Multiphase Flow

(including Physicochemical Hydrodynamics)

exists for publishing theoretical and experimental investigations of multiphase flow which are of relevance and permanent interest

EDITOR

G. Hetsroni

Department of Mechanical Engineering, Technion—Israel Institute of Technology, Haifa, Israel Currently at: Department of Chemical and Nuclear Engineering, University of California, Santa Barbara, CA 93106, U.S.A.

ASSOCIATE EDITORS

T. J. Hanratty
Department of Chemical Engineering
University of Illinois
Urbana, IL 61801
U.S.A.

V. E. Nakoryakov Institute of Thermophysics 1 Academician Lavrentyev Ave 630090 Novosibirsk U.S.S.R.

EDITORIAL ADVISORY BOARD

K. Akagawa, Kobe, Japan

S. Banerjee, Santa Barbara, CA

S. G. Bankoff, Evanston, IL

K. Becker, Stockholm, Sweden

J. A. Bouré, Grenoble, France

H. Brenner, Cambridge, MA

X.-J. Chen, Xian, China

J. G. Collier, UKAEA, London, England

G. F. Hewitt

HTFS AERE, Harwell Didcot, Oxon. England

A. Serizawa

Department of Nuclear Engineering Kyoto University Sakyo, Kyoto 606 Japan

J. M. Delhaye, Grenoble, France

N. Epstein, Vancouver, Canada

H. K. Fauske, Argonne, IL

P. Griffith, Cambridge, MA

Y. Katto, Tokyo, Japan

F. Mayinger, Munich, F.R.G.

I. Michiyoshi, Kyoto, Japan

O. Molerus, Erlangen, F.R.G.

L. G. Leal

Switzerland

Department of Chemical Engineering and Nuclear Engineering University of California Santa Barbara, CA 93106 U.S.A.

G. Yadigaroglu Institut für Energietechnik ETH-Zentrum 8092 Zurich

U. Müller, Karlsruhe, F.R.G.

P. R. Owen, London, England

R. L. Peskin, Rutgers, NJ

R. Semeria, Grenoble, France

H. C. Simpson, Glasgow, Scotland

S. L. Soo, Urbana, IL

T. Ueda, Tokyo, Japan

G. B. Wallis, Hanover, NH

Publishing Office: Journals Production Unit, Pergamon Press plc, Hennock Road, Marsh Barton, Exeter, Devon EX2 8NE, England [7el. Exeter (0392) 51558; Telex 42749].

Subscription and Advertising Offices: Enquiries from customers in North America should be sent to Pergamon Press Inc., Maxwell House, Fairview Park, Elmsford, NY 10523, U.S.A.; and from the rest of the world to Pergamon Press plc, Headington Hill Hall, Oxford OX3 OBW, England.

Publication Frequency: 6 issues/annum.

Subscription rates. Annual institutional subscription rate (1990), DM 830.00; two-year institutional rate (1990/91), DM 1577.00. Personal rate for those whose library subscribes at the regular rate, DM 140.00. All prices are subject to amendment without notice.

Back issues of all previously published volumes, in both hard copy and on microform, are available direct from Pergamon Press offices.

Copyright © 1990 Pergamon Press plc

an

Elsevier Science Publishers B.V.

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 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 pert 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 bibraries 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 U.S. Copyright Law is paid. The appropriate remittance of \$3.00 per copy per article is paid directly to the Copyright Clearance Center Inc., 27 Congress Street, Salem, MA 01970. The copyright owner's consent does not extend to copying for general distribution, for promotion, for creating new works, or for resale. Specific written permission must be obtained from the publisher for such copying.

The Item-fee Code for this publication is: 0301-9322/90 \$3.00+0.00

© TM The paper used in this publication meets the minimum requirements of American National Standard for Information Sciences—Permanence of Paper for Printed Library Materials, ANSI 239.48-1984.