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 back 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 $50.00 per page to help defray the cost of publication. The 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. 200 pages. Two-thirds of the papers currently being accepted by the editors will be published in 10–12 months.

SUBSCRIPTION INFORMATION. TRANSACTIONS OF THE AMERICAN MATHEMATICAL SOCIETY is published monthly. Subscription prices for Volumes 281–286 (1984) are $445.00 list; $223.00 member.

BACK NUMBER INFORMATION. Back number prices per volume are: for Volumes 78–280, $96.00 list, $72.00 member, Volumes 1–77 may be ordered from Johnson Reprint Corporation, 111 Fifth Avenue, New York, New York 10003. Volumes 1–280 are available on 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.

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:

Ordinary differential equations, partial differential equations and applied mathematics to JOEL A. SMOLLER, Department of Mathematics, University of Michigan, Ann Arbor, MI 48109
Complex and harmonic analysis to LINDA PREISS ROTHSCILD, Department of Mathematics, University of California at San Diego, La Jolla, CA 92093
Abstract, analysis to WILLIAM B. JOHNSON, Department of Mathematics, Ohio State University, Columbus, OH 43210
Algebra, algebraic geometry and number theory to LANCE W. SMALL, Department of Mathematics, University of California at San Diego, La Jolla, CA 92093
Topology to WALTER D. NEUMANN, Department of Mathematics, University of Maryland, College Park, MD 20742
Global analysis and differential geometry to TILLA KLOTZ MILNOR, Department of Mathematics, University of Maryland, College Park, MD 20742
Probability and statistics to DONALD L. BURKholder, Department of Mathematics, University of Illinois, Urbana, IL 61801
Combinatorics and number theory to RONALD L. GRAHAM, Mathematical Studies Department, Bell Laboratories, Murray Hill, NJ 07974
Logic, set theory and general topology to KENNETH KUNEN, Department of Mathematics, University of Wisconsin, Madison, WI 53706

All other communications to the editors should be addressed to the Managing Editor, R. O. WELLS, JR., Department of Mathematics, University of Colorado, Boulder, CO 80309

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, P. O. 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 fee of $1.00 plus $.25 per page for each copy be paid directly to 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.

ABCDEFHGIJ–AMS–8987654
Weighted Lebesgue and Lorentz norm inequalities for the Hardy operator  
By Eric Sawyer .......................................................... 329

A two weight weak type inequality for fractional integrals  
By Eric Sawyer .......................................................... 339

An improved stability result for resonances  
By Mark S. Ashbaugh and Carl Sundberg ......................... 347

The null space and the range of a convolution operator in a fading memory space  
By Olof J. Staffans ....................................................... 361

Approximate subdifferentials and applications. I: The finite dimensional theory  
By A. D. Ioffe ................................................................. 389

Generalized Hua-operators and parabolic subgroups. The cases of SL(n, C) and SL(n, R)  
By Kenneth D. Johnson .................................................. 417
CONTENTS

Vol. 281, No. 1 January 1984 Whole No. 584

Harish-Chandra Modules with the unique embedding property
By David H. Collingwood................................................................. 1

Zero distribution for pairs of holomorphic functions with applications to eigenvalue distribution
By A. A. Shkalikov................................................................. 49

Sets of essentially unitary operators
By Ridgley Lange................................................................. 65

Weighted norm inequalities for strongly singular convolution operators
By Sagun Chanillo................................................................. 77

An algebraic decomposition of the recursively enumerable degrees and the coincidence of several degree classes with the promptly simple degrees
By Klaus Ambos-Spies, Carl G. Jockusch, Jr., Richard A. Shore and Robert I. Soare................................................................. 109

Further results on convergence acceleration for continued fractions $K(a_n/1)$
By Lisa Jacobsen................................................................. 129

Semidirect products and reduction in mechanics
By Jerrold E. Marsden, Tudor Ratiu and Alan Weinstein...... 147

A linear homogenization problem with time dependent coefficient
By Maria-Luisa Mascarenhas................................................................. 179

Homologically homogeneous rings
By K. A. Brown and C. R. Hajarnavis................................................................. 197

Additivity of measure implies additivity of category
By Tomek Bartoszyński................................................................. 209

Nonlinear stability of asymptotic suction
By Milan Miklavčič................................................................. 215

$M$-structure in the Banach algebra of operators on $C_0(\Omega)$
By P. H. Flinn and R. R. Smith................................................................. 233

James maps, Segal maps, and the Kahn-Priddy theorem

James maps and $E_n$ ring spaces
By F. R. Cohen, J. P. May and L. R. Taylor................................................................. 285

On some subalgebras of a von Neumann algebra crossed product
By Baruch Solel................................................................. 297

Extensions of algebraic systems
By Awad A. Iskander................................................................. 309

(Continued on inside back cover)