gene expression in a proliferating bacterial cell population with stochastic protein bursts and protein partitioning (<i>13 pages</i>)	042416
Jakub Jędrak, Maciej Kwiatkowski, and Anna Ochab-Marcinek	

(Continued)

 Embryonic lateral inhibition as optical modes: An analytical framework for mesoscopic pattern formation (<i>8 pages</i>)	042417
Jose Negrete, Jr. and Andrew C. Oates	
Effect of particles with repulsive interactions enclosed in both rigid spherical shells and flexible fluid vesicles studied by Monte Carlo simulation (<i>12 pages</i>)	042418
Hibiki Itoga, Ryota Morikawa, Tsuyoshi Ueta, Takeshi Miyakawa, Yuno Natsume, and Masako Takasu	
How bacterial cells and colonies move on solid substrates (<i>21 pages</i>)	042419
Wolfram Pönisch, Christoph A. Weber, and Vasily Zaburdaev	
Polymers	
Conformation of a semiflexible filament in a quenched random potential (<i>17 pages</i>)	042501
Valentin M. Slepukhin, Maximilian J. Grill, Kei W. Müller, Wolfgang A. Wall, and Alex J. Levine	
Interplay of elastic instabilities and viscoelasticity in the finite deformation of thin membranes (<i>12 pages</i>)	042502
Eduard Benet, Hongtian Zhu, and Franck J. Vernerey	
Colloids, Complex Fluids, and Active Matter	
Dynamic phases, stratification, laning, and pattern formation for driven bidisperse disk systems in the presence of quenched disorder (<i>16 pages</i>)	042601
D. McDermott, Y. Yang, C. J. Olson Reichhardt, and C. Reichhardt	
Spontaneous deswelling of microgels controlled by counterion clouds (<i>12 pages</i>)	042602
U. Gasser, A. Scotti, and A. Fernandez-Nieves	
Glassy dynamics in asymmetric binary mixtures of hard spheres (<i>18 pages</i>)	042603
Edilio Lázaro-Lázaro, Jorge Adrián Perera-Burgos, Patrick Laermann, Tatjana Sentjabrskaja, Gabriel Pérez-Ángel, Marco Laurati, Stefan U. Egelhaaf, Magdaleno Medina-Noyola, Thomas Voigtmann, Ramón Castañeda-Priego, and Luis Fernando Elizondo-Aguilera	
Effective packing fraction for better resolution near the critical point of shear thickening suspensions (<i>8 pages</i>)	042604
Rijan Maharjan and Eric Brown	
Rotating-field-driven ensembles of magnetic particles (<i>6 pages</i>)	042605
M. Belovs, M. Bricis, and A. Čēbers	
Self-organization and energy of superparamagnetic nets (<i>8 pages</i>)	042606
N. Rojas	
Dynamics of dense hard sphere colloidal systems: A numerical analysis (<i>8 pages</i>)	042607
Paolo Sibani and Carsten Svaneborg	
Films and Interfaces	
Investigation of porous materials with large surface heterogeneity using the generalized Porod's scattering law method (<i>17 pages</i>)	042801
Wei-Shan Chiang, Jin-Hong Chen, and Yun Liu	
Effects of a kinetic barrier on limited-mobility interface growth models (<i>8 pages</i>)	042802
Anderson J. Pereira, Sidney G. Alves, and Silvio C. Ferreira	

(Continued)

