

Editors

Professor Cedric Taylor
*Department of Civil Engineering,
University of Wales,
Swansea, U.K.*

Dr. Philip M. Gresho
*Lawrence Livermore Laboratory,
University of California,
Livermore, California 94550, U.S.A.*

Advisory Editors

Professor O. C. Zienkiewicz
*Department of Civil Engineering,
University of Wales, Swansea, U.K.*

Professor R. H. Gallagher
*Clarkson University, Potsdam, New York, NY 13676,
U.S.A.*

International Journal for Numerical Methods in FLUIDS

Editorial Board

A. J. Baker
*University of Tennessee, Department
of Engineering Science and Mechanics,
317 Perkins Hall, Knoxville,
Tennessee 37916, U.S.A.*

M. Bercovier
*Division of Applied Mathematics,
School of Applied Science and
Technology, The Hebrew University of
Jerusalem, Givot Ram, Jerusalem,
Israel.*

P. Bettess
*Department of Naval Architecture
and Shipbuilding,
University of Newcastle upon Tyne,
Queen Victoria Road,
Newcastle upon Tyne,
NE1 7RU, U.K.*

G. de Vahl Davis
*School of Mechanical and
Industrial Engineering,
The University of New South Wales,
P.O. Box 1, Kensington, N.S.W.,
Australia 2033.*

J. Donea
*Applied Mechanics Division,
Joint Research Centre,
Ipra Establishment,
21020 Ispra (Varese), Italy.*

D. J. Evans
*Department of Computer Studies,
University of Technology,
Loughborough, Leicestershire, U.K.*

J. H. Ferziger
*Mechanical Engineering Department,
Stanford University,
Stanford, CA 94305, U.S.A.*

B. A. Finlayson
*Dept. of Chemical Engineering, BF-10,
University of Washington, Seattle,
Washington 98195, U.S.A.*

D. K. Gartling
*Fluid Mechanics and Heat Transfer
Division 5511, Sandia Laboratories,
Albuquerque, New Mexico 87115,
U.S.A.*

R. Glowinski
*I.N.R.I.A.,
Domaine de Voluceau-Rocquencourt,
B.P. 105,
78150 Le Chesnay, France.*

M. Godet
*I.N.S.A., Laboratoire de Mecanique
des Contacts Bt 113,
20 Avenue Albert Einstein,
69621 Villeurbanne Cedex, Lyons,
France.*

D. F. Griffiths
*Department of Mathematics,
University of Dundee,
Dundee DD1 4HN,
Scotland.*

W. G. Habashi
*Department of Mechanical Engineering,
Concordia University,
1455 de Maisonneuve Blvd. West,
Montreal, Quebec H3G 1M8, Canada.*

A. Haugel
*Electricite de France Direction, Des Etudes et
Recherches, 6 quai Watier, BP 49, 78401
Chatou Cedex, France.*

T. J. R. Hughes
*Division of Applied Mechanics,
Stanford University,
Stanford, California 94305, U.S.A.*

A. G. Hutton
*Central Electricity Generating Board,
Berkeley Nuclear Laboratories,
Berkeley, Gloucestershire, U.K.*

M. Kawahara
*Chuo University,
Department of Civil Engineering,
Kasuga 1-chome 13, Bunkyo-ku,
Tokyo, Japan.*

R. L. Lee
*Lawrence Livermore Laboratory,
Atmospheric and Geophysical Science
Division, Physics Department,
University of California,
Livermore, California 94550, U.S.A.*

B. P. Leonard
*Department of Mechanical Engineering,
The University of Akron,
Akron, OH 44325, U.S.A.*

J. N. Lillington
*A.E.E. Winfrith,
Dorchester, Dorset
DT2 8DH, U.K.*

U. Meissner
*Universität Hannover,
Lehrstuhl für Stromungsmechanik,
Callinstr. 32, D-3000 Hannover,
West Germany.*

K. W. Morton
*Numerical Analysis Group,
Oxford University Computing
Laboratory, 8-11 Keble Road,
Oxford OX1 3QD, U.K.*

J. T. Oden
*Engineering Mechanics,
The University of Texas at Austin,
Austin, Texas 78712, U.S.A.*

M. D. Olson
*The University of British Columbia,
Department of Civil Engineering,
2075 Wesbrook Place, Vancouver,
British Columbia, Canada V6T 1W5.*

G. F. Pinder
*Princeton University,
Department of Civil Engineering,
School of Engineering/Applied
Science, Princeton,
New Jersey 08544, U.S.A.*

J. N. Reddy
*Virginia Polytechnic Institute and State
University, Department of Engineering
Science and Mechanics,
Norris Hall, Room 220, Blacksburg,
Virginia 24061, U.S.A.*

P. J. Roache
*Ecodynamics, Research Associates Inc.,
P.O. Box 8172, Albuquerque,
New Mexico 87108, U.S.A.*

R. L. Sani
*CIRES, Campus Box 449,
University of Colorado at Boulder,
Boulder, Colorado 80309, U.S.A.*

S. F. Shen
*Cornell University,
Sibley School of Mechanical and
Aerospace Engineering,
Ithaca and Grumman Halls,
Ithaca, New York 14853, U.S.A.*

D. B. Spalding
*Imperial College of Science and
Technology,
Department of Mechanical
Engineering, Exhibition Road,
London SW7 2BX, U.K.*

R. L. Taylor
*University of California,
Department of Civil Engineering,
Berkeley, California 94720, U.S.A.*

J. R. Whiteman
*Director, Institute of Computational
Mathematics, Brunel University,
Uxbridge, Middlesex UB8 3PH*

K. H. Winters
*Theoretical Physics Division, Harwell
Laboratory, Didcot, Oxon OX11 0RA, U.K.*

M. Wolfshtein
*Technion University,
Aero Engineering Department,
Haifa, Israel.*

Advertising: For details contact—

U.K. and Europe: Michael J. Levermore, Advertisement Manager, John Wiley & Sons Ltd., Baffins Lane, Chichester, Sussex, PO19 1UD, England (Telephone 0243 770350).

North America: Arthur C. Lipner, National Advertising Sales Representative, Weston Media Associates, 184 Judd Road, Easton, CT 06612, U.S.A. (Telephone 0101-203-261-2500).

To subscribe: *International Journal for Numerical Methods in Fluids* (ISSN 0271-2091) is published monthly plus an additional volume of three special issues published throughout the year by John Wiley & Sons Limited, Baffins Lane, Chichester, Sussex, England. 1989 subscription prices: to U.K. £250.00, elsewhere U.S. \$450.00; bona fide personal subscriptions: to U.K. £187.50, elsewhere U.S.\$337.50. Second class postage paid at Jamaica, NY 11431. Air Freight and mailing in the U.S.A. by Publications Expediting Services Inc., 200 Meacham Avenue, Elmont, NY 11003. Orders should be addressed to: Subscriptions Department, John Wiley & Sons Limited, Baffins Lane, Chichester, Sussex, PO19 1UD, England. Copyright © 1989 by John Wiley & Sons Ltd. Photo Typeset by Macmillan India Ltd. Printed and bound in Great Britain by Page Bros (Norwich) Ltd, Norwich, Norfolk.

U.S.A. Postmasters: Send address changes to *International Journal for Numerical Methods in Fluids*, c/o Publications Expediting Services Inc., 200 Meacham Avenue, Elmont, NY 11003.