

Editors

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

Dr. Philip M. Gresho
Lawrence Livermore National Laboratory,
P.O. Box 808, L-262, Livermore,
California 94551-9900, U.S.A.

Advisory Editors

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

International Journal for Numerical Methods in FLUIDS

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

Editorial Board

K. J. Bai
Department of Naval Architecture and Ocean
Engineering, Seoul National University,
Seoul 151-742, Korea.

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

M. Bercovic
Division of Applied Mathematics,
School of Applied Science and
Technology, The Hebrew University of
Jerusalem, Givat 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,
Ispra Establishment,
21020 Ispra (Varesel), 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
Department of Mathematics,
University of Houston,
Houston,
TX 77004, U.S.A.

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.

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

A. G. Hutton
Nuclear Electric Plc,
Berkeley Nuclear Laboratories,
Berkeley, Gloucestershire, U.K.

M. Ikegawa
Mechanical Engineering Research Laboratory,
Hitachi Ltd., 502 Kandatsu-machi,
Tsuchiura-shi, Ibaraki-ken 300, Japan.

A. Jameson
Aerospace Engineering D-302D,
Engineering Quadrangle,
Princeton University,
Princeton, NJ 08544, U.S.A.

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.

Y. W. Ma
Institute of Mechanics,
Chinese Academy of Sciences,
15 Zhong Guan Cun Road,
Beijing 100080, China.

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
The University of Vermont,
College of Engineering and Mathematics,
101 Votey Building, Burlington,
Vermont 05405-0156, U.S.A.

O. Pironneau
Institut National de Recherche en
Informatique et en Automatique,
Domaine de Voluceau, Rocquencourt
BP 105-78153 Le Chesnay Cedex, France

C. V. Ramakrishna
Department of Applied Mechanics,
Indian Institute of Technology,
Hauz Khas, New Delhi 110016,
India.

J. N. Reddy
Department of Mechanical Engineering,
Texas A&M University,
College Station,
Texas 77843-3123, U.S.A.

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

P. Roe
Department of Aerospace Engineering,
University of Michigan, Ann Arbor,
Michigan 48109, U.S.A.

R. L. Sani
Department of Chemical Engineering,
University of Colorado, Campus Box 424,
Boulder, Colorado 80309, U.S.A.

S. F. Shen
Cornell University,
Sibley School of Mechanical and
Aerospace Engineering,
Upson 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.

T. E. Tezduyar
Aerospace Engineering and Mechanics
Department, 107 Aderman Hall,
110 Union Street, SE,
University of Minnesota, Minneapolis,
Minnesota 55455, U.S.A.

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

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

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

Cover inset: snapshot of vorticity field for $Re = 250$ —courtesy of Dr. Mark Christon of Lawrence Livermore National Laboratory.

Advertising: For details contact—
Michael J. Levermore, Advertisement Sales, John Wiley & Sons Ltd., Baffins Lane, Chichester, Sussex, PO19 1UD, England (Telephone 0243 770351; fax 0243 775878; telex 86290).

To subscribe: *International Journal for Numerical Methods in Fluids* (ISSN 0271-2091/USPS 586-530) is published semi-monthly by John Wiley & Sons Limited, Baffins Lane, Chichester, Sussex, England. 1994 subscription prices: U.S. \$1225.00; bona fide personal subscriptions to UK £590.00; elsewhere U.S. \$915.00. 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 © 1994 by John Wiley & Sons Ltd. Typeset in the U.K. by Techset Composition, Ltd, Salisbury, Wiltshire. Printed and bound in Great Britain by Page Bros, Norwich. Printed on acid-free paper.

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