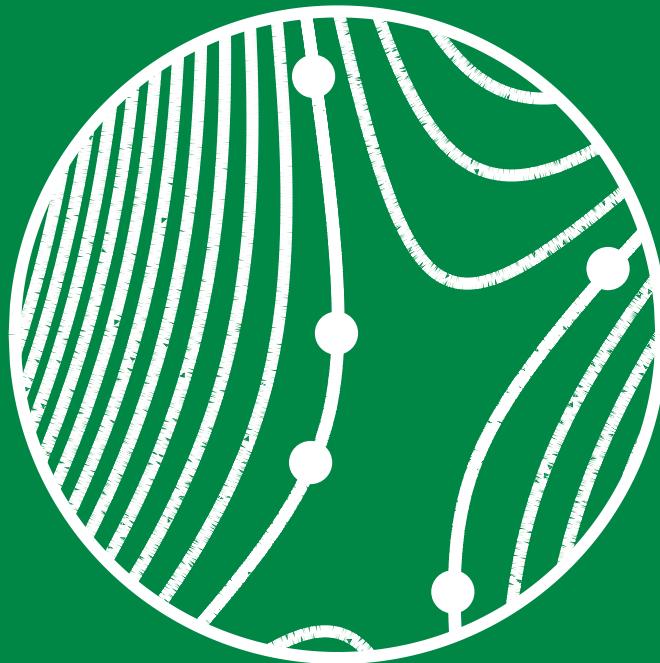


Acta Numerica

Volume 28 2019



CAMBRIDGE
UNIVERSITY PRESS

Managing editor

A. Iserles

*DAMTP, University of Cambridge,
Centre for Mathematical Sciences, Wilberforce Road,
Cambridge CB3 0WA, England*

Editorial Board

- D. N. Arnold, *University of Minnesota, Minneapolis, USA*
F. Brezzi, *Instituto di Analisi Numerica del CNR, Italy*
P. G. Ciarlet, *City University of Hong Kong, China*
W. Dahmen, *RWTH Aachen, Germany*
B. Engquist, *University of Texas, Austin, USA*
N. Higham, *University of Manchester, UK*
I. Ipsen, *North Carolina State University, USA*
E. Tadmor, *University of Maryland, College Park, USA*
R. Temam, *Indiana University, Bloomington, USA*
L. N. Trefethen, *University of Oxford, UK*
B. Wohlmuth, *Technical University of Munich, Germany*
S. J. Wright, *University of Wisconsin, USA*

Acta Numerica

Volume 28 2019



CAMBRIDGE
UNIVERSITY PRESS

Published by the Press Syndicate of the University of Cambridge
The Pitt Building, Trumpington Street, Cambridge CB2 1RP
One Liberty Plaza, Floor 20, New York, NY 10006, USA
10 Stamford Road, Oakleigh, Melbourne 3166, Australia

© Cambridge University Press 2019

First published 2019

Printed in Great Britain at the University Press, Cambridge

Library of Congress cataloguing in publication data available

A catalogue record for this book is available from the British Library

ISBN 978-1-108-47868-7

ISSN 0962-4929

Contents

Solving inverse problems using data-driven models	1
<i>Simon Arridge, Peter Maass, Ozan Öktem and Carola-Bibiane Schönlieb</i>	
Numerical analysis of hemivariational inequalities in contact mechanics	175
<i>Weimin Han and Mircea Sofonea</i>	
Derivative-free optimization methods	287
<i>Jeffrey Larson, Matt Menickelly and Stefan M. Wild</i>	
Numerical methods for Kohn–Sham density functional theory	405
<i>Lin Lin, Jianfeng Lu and Lexing Ying</i>	
Approximation algorithms in combinatorial scientific computing	541
<i>Alex Pothen, S. M. Ferdous and Fredrik Manne</i>	
Data assimilation: The Schrödinger perspective	635
<i>Sebastian Reich</i>	