

# INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER

## BOARD OF EDITORS

R. ECHIGO (Associate Editor), Dept. of Mechanical Engineering, Tokyo Institute of Technology, Ohokayama 2-12-1, Meguro-ku, Tokyo 152, Japan

J. GOSSE, C.N.A.M., 292 rue Saint-Martin, 75141—Paris Cedex 03, France

U. GRIGULL, Technische Universität, Arcisstrasse 21, München, Germany

E. HAHNE (Associate Editor), Institut für Thermodynamik und Wärmetechnik, Pfaffenwaldring 6, D-7000 Stuttgart 80, Germany

J. P. HARTNETT, Energy Resources Center, University of Illinois, Box 4348, Chicago, Illinois 60680, U.S.A.

S. Y. KO (Associate Editor), Institute of Engineering Thermophysics, Chinese Academy of Sciences, PO Box 2706, Beijing 100080, China

O. G. MARTYNYENKO, Heat and Mass Transfer Institute, Byelorussian Academy of Sciences, 25 Podlesnaya, Minsk, B.S.S.R., U.S.S.R.

W. J. MINKOWYCZ (Associate Editor), Dept. of Mechanical Engineering, University of Illinois, Box 4348, Chicago, Illinois 60680, U.S.A.

Y. MORI, Dept. of Mechanical Engineering, University of Electro-Communications, Chofugaoka 1-5-1, Chofu, Tokyo 182, Japan

B. R. PAI (Associate Editor), National Aeronautical Laboratory, Post Bag No. 1779, Bangalore—560017, India

R. I. SOLOUKHIN, Heat and Mass Transfer Institute, Byelorussian Academy of Sciences, 25 Podlesnaya, Minsk, B.S.S.R., U.S.S.R.

D. B. SPALDING, Bakery House, 40 High Street, Wimbledon, London SW19 5AU, U.K.

C.-L. TIEN, Dept. of Mechanical Engineering, University of California, Berkeley, California 94720, U.S.A.

B. X. WANG, Thermal Engineering Dept., Tsinghua University, Beijing 100084, China

## HONORARY EDITORIAL ADVISORY BOARD

Chairman: E. R. G. ECKERT, University of Minnesota, Minneapolis, Minnesota 55455, U.S.A.

Past-Chairman: OWEN SAUNDERS, F.R.S., Imperial College, London, U.K.

Founding Editor: C. GAZLEY, JR., The RAND Corporation, Santa Monica, California 90406, U.S.A.