Finite-size effects on pattern selection in immiscible fluids subjected to horizontal vibrations in weightlessness (<i>14 pages</i>)	042803
P. Salgado Sánchez, Y. A. Gaponenko, J. Porter, and V. Shevtsova	
Bridging of liquid drops at chemically structured walls (<i>8 pages</i>)	042804
Alexandr Malijevský, Andrew O. Parry, and Martin Pospíšil	
Granular Materials	
Enhanced NMR relaxation of fluids confined to porous media: A proposed theory and experimental tests (<i>17 pages</i>)	042901
M. Nascimento, B. Chencarek, A. M. Souza, R. S. Sarthour, B. Coutinho, M. D. Correia, and I. S. Oliveira	
Drastic slowdown of the Rayleigh-like wave in unjammed granular suspensions (<i>9 pages</i>)	042902
Javier Brum, Jean Luc Gennisson, Mathias Fink, Arnaud Tourin, and Xiaoping Jia	
☞ Root growth and force chains in a granular soil (<i>10 pages</i>)	042903
Mahmoud Fakih, Jean-Yves Delenne, Farhang Radjai, and Thierry Fourcaud	
Drag forces in statistically stationary and homogeneous submerged granular flows (<i>11 pages</i>)	042904
E. Nucci, A. Armanini, and M. Larcher	
Solid Mechanics	
Fluid-supported elastic sheet under compression: Multifold solutions (<i>15 pages</i>)	043001
Leonardo Gordillo and Edgar Knobloch	
Extreme contractility and torsional compliance of soft ribbons under high twist (<i>10 pages</i>)	043002
Julien Chopin and Romildo T. D. Filho	
Fluid Dynamics	
Thermocapillary thin-film flows on a compliant substrate (<i>18 pages</i>)	043101
Youchuang Chao and Zijing Ding	
☞ Uplift of an elastic membrane by a viscous flow (<i>10 pages</i>)	043102
Michael Berhanu, Adrien Guérin, Sylvain Courrech du Pont, Fiona Raoult, Rémi Perrier, and Chloé Michaut	
Comparative study of the dynamics of laser and acoustically generated bubbles in viscoelastic media (<i>10 pages</i>)	043103
Chad T. Wilson, Timothy L. Hall, Eric Johnsen, Lauren Mancina, Mauro Rodriguez, Jonathan E. Lundt, Tim Colonius, David L. Henann, Christian Franck, Zhen Xu, and Jonathan R. Sukovich	
Linear motion of multiple superposed viscous fluids (<i>9 pages</i>)	043104
Magnus Vartdal and Andreas N. Osnes	
Contact-angle-hysteresis effects on a drop sitting on an incline plane (<i>10 pages</i>)	043105
Pablo D. Ravazzoli, Ingrith Cuellar, Alejandro G. González, and Javier A. Diez	
Breakup of a leaky dielectric drop in a uniform electric field (<i>23 pages</i>)	043106
Qingming Dong and Amalendu Sau	
Numerical modeling of the dynamics of bubble oscillations subjected to fast variations in the ambient pressure with a coupled level set and volume of fluid method (<i>22 pages</i>)	043107
Indrajit Chakraborty	

(Continued)

