PHILOSOPHICAL TRANSACTIONS
OF THE ROYAL SOCIETY A

Continuing its long history of influential scientific publishing, Phil. Trans. R. Soc. A publishes high quality theme issues on topics of current importance and general interest within the physical, mathematical and engineering sciences, guest-edited by leading authorities and comprising new research, reviews and opinions from prominent researchers. Each issue aims to create an original and authoritative synthesis, often bridging traditional disciplines, which showcases current developments and provides a foundation for future research, applications and policy decisions.

rsta.royalsocietypublishing.org

SUBSCRIPTIONS
In 2017 Phil. Trans. R. Soc. A (ISSN 1364-503X) will be published 26 times 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
Slatton Business Park
Biggleswade
SG18 8TQ
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

SUBMISSIONS
For submission guidelines and access to journal content visit:
rsta.royalsocietypublishing.org

Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences
ISSN 1364-503X
© 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.
The Royal Society is a self-governing Fellowship of many of the world’s most distinguished scientists drawn from all areas of science, engineering, and medicine. The Society’s fundamental purpose, as it has been since its foundation in 1660, is to recognise, promote, and support excellence in science and to encourage the development and use of science for the benefit of humanity.

The Society’s strategic priorities emphasise its commitment to the highest quality science, to curiosity-driven research, and to the development and use of science for the benefit of society. These priorities are:
• Promoting science and its benefits
• Recognising excellence in science
• Supporting outstanding science
• Providing scientific advice for policy
• Fostering international and global cooperation
• Education and public engagement

For further information on the Royal Society
The Royal Society
6 – 9 Carlton House Terrace
London SW1Y 5AG
T +44 20 7451 2500
W royalsociety.org

For further information on Philosophical Transactions of the Royal Society A
T +44 20 7451 2214
E philtransa@royalsociety.org
W rsta.royalsocietypublishing.org