

JOURNALS PUBLISHED BY THE AMERICAN MATHEMATICAL SOCIETY

Bulletin of the American Mathematical Society is the official organ of the Society. It reports official acts of the Society and the details of its meetings. It contains some of the officially invited addresses presented before the Society, reviews of advanced mathematical books, and has a department of research announcements. Invited addresses offered for publication should be sent to HANS F. WEINBERGER, Department of Mathematics, University of Minnesota, Minneapolis, Minnesota 55455. Book reviews should be sent to GIAN-CARLO ROTA, Department of Mathematics, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139. Research announcements should be sent directly to a member of the Council of the American Mathematical Society. All other correspondence about research announcements should be sent to JOHN L. KELLEY, Department of Mathematics, University of California, Berkeley, California 94720. A list of members of the Council for 1973 is listed on the inside back cover. All other communications to the editors should be sent to the Managing Editor, GIAN-CARLO ROTA.

The first page of each article, including research announcements, that is submitted for publication should bear a *descriptive title* which should be short, but informative. Useless or vague phrases such as "some remarks about" or "concerning" should be avoided. Before the first footnote, there should be the *AMS (MOS) subject classification numbers* representing the primary and secondary subjects of the article. If a list of *key words and phrases* describing the subject matter of the article is included, it will also be printed as a footnote on the first page. The AMS (MOS) Subject Classification Scheme (1970) with instructions for its use can be found as an appendix to MATHEMATICAL REVIEWS, index to volume 39 (1970). See the June 1970 NOTICES for more details, as well as illustrative examples. The subscription price is \$14 per annual volume of six numbers.

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.

BULLETIN: BACKLOG. NONE. 90% of the papers currently being communicated by the editors will be published in 5–6 months.

Proceedings of the American Mathematical Society is a monthly journal devoted entirely to research in pure and applied mathematics, principally to the publication of original papers of moderate length. A department called Shorter Notes was established for the purpose of publishing very short papers of an unusually elegant and polished character for which there is normally no other outlet. Papers in algebra, number theory, and algebraic geometry should be sent to GEORGE B. SELIGMAN, Department of Mathematics, Yale University, New Haven, Connecticut 06520 or to JOSEPH J. ROTMAN, Department of Mathematics, University of Illinois, Urbana, Illinois 61801; in modern or classical analysis to JACOB FELDMAN, Department of Mathematics, University of California, Berkeley, California 94720, to RICHARD R. GOLDBERG, Department of Mathematics, University of Iowa, Iowa City, Iowa 52240 or to ALLEN L. SHIELDS, Department of Mathematics, University of Michigan, Ann Arbor, Michigan 48104; in set-theoretic and general topology to W. WISTAR COMFORT, Department of Mathematics, Wesleyan University, Middletown, Connecticut 06457; in algebraic topology and all other geometry to GLEN E. BREDON, Department of Mathematics, Rutgers University, New Brunswick, New Jersey 08903; in applied mathematics, differential equations, and related areas of analysis to FRED G. BRAUER, Department of Mathematics, University of Wisconsin, Madison, Wisconsin 53706; in probability, statistics, and related fields to JAMES D. KUELBS, Department of Mathematics, 213 Van Vleck Hall, University of Wisconsin, Madison, Wisconsin 53706; in logic, set theory, and related areas to ROBERT I. SOARE, Department of Mathematics, University of Illinois at Chicago Circle, Chicago, Illinois 60680; in combinatorics and related areas of discrete mathematics to JAY R. GOLDMAN, School of Mathematics, University of Minnesota, Minneapolis, Minnesota 55455. All other communications should be addressed to the Managing Editor, JOSEPH J. ROTMAN.

Mathematics of Computation is a quarterly journal devoted to original papers in numerical analysis, the application of numerical methods and high-speed calculator devices, the computation of mathematical tables, the theory of high-speed calculating devices, and other aids to computation. In addition, reviews and notes in these and related fields are published. Prospective publications should be sent to the Editor, EUGENE ISAACSON, Courant Institute of Mathematical Sciences, New York University, 251 Mercer Street, New York, New York 10012.

Mathematical Reviews is a monthly journal devoted to abstracts and reviews of the current mathematical literature of the world. Each volume consists of six regular issues plus an index issue. Abstracts and reviews are grouped under subject headings.

