

PROCEEDINGS OF THE ROYAL SOCIETY A

Proc. R. Soc. A publishes articles across the chemical, computational, Earth, engineering, mathematical and physical sciences. The journal publishes research papers, as well as short reviews containing original and interesting new ideas. The articles published are high-quality, original, fundamental articles of interest to a wide range of scientists, and often have long citation half-lives. As well as established disciplines, we encourage emerging and interdisciplinary areas.

rspa.royalsocietypublishing.org

EDITOR

Mark Welland

REVIEWS EDITOR

Michel Destrade

SUBJECT EDITORS

Wendy Hall (Computer Science)

Herbert Huppert (Maths)

Paul O'Brien (Chemistry)

Roger Owen (Engineering)

Ajay Sood (Physics)

PUBLISHING EDITOR

Joanna Harries

EDITORIAL COORDINATOR

Raminder Shergill

PRODUCTION EDITOR

Kelly Mulroue

EDITORIAL BOARD

Stuart Allen

Gouri Ambika

Nils Andersson

Polly Arnold

Mike Ashfold

Martin Barlow

Mustansir Barma

Anthony Barrett

Siegfried Bauer

Simon Benjamin

Philip Broadbridge

Marc Cahay

Vincent Caudrelier

Anthony Davison

Mark Dennis

Vikram Deshpande

Daining Fang

Brian Foster

Marie-Pierre Gaigeot

Chris Garrett

Lucas Goehring

Paul Grassia

Sébastien Guenneau

Xiufeng Han

Anders Hansen

Jerry Heng

Jan Hesthaven

Ian Horrocks

Masuiro Hotta

Yonggang Huang

Susanna Huelga

Giles Hunt

Graham Hutchings

Andrea Idini

Achim Kempf

Brian Launder

Ben Leimkuhler

Anders Lindquist

Juan Lopez

Richard Lueptow

Shankar Madathil

Dougal McCulloch

John Mitchell

Gavin Morley

Xavier Moya

Adri Olde Daalhuis

Beatrice Pelloni

Geraint Price

Nikolaos Sahinidis

Peter Sammonds

Tom Sanders

Jerry Shan

Weiguo Song

Scott Spector

Vas Stavros

David Steigmann

Giovanna Tinetti

Steven Tobias

Chai Keong Toh

Peter Vadasz

Ventsislav Valev

Matt Visser

Chris Williams

Patrick Wolfe

Maohai Xie

Yihui Zhang

SUBSCRIPTIONS

In 2017 *Proc. R. Soc. A* (ISSN 1364-5021) will be published monthly, with twelve issues a year. For more details of subscriptions and single issue sales please contact our fulfilment agent:

Turpin Distribution

The Royal Society Customer Services

Pegasus Drive

Stratton Business Park

Biggleswade SG18 8TQ

United Kingdom

T +44 17 6760 4951

F +44 17 6760 1640

E royalsociety@turpin-distribution.com

Alternatively, please contact our customer service team at:

E sales@royalsociety.org

PRICES FOR 2017

	Online only	Online and print
£ UK/Europe and rest of World	£1,590	£2,226
€ Europe	€2,064	€2,889
\$ US/Canada and rest of World	\$2,994	\$4,191

SUBMISSIONS

For submission guidelines and access to journal content visit:

rspa.royalsocietypublishing.org

Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences

ISSN: 1364-5021

© The Royal Society, 2017

Except as otherwise permitted under the Copyright, Designs and Patents Act, 1988, this publication may only be reproduced, stored or transmitted, in any form or by any other means, with the prior permission in writing of the publisher, or in the case of reprographic reproduction, in accordance with the terms of a licence issued by the Copyright Licensing Agency. In particular, the Society permits the making of a single photocopy of an article from this issue (under Sections 29 and 38 of this Act) for an individual for the purposes of research or private study. Open access articles, which are published under a CC-BY licence, may be re-used without permission, but subject to acknowledgement.