

BRIEF REPORTS**Statistical physics**

- Clarification of Onsager reciprocal relations based on thermomass theory (*4 pages*) 062101
 Yuan Dong (董源)
- Accuracy and range of validity of the Wigner surmise for mixed symmetry classes in random matrix theory (*2 pages*) 062102
 Shinsuke M. Nishigaki
- Influence of high-order nonlinear fluctuations in the multivariate susceptible-infectious-recovered master equation (*5 pages*) 062103
 Basil S. Bayati and Philip A. Eckhoff
- Capillary condensation in a square geometry with surface fields (*5 pages*) 062104
 M. Zubaszewska, A. Gendiar, and A. Drzewiński
- Bounds of percolation thresholds on hyperbolic lattices (*5 pages*) 062105
 Junghoon F. Lee and Seung Ki Baek

Structured and complex fluids

- Elastic properties of a confined fluid (*5 pages*) 062501
 J. M. Rickman

Films, interfaces, and crystal growth

- Return radius and volume of recrystallized material in Ostwald ripening (*5 pages*) 062601
 Frank Haußer and Evgeny Lakshtanov

Biological physics

- Self-similar dynamics of bacterial chemotaxis (*4 pages*) 062901
 Waipot Ngamsaad and Kannika Khompungson

Biological physics

Cell elongation via intrinsic antipodal stretching forces (<i>5 pages</i>)	061901
T. Sawetzki, C. D. Eggleton, and D. W. M. Marr	
Trajectories of <i>Listeria</i> -type motility in two dimensions (<i>13 pages</i>)	061902
Fu-Lai Wen, Kwan-tai Leung, and Hsuan-Yi Chen	
Phase-locked cluster oscillations in periodically forced integrate-and-fire-or-burst neuronal populations (<i>12 pages</i>)	061903
Angela J. Langdon, Michael Breakspear, and Stephen Coombes	
Denaturation of circular DNA: Supercoils and overtwist (<i>9 pages</i>)	061904
Amir Bar, Alkan Kabakçioğlu, and David Mukamel	
Direct measurement of single soft lipid nanotubes: Nanoscale information extracted in a noninvasive manner (<i>6 pages</i>)	061905
Akihisa Yamamoto and Masatoshi Ichikawa	
DNA translocation through a nanopore in a single-layered doped semiconductor membrane (<i>7 pages</i>)	061906
Ining A. Jou, Dmitriy V. Melnikov, Christopher R. McKinney, and Maria E. Gracheva	
Observed frequency-independent torque in flagellar bacterial motors optimizes space exploration (<i>6 pages</i>)	061907
Mario E. Di Salvo and C. A. Condat	
Induced spiral motion in cardiac tissue due to alternans (<i>8 pages</i>)	061908
Taylor Cameron and Jörn Davidsen	
Simultaneously propagating voltage and pressure pulses in lipid monolayers of pork brain and synthetic lipids (<i>5 pages</i>)	061909
J. Griesbauer, S. Bössinger, A. Wixforth, and M. F. Schneider	
How input fluctuations reshape the dynamics of a biological switching system (<i>7 pages</i>)	061910
Bo Hu, David A. Kessler, Wouter-Jan Rappel, and Herbert Levine	
Low-frequency dielectric dispersion of brain tissue due to electrically long neurites (<i>17 pages</i>)	061911
Hiromu Monai, Masashi Inoue, Hiroyoshi Miyakawa, and Toru Aonishi	
Anharmonic dynamics of intramolecular hydrogen bonds driven by DNA breathing (<i>6 pages</i>)	061913
B. S. Alexandrov, V. G. Stanev, A. R. Bishop, and K. Ø. Rasmussen	
Biofilm growth on rugose surfaces (<i>16 pages</i>)	061914
D. Rodriguez, B. Einarsson, and A. Carpio	
Entropy hysteresis and nonequilibrium thermodynamic efficiency of ion conduction in a voltage-gated potassium ion channel (<i>10 pages</i>)	061915
Biswajit Das, Kinshuk Banerjee, and Gautam Gangopadhyay	
Microscopically computing free-energy profiles and transition path time of rare macromolecular transitions (<i>8 pages</i>)	061916
P. Faccioli and F. Pederiva	
Complex quantum network model of energy transfer in photosynthetic complexes (<i>8 pages</i>)	061917
Bao-quan Ai and Shi-Liang Zhu	

