TRANSACTIONS OF THE AMERICAN MATHEMATICAL SOCIETY

THIS JOURNAL is devoted entirely to research in pure and applied mathematics, and includes, in general, longer papers than those in the PROCEEDINGS.

PREPARATION OF THE MANUSCRIPT. All papers should be typewritten double-spaced, and two copies should be sent to the appropriate editor. The author should keep a complete copy.

FORM OF MANUSCRIPT. The first page should consist of a descriptive title, followed by an abstract which summarizes the article in language suitable for workers in the general field (algebra, analysis, etc.). The descriptive title should be short, but informative; useless or vague phrases such as "Some remarks about" or "concerning" should be avoided. Also avoid proper names unless mathematical usage associates them with the work. The abstract should be at least one complete sentence, and at most 300 words, with the upper limit primarily for longer papers. Included with the footnotes to your paper, but placed before the first footnote, there should be first the 1980 Mathematics Subject Classification representing the primary and secondary subjects of the article, which may be followed by a list of key words and phrases describing the subject matter of the article and taken from it. The 1980 Mathematics Subject Classification with instructions for its use can be found in the 1978 Subject Index to Mathematical Reviews.

SUBMISSION OF MANUSCRIPT. See the inside back cover of this journal.

COPYRIGHT TRANSFER AGREEMENT. The signing of a Copyright Transfer Agreement is a requirement for publication.

GALLEY PROOF. When a paper with more than one author has been accepted for publication, only one set of galley proof will be sent. Joint authors should, therefore, indicate on the original manuscript which of them should receive galley proof in the event that the manuscript is accepted for publication.

PUBLICATION CHARGES. The research journals of the American Mathematical Society carry a page charge of $40.00 per page to help defray the cost of publication. This amount is charged to the institution or to a contract supporting the research reported in the published paper. The publication charge policy of the United States Federal Council for Science and Technology (FCST) is reported on page 112 of the February, 1975 issue of the NOTICES of the American Mathematical Society. In no case is the author personally responsible for paying the page charge, nor is acceptance of his paper for publication dependent upon payment of the page charge.

BACKLOG. None. Two-thirds of the papers currently being accepted by the editors will be published in 10—13 months.

SUBSCRIPTION INFORMATION. TRANSACTIONS OF THE AMERICAN MATHEMATICAL SOCIETY is published monthly. Subscription prices for Volumes 257—262 (1980) are $288.00 list; $144.00 member.

BACK NUMBER INFORMATION. Back number prices per volume are: for Volumes 78—134, $18.00 list, $13.50 member; for Volumes 135—214, $30.00 list, $22.50 member; for Volumes 215—224, $32.00 list, $24.00 member; for Volumes 225—246, $36.00 list, $27.00 member; for Volumes 247—256, $40.00 list, $33.00 member. Volumes 1—77 may be ordered from Johnson Reprint Corporation, 111 Fifth Avenue, New York, New York 10003. Volumes 1—224 are available on 35mm microfilm from University Microfilms International, 300 North Zeeb Road, Ann Arbor, Michigan 48106.

MEMOIRS OF THE AMERICAN MATHEMATICAL SOCIETY

This bimonthly journal is devoted to research in pure and applied mathematics of much the same nature as appears in TRANSACTIONS. An issue consists of one or more separately bound research tracts for which the author(s) has provided reproduction copy. Prior to 1975 this was published as a monograph series. The editorial committee is identical with that for the TRANSACTIONS so that papers intended for publication in this series should be addressed to one of the editors listed on the inside back cover.

Subscriptions and orders for publications of the American Mathematical Society should be addressed to American Mathematical Society, P. O. Box 1571, Annex Station, Providence, R. I. 02901. All orders must be accompanied by payment. Other correspondence should be addressed to P. O. Box 6248, Providence, R. I. 02940.