Numerical investigation on the collapse of a bubble cluster near a solid wall (<i>7 pages</i>)	043108
Lingxin Zhang, Jing Zhang, and Jian Deng	
Particle-shape-, temperature-, and concentration-dependent thermal conductivity and viscosity of nanofluids (<i>15 pages</i>)	043109
Seyed Aliakbar Mirmohammadi, Mohammadreza Behi, Yixiang Gan, and Luming Shen	
Active lift inversion process of heaving wing in uniform flow by temporal change of wing kinematics (<i>10 pages</i>)	043110
Makoto Iima, Naoto Yokoyama, and Kei Senda	
Plasma Physics	
Analytic theory of relativistic self-focusing for a Gaussian light beam entering a plasma: Renormalization-group approach (<i>12 pages</i>)	043201
V. F. Kovalev and V. Yu. Bychenkov	
Polarized angular-dependent reflectivity and density-dependent profiles of shock-compressed xenon plasmas (<i>12 pages</i>)	043202
Y. Zaporozhets, V. Mintsev, V. Fortov, H. Reinholz, G. Röpke, S. Rosmej, and Y. A. Omarbakiyeva	
Possible detection of high-energy photons from ball lightning (<i>6 pages</i>)	043203
M. L. Shmatov	
<i>In situ</i> spacecraft observations of a structured electron diffusion region during magnetopause reconnection (<i>9 pages</i>)	043204
Giulia Cozzani, A. Retinò, F. Califano, A. Alexandrova, O. Le Contel, Y. Khotyaintsev, A. Vaivads, H. S. Fu, F. Catapano, H. Breuillard, N. Ahmadi, P.-A. Lindqvist, R. E. Ergun, R. B. Torbert, B. L. Giles, C. T. Russell, R. Nakamura, S. Fuselier, B. H. Mauk, T. Moore, and J. L. Burch	
Collisionless shock acceleration of quasimonoenergetic ions in ultrarelativistic regime (<i>10 pages</i>)	043205
Shikha Bhadoria and Naveen Kumar	
Objective magnetic vortex detection (<i>15 pages</i>)	043206
Erico L. Rempel, Tiago F. P. Gomes, Suzana S. A. Silva, and Abraham C.-L. Chian	
Computational Physics	
Event-chain Monte Carlo with factor fields (<i>9 pages</i>)	043301
Ze Lei, Werner Krauth, and A. C. Maggs	
Phase-field method based on discrete unified gas-kinetic scheme for large-density-ratio two-phase flows (<i>23 pages</i>)	043302
Zeren Yang (杨泽人), Chengwen Zhong (钟诚文), and Congshan Zhuo (卓丛山)	
Auxiliary master equation approach within stochastic wave functions: Application to the interacting resonant level model (<i>12 pages</i>)	043303
Max E. Sorantin, Delia M. Fugger, Antonius Dorda, Wolfgang von der Linden, and Enrico Arrigoni	
Machine learning wall effects of eccentric spheres for convenient computation (<i>13 pages</i>)	043304
Lachlan J. Gibson, Shu Zhang, Alexander B. Stilgoe, Timo A. Nieminen, and Halina Rubinsztein-Dunlop	
☞ Deterministic limit of temporal difference reinforcement learning for stochastic games (<i>16 pages</i>)	043305
Wolfram Barfuss, Jonathan F. Donges, and Jürgen Kurths	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW E

THIRD SERIES, VOLUME 99, NUMBER 4

APRIL 2019

Feeding the multitude: A polynomial-time algorithm to improve sampling (<i>15 pages</i>)	043306
Andrew J. Ochoa, Darryl C. Jacob, Salvatore Mandrà, and Helmut G. Katzgraber	
Recognition of polymer configurations by unsupervised learning (<i>10 pages</i>)	043307
Xin Xu, Qianshi Wei, Huaping Li, Yuzhang Wang, Yuguo Chen, and Ying Jiang	
Confusion scheme in machine learning detects double phase transitions and quasi-long-range order (<i>7 pages</i>)	043308
Song Sub Lee and Beom Jun Kim	
Uniform line fillings (<i>9 pages</i>)	043309
Evangelos Marakis, Matthias C. Velsink, Lars J. Corbijn van Willenswaard, Ravitej Uppu, and Pepijn W. H. Pinkse	
High-order lattice-Boltzmann model for the Cahn-Hilliard equation (<i>15 pages</i>)	043310
Chunhua Zhang, Zhaoli Guo, and Hong Liang	

COMMENTS

Comment on “Isochoric, isobaric, and ultrafast conductivities of aluminum, lithium, and carbon in the warm dense matter regime” (<i>5 pages</i>)	047201
B. B. L. Witte, G. Röpke, P. Neumayer, M. French, P. Sperling, V. Recoules, S. H. Glenzer, and R. Redmer	

ERRATA

Publisher’s Note: Role of the range of the interactions in thermal conduction [Phys. Rev. E 94 , 042117 (2016)] (<i>1 page</i>)	049901(E)
Carlos Olivares and Celia Anteneodo	