CONTENTS - *Continued*

PHYSICAL REVIEW E

THIRD SERIES, VOLUME 86, NUMBER 6

DECEMBER 2012

Consistent accounting of steric effects for prediction of streaming potential in narrow confinements (<i>5 pages</i>)	061504
Jeevanjyoti Chakraborty, Ranabir Dey, and Suman Chakraborty	
Dynamic behavior of hydration water in calcium-silicate-hydrate gel: A quasielastic neutron scattering spectroscopy investigation (<i>7 pages</i>)	061505
Hua Li, Emiliano Fratini, Wei-Shan Chiang, Piero Baglioni, Eugene Mamontov, and Sow-Hsin Chen	
Induced-charge electro-osmosis beyond weak fields (<i>14 pages</i>)	061506
Ory Schnitzer and Ehud Yariv	
Films, interfaces, and crystal growth	
Patterned surfaces in the drying of films composed of water, polymer, and alcohol (<i>6 pages</i>)	061601
Julie Fichot, Rodolphe Heyd, Christophe Josserand, Igor Chourpa, Emilie Gombart, Jean-Francois Tranchant, and Marie-Louise Saboungi	
Computer simulation of adsorption on nanoparticles: The case of attractive interactions (<i>11 pages</i>)	061602
O. A. Pinto, B. A. López de Mishima, E. P. M. Leiva, and O. A. Oviedo	
Growth rate distribution of NH ₄ Cl dendrite and its scaling structure (<i>5 pages</i>)	061603
Hiroshi Miki and Haruo Honjo	
Sticky steps inhibit step motions near equilibrium (<i>14 pages</i>)	061604
Noriko Akutsu	
Coarsening effect on island-size scaling: The model case InAs/GaAs(001) (<i>4 pages</i>)	061605
M. Fanfoni, F. Arciprete, C. Tirabassi, D. Del Gaudio, A. Filabozzi, A. Balzarotti, F. Patella, and E. Placidi	
Liquid crystals	
Optical diffractometry of highly anisotropic holographic gratings formed by liquid crystal and polymer phase separation (<i>12 pages</i>)	061701
Hiroshi Kakiuchida, Masato Tazawa, Kazuki Yoshimura, and Akifumi Ogiwara	
Low-frequency oscillations of the director in nematic liquid crystals induced by ultrasonic waves (<i>5 pages</i>)	061702
Carlindo Vitoriano and Caio Sátiro	
Theory of elastic interaction between arbitrary colloidal particles in confined nematic liquid crystals (<i>13 pages</i>)	061703
O. M. Tovkach, S. B. Chernyshuk, and B. I. Lev	
High-resolution calorimetric study of phase transitions in chiral smectic-C liquid crystalline phases (<i>5 pages</i>)	061704
Y. Sasaki, K. V. Le, S. Aya, M. Isobe, H. Yao, C. C. Huang, H. Takezoe, and K. Ema	
Polymers	
Polymer-mediated entropic forces between scale-free objects (<i>13 pages</i>)	061801
Mohammad F. Maghrebi, Yacov Kantor, and Mehran Kardar	
Local-feature analysis for automated coarse-graining of bulk-polymer molecular dynamics simulations (<i>14 pages</i>)	061802
Y. Xue, P. J. Ludovice, and M. A. Grover	
Percolating bulk heterostructures from neutron reflectometry and small-angle scattering data (<i>5 pages</i>)	061803
Daniel P. Olds, Phillip M. Duxbury, Jonathan W. Kiel, and Michael E. Mackay	

(Continued)