TRANSACTIONS of the American Mathematical Society is published monthly by the American Mathematical Society at 201 Charles Street, Providence, Rl 02904. Second-class postage is paid at Providence, Rhode Island, and additional mailing offices. Postmaster: Send address changes to TRANSACTIONS, American Mathematical Society, P. O. Box 6248, Providence, RI 02940.

Copyright © 1980 American Mathematical Society
Printed in the United States of America
SUBMISSION OF MANUSCRIPT

Two copies of mathematical papers intended for publication in the TRANSACTIONS or the MEMOIRS should be addressed to one of the editors. Subjects, and the editors associated with them, follow:

- **Real analysis (excluding harmonic analysis)** and applied mathematics to PAUL H. RABINOWITZ, Department of Mathematics, University of Wisconsin, Madison, WI 53706.
- **Harmonic and complex analysis** to R. O. WELLS, JR., Department of Mathematics, Rice University, Houston, TX 77001.
- **Abstract analysis** to W. A. J. LUXEMBURG, Department of Mathematics 253-37, California Institute of Technology, Pasadena, CA 91125.
- **Algebra and number theory (excluding universal algebras)** to MICHAEL ARTIN, Department of Mathematics, Room 2-239, Massachusetts Institute of Technology, Cambridge, MA 02139.
- **Logic, foundations, universal algebras and combinatorics** to JAN MYCIELSKI, Department of Mathematics, University of Colorado, Boulder, CO 80309.
- **Topology** to JAMES D. STASHEFF, Department of Mathematics, University of North Carolina, Chapel Hill, NC 27514.
- **Global analysis and differential geometry** to ALAN D. WEINSTEIN, Department of Mathematics, University of California, Berkeley, CA 94720.
- **Probability and statistics** to STEVEN OREY, School of Mathematics, University of Minnesota, Minneapolis, MN 55455.

All other communications to the editors should be addressed to the Managing Editor, JAMES D. STASHEFF.

COPYING AND REPRINTING

Individual readers of this publication, and nonprofit libraries acting for them are permitted to make fair use of the material, such as to copy an article for use in teaching or research. Permission is granted to quote brief passages from this publication in reviews provided the customary acknowledgement of the source is given.

Republication, systematic copying, or multiple reproduction of any material in this publication (including abstracts) is permitted only under license from the American Mathematical Society. Requests for such permission should be addressed to the Executive Director, American Mathematical Society, Box 6248, Providence, Rhode Island 02940.

The appearance of the code on the first page of an article in this journal indicates the copyright owner's consent for copying beyond that permitted by Sections 107 or 108 of the U. S. Copyright Law, provided that the copier pay the stated per copy fee through the Copyright Clearance Center, Inc., 21 Congress Street, Salem, Massachusetts 01970. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotion purposes, for creating new collective works, or for resale.
CONTENTS

Vol. 262, No. 1  November 1980  Whole No. 546

Kernels for the tangential Cauchy-Riemann equations
   By Al Boggess ............................................................... 1

Countable ultrahomogeneous undirected graphs
   By A. H. Lachlan and Robert E. Woodrow .......................... 51

On a 4-manifold homology equivalent to a bouquet of surfaces
   By Akio Kawauchi ......................................................... 95

Approximation of G-maps by maps in equivariant general position and imbeddings of G-complexes
   By Sören Illman ........................................................... 113

Invariance of solutions to invariant parametric variational problems
   By John E. Brothers ..................................................... 159

Hyperbolic Birkhoff centers
   By I. P. Malta ............................................................. 181

Undecidability and definability for the theory of global fields
   By R. S. Rumely .......................................................... 195

*-valuations and ordered *-fields
   By Samuel S. Holland, Jr. ............................................... 219

Noninvariance of an approximation property for closed subsets of Riemann surfaces
   By Stephen Scheinberg .................................................. 245

Applications of the Fourier-Wiener transform to differential equations on infinite dimensional spaces. I
   By Yuh-Jia Lee .............................................................. 259

Stability of the null solution of parabolic functional inequalities
   By Ray Redheffer and Wolfgang Walter .............................. 285