

PHYSICAL REVIEW E

covering statistical, nonlinear, biological, and soft matter physics

Chief Editor

DARIO CORRADINI

Senior Associate Editor

DIRK JAN BUKMAN
(American Physical Society)

Associate Editors

NUNO ARAÚJO

(University of Lisbon)

RALF BUNDSCHUH

(The Ohio State University)

EMILY S.C. CHING

(Chinese University of Hong Kong)

RONALD DICKMAN

(Universidade Federal de Minas Gerais)

MAGNUS JOHANSSON

(Linköping University)

BRUNO LOUREIRO

(CNRS and École Normale Supérieure)

VALERIO LUCARINI

(University of Reading)

ANANYA MONDAL

(American Physical Society)

FILIPPO RADICCHI

(Indiana University)

CATERINA RICONDA

(Sorbonne University)

ELENA SESÉ SANSA

(American Physical Society, Germany)

ALEXANDER WAGNER

(North Dakota State University)

Senior Assistant Editor

MARGARET FOSTER

Senior Editorial Assistant

TERRE ARENA

EDITORIAL BOARD

Term ending 31 December 2024

S. BOETTCHER

H. DIAMANT

I. Y. DODIN

S. FAUVE

T. GINGRICH

H. HAYAKAWA

S. KLUMPP

Y. LEVIN

B. MARSTON

U. PARLITZ

K. TAKEUCHI

D. VAN DER MEER

Term ending 31 December 2025

L. DE ARCANGELIS

G. GOMPPER

I. V. KARLIN

M. LAKSHMANAN

R. M. LUEPTOW

M. S. MURILLO

I. NERI

K. A. NEWHALL

A. TANGUY

TH. VOIGTMANN

Term ending 31 December 2026

K. ALIM

C. ANTENEO DO

M.C. BARBOSA

L. BIFFERALE

R. BURIONI

D. CAMPOS

O. DAUCHOT

A. MERTELJ

D. E. PELINOVSKY

M. A. PORTER

G. RADONS

L. F. SANTOS

G. SCHEHR

H. TOUCHETTE

Statistical Physics, Complex Systems

Solid Mechanics, Colloids, Membranes

Plasma Physics

Fluid Dynamics, Nonlinear Dynamics

Stochastic Thermodynamics, Statistical

Physics, Chemical Kinetics, Biological Physics

Granular Materials, Kinetic Theory,

Nonequilibrium Statistical Mechanics

Biological Physics

Statistical Physics, Complex Fluids

Nonequilibrium Statistical Physics,

Climate Physics

Nonlinear Dynamics, Chaos

Nonlinear and Nonequilibrium

Statistical Physics, Liquid Crystals,

Living Matter

Granular Matter, Physics of Fluids

Statistical Physics, Complex Systems,

Neural Networks

Biological Physics, Soft Matter, Fluid

Dynamics

Computational Fluid Dynamics, Statistical

Physics

Nonlinear Dynamics, Solitons and

Integrable Systems, Bifurcations, Chaos and

Synchronizations

Granular Materials, Fluid Dynamics

Plasma Physics

Disordered Systems, Nonequilibrium

Thermodynamics

Stochastic Dynamical Systems, Soft Matter,

Networks

Solid Mechanics, Amorphous Solids

Complex Fluids, Nonequilibrium Materials,

Soft Matter

Biological, Nonlinear, and Statistical Physics

Stochastic Processes

Complex Systems, Critical Phenomena,

Water and Complex Fluids

Turbulence, Complex Flows

Statistical Physics, Networks and Graphs,

Anomalous Diffusion, Synchronization

Mathematical Biology, Transport Theory

Soft Matter, Nonequilibrium Physics

Liquid Crystals, Soft Matter, Light

Scattering

Solitons, Nonlinear Waves

Complex Systems, Networks, Nonlinear

Systems

Nonlinear Dynamics, Chaos

Quantum Chaos, Nonequilibrium

Quantum Dynamics

Disordered Systems, Extreme Value

Statistics, Stochastic Processes, Active

Particles

Equilibrium and Nonequilibrium

Statistical Mechanics

Email: pre@aps.org

Web: <https://journals.aps.org/pre>

Submissions:

<https://authors.aps.org/Submissions>

American Physical Society

Chief Executive Officer JONATHAN A. BAGGER

Editor in Chief RANDALL D. KAMIEN

Chief Publications Officer RACHEL BURLEY

Director of Publishing JEFF LEWANDOWSKI

Chief Information Officer MARK D. DOYLE

Executive Editor JESSICA THOMAS

Director, Editorial and Publication

Operations CHRISTINE M. GIACCONE

One Physics Ellipse
College Park, MD 20740-3844

Member Subscriptions:
APS Membership Department
One Physics Ellipse
College Park, MD 20740-3844
Phone: (301) 209-3280
Fax: (301) 209-0867
Email: membership@aps.org

Institutional Subscriptions:
APS Subscription Services
P.O. Box 41
Annapolis Junction, MD 20701
Toll free: (888) 339-9655
Phone: (301) 617-7809
Email: subs@aps.org

Copyright © 2024 American Physical Society. All rights reserved.

Physical Review E™ is a trademark of the American Physical Society, registered in the United States, Canada, European Union and Japan.

Rights and Permissions: <https://journals.aps.org/copyrightFAQ.html>

Copying: No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the written permission of the publisher, except as stated below. Single copies of individual articles may be made for private use or research. Authorization is given to copy articles beyond the use permitted by Sections 107 and 108 of the U.S. Copyright Law, provided the copying fee of \$25.00 per copy per article is paid to the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, USA.

Reproduction of an entire article in a reprint collection, or for advertising or promotional purposes, or republication in any form requires permission from APS. Permission must be sought via Aptara's SciPris™ platform. To request permission to republish, refer to the Reuse and Permissions link that can be found (online) on each APS article page and provide the requested information.

Other Use: Permission is granted to quote from the journal with the customary acknowledgment of the source. Permission must be sought using Aptara's SciPris™ platform. To request permission to reproduce a figure, table, or excerpt of an article refer to the Reuse and Permissions link that can be found on each APS article page and provide the requested information. Authorization for private use or research does not extend to systematic or multiple reproduction, to copying for promotional purposes, to distribution in any format, or to republication in any form. In all such cases, specific permission from APS must be obtained.

Physical Review E [ISSN: 2470-0045 (print), 2470-0053 (online); CODEN PLEEE8; printed in USA] is published monthly by the American Physical Society, 100 Motor Parkway, Suite 110, Hauppauge, NY 11788.