CONTENTS - Continued

PHYSICAL REVIEW E

THIRD SERIES, VOLUME 86, NUMBER 6

DECEMBER 2012

Dynamic aerofracture of dense granular packings (<i>9 pages</i>)	061315
Michael J. Niebling, Renaud Toussaint, Eirik G. Flekkøy, and Knut Jørgen Måløy	
Experimental study on the effect of surface roughness of the intruder on the Brazil nut problem in a vertically vibrated bed (<i>8 pages</i>)	061316
Chun-Chung Liao, Shu-San Hsiao, and Chi-Sou Wu	
Effect of confinement on dense packings of rigid frictionless spheres and polyhedra (<i>14 pages</i>)	061317
Jean-François Camenen, Yannick Descantes, and Patrick Richard	
Granular mixing and segregation in zigzag chute flow (<i>7 pages</i>)	061318
Suman K. Hajra, Deliang Shi, and J. J. McCarthy	
Colloidal dispersions, suspensions, and aggregates	
Viscoelasticity of two-layer vesicles in solution (<i>11 pages</i>)	061401
C.-Y. David Lu, Shigeyuki Komura, and Kazuhiko Seki	
Rotational ratchets with dipolar interactions (<i>8 pages</i>)	061402
Sebastian Jäger and Sabine H. L. Klapp	
Structure of electrorheological fluids: A dielectric study of chain formation (<i>5 pages</i>)	061403
B. Horváth and I. Szalai	
Magnetic particle hyperthermia: Power losses under circularly polarized field in anisotropic nanoparticles (<i>8 pages</i>)	061404
I. Nándori and J. Rácz	
Coupled stochastic dynamics of magnetic moment and anisotropy axis of a magnetic nanoparticle (<i>8 pages</i>)	061405
R. Taukulis and A. Cēbers	
Possible origin of the crack pattern in deposition films formed from a drying colloidal suspension (<i>7 pages</i>)	061406
Jun Ma and Guangyin Jing	
Structure and dynamics of nanoemulsions: Insights from combining dynamic and static neutron scattering (<i>9 pages</i>)	061407
I. Hoffmann, P. Heunemann, B. Farago, I. Grillo, O. Holderer, M. Päch, and M. Gradzielski	
Ground-state structures and structural transitions in a monolayer of magnetic dipolar particles in the presence of an external magnetic field (<i>17 pages</i>)	061408
Victor Danilov, Taisia Prokopyeva, and Sofia Kantorovich	
Structured and complex fluids	
Dynamic structure factor of density fluctuations from direct imaging very near (both above and below) the critical point of SF ₆ (<i>7 pages</i>)	061501
Ana Oprisan, Sorinel A. Oprisan, Brittany Bayley, John J. Hegseth, Yves Garrabos, Carole Lecoutre-Chabot, and Daniel Beysens	
Finite-size scaling for the glass transition: The role of a static length scale (<i>6 pages</i>)	061502
Smarajit Karmakar and Itamar Procaccia	
Theory of kinetic arrest, elasticity, and yielding in dense binary mixtures of rods and spheres (<i>15 pages</i>)	061503
Ryan Jadrach and Kenneth S. Schweizer	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW E

THIRD SERIES, VOLUME 86, NUMBER 6

DECEMBER 2012

Reductive renormalization of the phase-field crystal equation (<i>12 pages</i>)	061138
Y. Oono and Y. Shiwa	
Equilibrium and linear transport properties of fluids	
Using fundamental measure theory to treat the correlation function of the inhomogeneous hard-sphere fluid (<i>8 pages</i>)	061201
Jeff B. Schulte, Patrick A. Kretzberg, Chris V. Haglund, and David Roundy	
Granular materials	
Jamming in systems with quenched disorder (<i>5 pages</i>)	061301
C. J. Olson Reichhardt, E. Groopman, Z. Nussinov, and C. Reichhardt	
Effect of frictional heat dissipation on the loss of soil strength (<i>7 pages</i>)	061302
S. A. Galindo-Torres, A. Lizcano, and J. D. Muñoz	
Effect of cohesion and shear modulus on the stability of a stretched granular layer (<i>7 pages</i>)	061303
Hector Alarcón, Jean-Christophe G��minard, and Francisco Melo	
Influence of particle rotation on the oblique penetration in granular media (<i>12 pages</i>)	061304
Xiaoyan Ye, Dengming Wang, and Xiaojing Zheng	
Breathers in periodic granular chains with multiple band gaps (<i>10 pages</i>)	061305
C. Hoogeboom and P. G. Kevrekidis	
Wave propagation in square granular crystals with spherical interstitial intruders (<i>11 pages</i>)	061306
I. Szelengowicz, P. G. Kevrekidis, and C. Daraio	
Fiber bundle models for stress release and energy bursts during granular shearing (<i>7 pages</i>)	061307
Gernot Michlmayr, Dani Or, and Denis Cohen	
Rheological effects in the linear response and spontaneous fluctuations of a sheared granular gas (<i>5 pages</i>)	061308
J. Javier Brey, P. Maynar, and M. I. Garc��a de Soria	
Bending and elongation effects on the random packing of curved spherocylinders (<i>11 pages</i>)	061309
Lingyi Meng, Shuixiang Li, Peng Lu, Teng Li, and Weiwei Jin	
Circular ratchets as transducers of vertical vibrations into rotations (<i>5 pages</i>)	061310
Michael Heckel, Patric M��ller, Thorsten P��schel, and Jason A. C. Gallas	
Jamming of particles in a two-dimensional fluid-driven flow (<i>10 pages</i>)	061311
Alfredo Guariguata, Masika A. Pascall, Matthew W. Gilmer, Amadeu K. Sum, E. Dendy Sloan, Carolyn A. Koh, and David T. Wu	
Dip of the granular shear stress (<i>7 pages</i>)	061312
Dmitry O. Krimer, Stefan Mahle, and Mario Liu	
Impact on porous targets: Penetration, crater formation, target compaction, and ejection (<i>9 pages</i>)	061313
Christian Ringl, Eduardo M. Bringa, and Herbert M. Urbassek	
Is axial dispersion within rotating cylinders governed by the Froude number? (<i>5 pages</i>)	061314
J. R. Third and C. R. M��ller	

