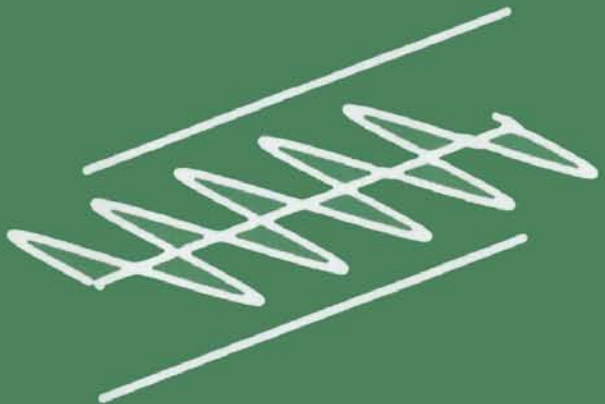


Acta

Numerica

Volume 6

1997



Acta Numerica 1997

Managing editor

A. Iserles

*DAMPT, University of Cambridge, Silver Street
Cambridge CB3 9EW, England*

Editorial Board

C. de Boor, *University of Wisconsin, Madison, USA*

F. Brezzi, *Istituto di Analisi Numerica del CNR, Italy*

J. C. Butcher, *University of Auckland, New Zealand*

P. G. Ciarlet, *Université Paris VI, France*

G. H. Golub, *Stanford University, USA*

H. B. Keller, *California Institute of Technology, USA*

H.-O. Kreiss, *University of California, Los Angeles, USA*

K. W. Morton, *University of Oxford, England*

M. J. D. Powell, *University of Cambridge, England*

R. Temam, *Université Paris-Sud, France*

Acta

Numerica

Volume 6

1997



CAMBRIDGE
UNIVERSITY PRESS

Published by the Press Syndicate of the University of Cambridge
The Pitt Building, Trumpington Street, Cambridge CB2 1RP
40 West 20th Street, New York, NY 10011-4211, USA
10 Stamford Road, Oakleigh, Melbourne 3166, Australia

© Cambridge University Press 1997

First published 1997

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 0-521-59106-6 hardback
ISSN 0962-4929

Contents

Constructing cubature formulae: the science behind the art ...	1
<i>Ronald Cools</i>	
Wavelet and multiscale methods for operator equations	55
<i>Wolfgang Dahmen</i>	
A new version of the Fast Multipole Method for the Laplace equation in three dimensions	229
<i>Leslie Greengard and Vladimir Rokhlin</i>	
Lanczos-type solvers for nonsymmetric linear systems of equations	271
<i>Martin H. Gutknecht</i>	
Numerical solution of multivariate polynomial systems by homotopy continuation methods	399
<i>T. Y. Li</i>	
Numerical solution of highly oscillatory ordinary differential equations	437
<i>Linda R. Petzold, Laurent O. Jay and Jeng Yen</i>	
Computational methods for semiclassical and quantum transport in semiconductor devices	485
<i>Christian Ringhofer</i>	
Complexity theory and numerical analysis	523
<i>Steve Smale</i>	