ISSN: 0143-3857

VOLUME 45 PART 10 OCTOBER 2025

# Ergodic theory and dynamical systems

MANAGING EDITORS

B. Kra, Northwestern University

I. Melbourne, University of Warwick

EXECUTIVE EDITORS

L. J. Díaz, Pontifícia Universidade Católica do Rio de Janeiro

M. Einsiedler, ETH Zurich

H. Krieger, University of Cambridge

A. Quas, University of Victoria

P. Shmerkin, University of British Columbia

D. Thompson, Ohio State University

SURVEY EDITOR

C. Matheus, École Polytechnique

CAMBRIDGE UNIVERSITY PRESS

https://doi.org/10.1017/etds.2024.109 Published online by Cambridge University Press

# *Ergodic theory and dynamical systems*


## MANAGING EDITORS

B. Kra I. Melbourne
etds@warwick.ac.uk

## EXECUTIVE EDITORS

L. J. Díaz M. Einsiedler H. Krieger
A. Quas P. Shmerkin D. Thompson

## SURVEY EDITOR

C. Matheus

## EDITORIAL BOARD

A. Avila (Université Paris VI)
M. Boyle (University of Maryland)
D. Dolgopyat (University of Maryland)
H. Furstenberg (Hebrew University of Jerusalem)
A. Gorodnik (University of Zurich)
V. Kaloshin (Institute of Science and Technology Austria)
D. Kleinbock (Brandeis University)
F. Ledrappier (Université Paris VI)
E. Lindenstrauss (Hebrew University of Jerusalem)
C. Liverani (University of Rome II)
S. Mozes (Hebrew University of Jerusalem)
Ya. B. Pesin (Pennsylvania State University)
M. Rasmussen (Imperial College London)
R. Sharp (University of Warwick)
W. Shen (Fudan University)
N. Simányi (University of Alabama, Birmingham)
M. Tsujii (Kyushu University)
S. van Strien (Imperial College London)
M. Viana (IMPA, Rio de Janeiro)
T. Ward (University of Newcastle)
B. Weiss (Hebrew University of Jerusalem)
A. Wilkinson (University of Chicago)


*Ergodic Theory and Dynamical Systems* focuses on a rich variety of research areas which, although diverse, employ a variety of dynamical methods. The journal provides a focus for this important and flourishing area of mathematics and brings together major contributions in the field. The journal acts as a forum for central problems of dynamical systems and of interactions of dynamical systems with numerous other areas, including geometry, geometric group theory, number theory, combinatorics, harmonic analysis, operator algebras, celestial and statistical mechanics, and probability theory.


*Copying:* This journal is registered with the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, USA (www.copyright.com). Organizations in the USA who are also registered with CCC may therefore copy material (beyond the limits permitted by sections 107 and 108 of US copyright law) subject to payment to CCC. This consent does not extend to multiple copying for promotional or commercial purposes.

Organizations authorized by the Copyright Licensing Agency may also copy material subject to the usual conditions. For all other use, permission should be sought from Cambridge or the American branch of Cambridge University Press.


*Internet Access:* This journal can be found on Cambridge Core at cambridge.org/ets. For further information on other journals visit cambridge.org/journals.


*Subscriptions: Ergodic Theory and Dynamical Systems* (ISSN 0143-3857) is published monthly. The subscription price (excluding VAT) of volume 45, 2025 which includes print and electronic access, is £2373.00 (US$4120.00 in USA, Canada and Mexico). The electronic-only price available to institutional subscribers is £1586.00 (US$2783.00 in USA, Canada and Mexico). Prices include delivery by air where appropriate. Members of the London Mathematical Society and American Mathematical Society may subscribe for £492.00 (US$813.00). Twelve parts form a volume. EU subscribers may be required to pay import VAT at their country's rate on receipt of physical deliveries. EU subscribers for electronic deliveries who are not VAT registered should add VAT at their country's rate. VAT registered subscribers should provide their VAT number. Orders, which must be accompanied by payment, may be sent to a book-seller, subscription agent or direct to the publishers: Cambridge University Press, Journals Fulfillment Department, Shaftesbury Road, Cambridge CB2 8EA or, in the USA, Canada and Mexico, Cambridge University Press, Journals Fulfillment Department, One Liberty Plaza, Floor 20, New York, NY 10006, USA. Japanese prices for institutions are available from Kinokuniya Company Ltd, P.O. Box 55, Chitose, Tokyo 156, Japan.

For EU product safety concerns, contact us at Calle de José Abascal, 56, 1°, 28003 Madrid, Spain, or email eugpsr@cambridge.org.

*Printed and bound by CPI Group (UK) Ltd, Croydon, CR0 4YY*


© Cambridge University Press & Assessment 2025


Published by Cambridge University Press
Shaftesbury Road, Cambridge CB2 8EA, United Kingdom
One Liberty Plaza, 20th Floor, New York, NY 10006, USA
477 Williamstown Road, Port Melbourne, VIC 3207, Australia
314–321, 3rd Floor, Plot 3, Splendor Forum, Jasola District Centre, New Delhi – 110025, India
103 Penang Road, #05–06/07, Visioncrest Commercial, Singapore 238467



https://doi.org/10.1017/etds.2024.109 Published online by Cambridge University Press