(Continued)

Quantifying causal coupling strength: A lag-specific measure for multivariate time series related to transfer entropy (<i>15 pages</i>)	061121
Jakob Runge, Jobst Heitzig, Norbert Marwan, and Jürgen Kurths	
Comparison of Shannon information entropies in position and momentum space for an electron in one-dimensional nonuniform systems (<i>9 pages</i>)	061122
Longyan Gong, Ling Wei, Shengmei Zhao, and Weiwen Cheng	
Effects of random and deterministic discrete scale invariance on the critical behavior of the Potts model (<i>7 pages</i>)	061123
Pascal Monceau	
Quenched disorder: Demixing thermal and disorder fluctuations (<i>14 pages</i>)	061124
I. Balog and K. Uzelać	
Spatial log-periodic oscillations of first-passage observables in fractals (<i>4 pages</i>)	061125
Eric Akkermans, Olivier Benichou, Gerald V. Dunne, Alexander Teplyaev, and Raphael Voituriez	
Dynamical Bayesian inference of time-evolving interactions: From a pair of coupled oscillators to networks of oscillators (<i>15 pages</i>)	061126
Andrea Duggento, Tomislav Stankovski, Peter V. E. McClintock, and Aneta Stefanovska	
Role of conviction in nonequilibrium models of opinion formation (<i>6 pages</i>)	061127
Nuno Crokidakis and Celia Anteneodo	
Bernoulli's formula and Poisson's equations for a confined quantum gas: Effects due to a moving piston (<i>10 pages</i>)	061128
Katsuhiko Nakamura, Zarifboy A. Sobirov, Davron U. Matrasulov, and Sanat K. Avazbaev	
Aging and crossovers in phase-separating fluid mixtures (<i>5 pages</i>)	061129
Shaista Ahmad, Federico Corberi, Subir K. Das, Eugenio Lippiello, Sanjay Puri, and Marco Zannetti	
Overdamped dynamics of long-range systems on a one-dimensional lattice: Dominance of the mean-field mode and phase transition (<i>10 pages</i>)	061130
Shamik Gupta, Alessandro Campa, and Stefano Ruffo	
Correlated percolation and tricriticality (<i>13 pages</i>)	061131
L. Cao and J. M. Schwarz	
Equilibrium states of open quantum systems in the strong coupling regime (<i>18 pages</i>)	061132
Y. Subaşı, C. H. Fleming, J. M. Taylor, and B. L. Hu	
Limit laws for the asymmetric inclusion process (<i>17 pages</i>)	061133
Shlomi Reuveni, Iddo Eliazar, and Uri Yechiali	
Analytic treatment of tipping points for social consensus in large random networks (<i>7 pages</i>)	061134
W. Zhang, C. Lim, and B. K. Szymanski	
Minimal model for short-time diffusion in periodic potentials (<i>7 pages</i>)	061135
Clive Emary, Robert Gernert, and Sabine H. L. Klapp	
Entropy production and nonlinear Fokker-Planck equations (<i>6 pages</i>)	061136
G. A. Casas, F. D. Nobre, and E. M. F. Curado	
Spectral relations between products and powers of isotropic random matrices (<i>6 pages</i>)	061137
Z. Burda, M. A. Nowak, and A. Swiech	

