

Editorial Board

Leslie Dutton, Editor

Biochemistry and Biophysics, University of Pennsylvania

Luigi Ambrosio

Centre for Biomaterials, University of Naples "Federico II"

David Balding

Genetics Institute, University College London

James Barber

Wolfson Laboratories, Imperial College London

Serena Best

Department of Materials Science & Metallurgy, University of Cambridge

Jochen Blumberger

Department of Physics and Astronomy, University College London

Erich Bornberg-Bauer

Institute for Evolution and Biodiversity, Evolutionary Bioinformatics Group

David Bowler

Department of Physics and Astronomy, University College London

Markus J. Buehler

Department of Civil and Environmental Engineering, Massachusetts Institute of Technology

Luonan Chen

Key Laboratory of Systems Biology, Shanghai Institutes for Biological Sciences

Richard Cogdell

Institute of Molecular, Cell and Systems Biology, University of Glasgow

Fu-Zhai Cui

Biomaterials Laboratory, Tsinghua University

Athene M Donald

Cavendish Laboratory, University of Cambridge

Mohan Edirisinghe

Mechanical Engineering, University College London

Neil Ferguson

Faculty of Medicine, Imperial College London

Garret FitzGerald

Institute for Transitional Medicine and Therapeutics, Philadelphia

Scott E. Fraser

Division of Biology, California Institute of Technology

Wayne Getz

Department of Environmental Science, Policy & Management, University of California at Berkeley

Lorna Gibson

Department of Materials Science and Engineering, Massachusetts Institute of Technology

Peter Hunter

Bioengineering Institute, University of Auckland

Stephen Hyde

Department of Applied Mathematics, Australian National University

Wolfgang Junge

Department of Biophysics, University of Osnabrück

Hiroaki Kitano

Sony Computer Science Laboratories, Inc., Tokyo

Tadashi Kokubo

Research Institute for Science and Technology, Chubu University

Chwee Teck Lim

Division of Bioengineering & Department of Mechanical Engineering, National University of Singapore

Qingming Luo

Biomedical Photonics, Huazhong University of Science and Technology

David Marsh

Centre for Academic Clinical Orthopaedics, University College London

Teruo Okano

Institute of Advanced Biomedical Engineering and Science, Tokyo Women's Medical University

Eva Pebay-Peyroula

Institut de Biologie Structurale, Grenoble

Josep Planell

Institut de Bioenginyeria de Catalunya, Barcelona

Julia Polak

TERM Centre, Division of Investigative Science, Imperial College London

Elizabeth Tanner

Department of Mechanical Engineering, University of Glasgow

Marco Viceconti

Department of Mechanical Engineering, University of Sheffield

Martin Vingron

Computational Molecular Biology, Max-Planck-Institut für molekulare Genetik, Berlin

John Walker

MRC Mitochondrial Biology Unit, Cambridge

Min Wang

Mechanical Engineering, University of Hong Kong

Marten Wikstrom

Institute of Biotechnology, University of Helsinki

Joseph Zaccai

Institut Laue-Langevin, Grenoble

Xingdong Zhang

Engineering Research Center in Biomaterials, Sichuan University

Publishing Editor: Tim Holt

(tel: +44 (0)20 7451 2649; fax: +44 (0)20 7976 1837; tim.holt@royalsociety.org)

Editorial Coordinator: Alexandra Ashford

(tel: +44 (0)20 7451 2633; interface@royalsociety.org)

Production Editor: Simon Addison

6–9 Carlton House Terrace, London SW1Y 5AG, UK
rsif.royalsocietypublishing.org

AIMS AND SCOPE

Interface is a new international journal publishing papers from the interface between the physical sciences, including mathematics, and the life sciences. It provides a high-quality forum to publish rapidly and interact across this boundary in two main ways: *Interface* publishes research applying chemistry, engineering, materials science, mathematics and physics to the biological and medical sciences; it also highlights discoveries in the life sciences that allow advances in the physical sciences. Both sides of the interface are considered equally.

Copyright © 2012 The Royal Society

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.

SUBSCRIPTIONS

In 2012 *Journal of the Royal Society Interface* (ISSN 1742-5689) will be published monthly, with twelve issues a year. Full details of subscriptions may be obtained either by contacting our journal fulfilment agent, Portland Customer Services, Commerce Way, Colchester CO2 8HP; tel: +44 (0)1206 796351; fax: +44 (0)1206 799331; email: sales@portland-services.com or by visiting our website at royalsocietypublishing/info/subscriptions. From 2008 personal subscriptions are available for this journal – see prices. Full ordering information can be obtained from Portland Customer Services. These rates apply to bona fide individual use only. They must be paid by personal cheque or credit card, and orders cannot be delivered to an institutional address. The Royal Society is Registered Charity No 207043.

Subscription prices 2012	Europe	USA & Canada	All other countries
Institutional – online only	£1345/€1748	US\$2501	£1424/US\$2552
Institutional – combined online with print	£1748/€2272	US\$3251	£1851/US\$3317
Personal	£169/€219	US\$319	£169/US\$319

Typeset in India by Techset Composition Limited, Salisbury, UK. Printed by Latimer Trend, Plymouth.

This paper meets the requirements of ISO 9706:1994(E) and ANSI/NISO Z39.48-1992 (Permanence of Paper) effective with volume 1, issue 1, 2004.

Journal of the Royal Society Interface (ISSN No: 1742-5689) is published monthly for US\$1993 per year by the Royal Society, and is distributed in the USA by Agent named Air Business, C/O Worldnet Shipping USA Inc., 149-35 177th Street, Jamaica, New York, NY11434, USA. US Postmaster: Send address changes to Royal Society Interface, C/O Air Business Ltd, C/O Worldnet Shipping USA Inc, 149-35 177th Street Jamaica, New York, NY11414.