

VOLUME 29 · PART 1 · FEBRUARY 1983

JPLPBZ 29 (Pt 1) 1-175 (1983) 0022-3778

# JOURNAL OF PLASMA PHYSICS



CAMBRIDGE UNIVERSITY PRESS

JOURNAL OF PLASMA PHYSICS exists for the publication of experimental and theoretical research papers on plasma physics and its applications.

EDITOR

DR J. P. DOUGHERTY

*Department of Applied Mathematics and Theoretical Physics, University of Cambridge,  
Silver Street, Cambridge CB3 9EW, England*

ASSOCIATE EDITORS

PROF. D. BERSHADER

*Department of Aeronautics and Astronautics,  
Stanford University, Stanford, California 94305, U.S.A.*

PROF. F. D. KAHN

*Department of Astronomy, University of Manchester, Manchester M13 9PL, England*

PROF. W. B. THOMPSON

*Department of Physics, University of California, La Jolla, California 92093, U.S.A.*

Authors wishing to have papers published in the JOURNAL should communicate them to any one of the persons named above, choosing one in their own country where possible.

Authors are urged to ensure that their papers are written clearly and attractively, in order that their work will be readily accessible to readers.

Manuscripts should be typed in double spacing on one side of the paper only, with references listed at the end in alphabetical order of authors. Drawings should be done in Indian ink on plain white or transparent paper, and should not be larger than 15 in. by 24 in. Lettering should be shown clearly in pencil for reproduction by the printer, and as far as possible information relating to a figure should be placed in the caption rather than on the figure. A typed list of captions should be provided at the end of the manuscript. Proofs of papers from overseas will usually be despatched to authors by airmail. There is no charge for publication. Authors are entitled to receive 50 offprints of a paper in the JOURNAL free of charge, and additional offprints can be purchased if ordered in advance.

© Cambridge University Press 1983

#### *Copying*

This journal is registered with the Copyright Clearance Center, 21 Congress St., Salem, Mass. 01970. Organizations in the U.S.A. who are also registered with C.C.C. may therefore copy material (beyond the limits permitted by sections 107 and 108 of U.S. copyright law) subject to payment to C.C.C. of the per copy fee of \$05.00. This consent does not extend to multiple copying for promotional or commercial purposes. Code 0022-3778/83/2828-0001 \$05.00.

ISI Tear Service, 3501 Market Street, Philadelphia, Pennsylvania 19104, U.S.A., is authorized to supply single copies of separate articles for private use only.

For all other use, permission should be sought from the Cambridge or New York offices of the Cambridge University Press.

JOURNAL OF PLASMA PHYSICS (ISSN 0022-3778) is published once every two months in February, April, June, August, October and December, by Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge CB2 2RU and 32 East 57th Street, New York, N.Y. 10022.

Three parts form a volume. The subscription price (which includes postage) of Volumes 29 and 30 (1983) is £67.50 net per volume (US \$177.00 in the U.S.A. and Canada) for institutions; £33.75 (US \$88.50) per volume for individuals. Single parts cost £25.00 each (US \$66.50 in the U.S.A. and Canada) plus postage. All orders must be accompanied by payment.

Copies of the journal for subscribers in the United States of America and Canada are sent by air to New York to arrive with minimum delay.

Second class postage paid at New York, N.Y., and at additional mailing offices. POSTMASTER: send address changes in U.S.A., and Canada to Cambridge University Press, 32 East 57th Street, New York, N.Y. 10022.