CONTENTS - *Continued*

PHYSICAL REVIEW E

THIRD SERIES, VOLUME 86, NUMBER 6

DECEMBER 2012

Specific heats of quantum double-well systems (<i>9 pages</i>)	061104
Hideo Hasegawa	
Path-integral formulation for Lévy flights: Evaluation of the propagator for free, linear, and harmonic potentials in the over- and underdamped limits (<i>13 pages</i>)	061105
Deepika Janakiraman and K. L. Sebastian	
Virtual potentials for feedback traps (<i>8 pages</i>)	061106
Yonggun Jun and John Bechhoefer	
Critical exponents of the quark-gluon bags model with a critical endpoint (<i>13 pages</i>)	061107
A. I. Ivanytskyi, K. A. Bugaev, A. S. Sorin, and G. M. Zinovjev	
Quantum heat engine in the relativistic limit: The case of a Dirac particle (<i>10 pages</i>)	061108
Enrique Muñoz and Francisco J. Peña	
Continuum percolation thresholds in two dimensions (<i>6 pages</i>)	061109
Stephan Mertens and Cristopher Moore	
Fluctuation theorems on the Nishimori line (<i>8 pages</i>)	061110
Masayuki Ohzeki	
Quantum molecular dynamics simulations of thermophysical properties of fluid ethane (<i>6 pages</i>)	061111
Yujuan Zhang, Cong Wang, Fawei Zheng, and Ping Zhang	
Renormalization of the fragmentation equation: Exact self-similar solutions and turbulent cascades (<i>11 pages</i>)	061112
V. L. Saveliev and M. A. Gorokhovski	
Effective-temperature concept: A physical application for nonextensive statistical mechanics (<i>6 pages</i>)	061113
Fernando D. Nobre, Andre M. C. Souza, and Evaldo M. F. Curado	
Mean density of level crossings whose duration exceeds a certain value for a low-friction nonlinear oscillator (<i>9 pages</i>)	061114
A. V. Kargovsky	
Non-Markovian stationary probability density for a harmonic oscillator in an electromagnetic field (<i>7 pages</i>)	061115
J. I. Jiménez-Aquino and M. Romero-Bastida	
Percolation of linear k -mers on a square lattice: From isotropic through partially ordered to completely aligned states (<i>10 pages</i>)	061116
Yuri Yu. Tarasevich, Nikolai I. Lebovka, and Valeri V. Laptev	
Maximum-entropy distributions of correlated variables with prespecified marginals (<i>4 pages</i>)	061117
Hernán Larralde	
Quantum transport efficiency and Fourier's law (<i>5 pages</i>)	061118
Daniel Manzano, Markus Tiersch, Ali Asadian, and Hans J. Briegel	
Critical dynamics of an isothermal compressible nonideal fluid (<i>15 pages</i>)	061119
Markus Gross and Fathollah Varnik	
Survival probability of an immobile target in a sea of evanescent diffusive or subdiffusive traps: A fractional equation approach (<i>8 pages</i>)	061120
E. Abad, S. B. Yuste, and Katja Lindenberg	

(Continued)

PART 1: STATISTICAL, SOFT MATTER, AND BIOLOGICAL PHYSICS

RAPID COMMUNICATIONS

Statistical physics

- Optimal fits of diffusion constants from single-time data points of Brownian trajectories (*5 pages*) 060101(R)
Denis Boyer, David S. Dean, Carlos Mejía-Monasterio, and Gleb Oshanin
- Localization transition of stiff directed lines in random media (*5 pages*) 060102(R)
Horst-Holger Boltz and Jan Kierfeld

Films, interfaces, and crystal growth

- Kinetic cross coupling between nonconserved and conserved fields in phase field models (*5 pages*) 060601(R)
Efim A. Brener and G. Boussinot
- Interfacial free energy of a hard-sphere fluid in contact with curved hard surfaces (*5 pages*) 060602(R)
Brian B. Laird, Allie Hunter, and Ruslan L. Davidchack

Liquid crystals

- Mechanical frustration and spontaneous polygonal folding in active nematic sheets (*3 pages*) 060701(R)
C. D. Modes, M. Warner, C. Sánchez-Somolinos, L. T. de Haan, and D. Broer

Biological physics

- Directional sensing of deformed cells under faint gradients (*5 pages*) 060901(R)
Akinori Baba, Tetsuya Hiraiwa, and Tatsuo Shibata

ARTICLES

Statistical physics

- Shortest-path fractal dimension for percolation in two and three dimensions (*5 pages*) 061101
Zongzheng Zhou, Ji Yang, Youjin Deng, and Robert M. Ziff
- Dissipative Lévy random searches: Universal behavior at low target density (*5 pages*) 061102
P. J. Ribeiro-Neto, E. P. Raposo, H. A. Araújo, C. L. Faustino, M. G. E. da Luz, and G. M. Viswanathan
- Momentum relaxation of a relativistic Brownian particle (*6 pages*) 061103
B. U. Felderhof