F. J. BAYLEY, *Sussex*

A. E. BERGLES, *Ames*

F. BÖSNJAKOVIĆ, *Stuttgart*

M. COMBARNOUS, *Bordeaux*

J. W. CIBOROWSKI, *Warsaw*

J. A. CLARK, *Ann Arbor*

I. CURIEVICI, *Iasi*

D. A. DE VRIES, *Eindhoven*

J. J. D. DOMINGOS, *Lisbon*

R. V. DUNKLE, *Melbourne*

D. K. EDWARDS, *Irvine*

A. ENDRENYI, *Budapest*

B. GEBHART, *Philadelphia*

O. A. GERASHCHENKO, *Kiev*

H. GLASER, *Stuttgart*

R. J. GOLDSTEIN, *Minneapolis*

P. GRASSMAN, *Zürich*

A. A. GUKHMAN, *Moscow*

W. B. HALL, *Manchester*

G. F. HEWITT, *Harwell*

T. W. HOFFMANN, *Hamilton*

T. F. IRVINE, JR., *Stony Brook*

S. KAKAC, *Miami*

Y. KATTO, *Tokyo*

W. M. KAYS, *Stanford*

S. S. KUTATELADZE, *Novosibirsk*

A. I. LEONTIEV, *Moscow*

J. MATHIEU, *Ecully*

M. D. MIKHAILOV, *Sofia*

Yu. A. MIKHAILOV, *Riga*

T. MIZUSHINA, *Kyoto*

I. L. MOSTINSKY, *Moscow*

L. G. NAPOLITANO, *Naples*

R. I. NIGMATULIN, *Moscow*

K. NISHIKAWA, *Hakozaki*

T. D. PATTEN, *Edinburgh*

J. R. A. PEARSON, *London*

G. D. RAITHBY, *Waterloo*

A. RAMACHANDRAN, *Nairobi*

J. F. RICHARDSON, *Swansea*

W. M. ROHSENOW, *Cambridge,*

*Mass.*

J. J. RONCO, *La Plata*

R. H. SABERSKY, *Pasadena*

T. SATO, *Kyoto*

J. SCHNELLER, *Bechovice*

R. A. SEBAN, *Berkeley*

R. SEMERIA, *Grenoble*

R. K. SHAH, *Lockport*

S. SIDEMAN, *Haifa*

R. S. SILVER, *Glasgow*

M. SILVESTRI, *Milan*

H. SIMPSON, *Glasgow*

E. M. SPARROW, *Minneapolis*

M. A. STYRIKOVICH, *Moscow*

J. TABOREK, *Alhambra*

M. G. VELARDE, *Madrid*

R. VISKANTA, *West Lafayette*

D. VORTMEYER, *Munich*

J. W. WESTWATER, *Urbana*

S. M. YANG, *Shanghai*

Z. ZARIC, *Beograd*

A. A. ZHUKAUSKAS, *Vilnius*

## Subscription Rates 1986

For libraries, research establishments and all other multiple-reader institutions—U.S. \$500.00 (including postage and insurance). Two-year rate (1986–1987): U.S. \$950.00. Subscription enquiries from customers in North America should be sent to: Pergamon Press Inc., Maxwell House, Fairview Park, Elmsford, NY 10523, U.S.A., and for the remainder of the world to: Pergamon Press Ltd., Headington Hill Hall, Oxford OX3 0BW, U.K.

## Specially Reduced Rates to Individuals

In the interests of maximizing the dissemination of the research results published in this important international journal we have established a two-tier price structure. Any individual, whose institution takes out a library subscription, may purchase a second or additional subscription for personal use at the much reduced rate of U.S. \$85 per annum.

## Microform Subscriptions and Back Issues

Back issues of all previously published volumes are available in the regular editions and on microfilm and microfiche. Current subscriptions are available on microfiche simultaneously with the paper edition and on microfilm on completion of the annual index at the end of the subscription year.

## Published monthly

Copyright © Pergamon Press Ltd. 1986

It is a condition of publication that manuscripts submitted to this journal have not been published and will not be simultaneously submitted or published elsewhere. By submitting a manuscript, the authors agree that the copyright for their article is transferred to the publisher if and when the article is accepted for publication. However, assignment of copyright is not required from authors who work for organisations which do not permit such assignment. The copyright covers the exclusive rights to reproduce and distribute the article, including reprints, photographic reproductions, microform or any other reproductions of similar nature, and translations. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, electrostatic, magnetic tape, mechanical, photocopying, recording or otherwise, without permission in writing from the copyright holder.

## Photocopying Information for Users in the U.S.A.

The Item-Fee Code for this publication indicates that authorization to photocopy items for internal or personal use is granted by the copyright holder for libraries and other users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service provided the stated fee for copying beyond that permitted by Section 107 or 108 of the United States Copyright Law is paid. The appropriate remittance of \$3.00 per copy per article is paid directly to the Copyright Clearance Center Inc., 21 Congress Street, Salem, MA 01970. The copyright owner's consent does not extend to copying for general distribution, for creating new works, or for resale. Specific written permission must be obtained from the publisher for such copying. In case of doubt please contact your nearest Pergamon office.

The Item-Fee Code for this publication is: 0017-9310/86 \$3.00 + 0.00

## PERGAMON PRESS

Headington Hill Hall,  
Oxford OX3 0BW, U.K.

Maxwell House, Fairview Park,  
Elmsford, New York 10523, U.S.A.