Transactions of the American Mathematical Society is a monthly journal devoted entirely to research in pure and applied mathematics and, in general, includes longer papers than those in the PROCEEDINGS. Papers in analysis and applied mathematics should be sent to FRANÇOIS TREVES, Department of Mathematics, Rutgers University, New Brunswick, New Jersey 08903; in topology to STEVE ARMENTROUT, Department of Mathematics, Pennsylvania State University, University Park, Pennsylvania 16802; in algebra, number theory, and logic to DOCK S. RIM, Department of Mathematics, University of Pennsylvania, Philadelphia, Pennsylvania 19104; in geometry and abstract analysis to SHLOMO STERNBERG, Department of Mathematics, Harvard University, Cambridge, Massachusetts 02138; in statistics and probability to HARRY KESTEN, Department of Mathematics, Cornell University, Ithaca, New York 14850; in mathematical logic and foundations to ALISTAIR H. LACHLAN, Department of Mathematics, Simon Fraser University, Burnaby, 2 British Columbia, Canada. All other communications to the editors should be addressed to the Managing Editor, STEVE ARMENTROUT.

Memoirs of the American Mathematical Society constitute a series of paperbound research tracts which are of the same general character as the papers published in the TRANSACTIONS. An issue of the MEMOIRS contains either a single monograph or a group of cognate papers. Information on preparation of camera copy and charges for publication may be obtained by writing to the Editorial Department of the American Mathematical Society. Papers should be sent to the appropriate editor of TRANSACTIONS.

Notices of the American Mathematical Society, published eight times a year, announces the programs of the meetings of the Society. The NOTICES carries the abstracts of all contributed papers presented at the meetings of the Society and publishes news items of interest to mathematical scientists. All communications should be addressed to the Editor, American Mathematical Society, P.O. Box 6248, Providence, Rhode Island 02904. News items and insertions for each issue must be in the hands of the editor on or before the deadline for the abstracts for the papers to be presented in the meetings announced in that issue. These deadlines are published regularly on the inside front cover.

Soviet Mathematics—Doklady is a bimonthly translation journal containing the entire pure mathematics section of the DOKLADY AKADEMIJ NAUK SSSR, the Reports of the Academy of Sciences of the USSR. DOKLADY publishes about 500 articles a year, each about four pages long.

Mathematics of the USSR—Izvestija, a bimonthly journal, is a cover-to-cover translation of IZVESTIJA AKADEMIJ NAUK SSSR SERIJA MATEMATIČESKAJA, published by the Academy of Sciences of the USSR. This is a journal of current research in all fields of pure mathematics.

Mathematics of the USSR—Sbornik is a monthly journal and is a cover-to-cover translation of MATEMATIČESKIJ SBORNIK (NOVAJA SERIJA), published by the Moscow Mathematical Society and the Academy of Sciences of the USSR. This is a journal of current research in all fields of pure mathematics.

CURRENT AWARENESS SERVICES

Contents of Contemporary Mathematical Journals and New Publications, published bi-weekly, reproduces the tables of contents of approximately 250 mathematical journals. Every other month this journal carries announcements of new books and journals in all fields of higher mathematics and a section on both forthcoming and recently published books.

Paul Ponomarev. Class numbers of definite quaternary forms with nonsquare discriminant	594
Bang-Yen Chen. Surfaces with a parallel isoperimetric section . . .	599
N. Levitt. Homotopy equivalences which are cellular at the prime 2	601
R. E. Greene and H. Wu. Curvature and complex analysis. III.....	606
W. V. Petryshyn and P. M. Fitzpatrick. Degree theory for non-compact multivalued vector fields.....	609
Corrigendum, Volume 78	614
Erratum, Volume 77	614

Members of the Council for 1973

Richard D. Anderson, Steve Armentrout, Robert G. Bartle, Hyman Bass, Paul T. Bateman, Anatole Beck, James H. Bramble, Fred G. Brauer, Glen E. Bredon, William Browder, Edgar H. Brown, Jr., R. Creighton Buck, Alberto P. Calderón, George F. Carrier, S. S. Chern, W. Wistar Comfort, Morton L. Curtis, Samuel Eilenberg, Jacob Feldman, Frederick W. Gehring, Richard R. Goldberg, Michael Golomb, Walter H. Gottschalk, Mary W. Gray, Paul R. Halmos, Orville G. Harrold, Jr., Alston S. Householder, Eugene Isaacson, Nathan Jacobson, John L. Kelley, Harry Kesten, Alistair H. Lachlan, Saunders Mac Lane, W. T. Martin, Arthur P. Mattuck, Edwin E. Moise, Cathleen S. Morawetz, P. S. Mostert, Richard S. Pierce, Everett Pitcher, Murray H. Protter, Dock S. Rim, Alex Rosenberg, Kenneth A. Ross, Gian-Carlo Rota, Joseph J. Rotman, Mary Ellen Rudin, Jacob T. Schwartz, Robert T. Seeley, George B. Seligman, James B. Serrin, I. M. Singer, Elias M. Stein, Shlomo Sternberg, Dorothy Maharam Stone, Olga Taussky Todd, François Trèves, Hans F. Weinberger, John W. Wrench, Jr.

CONTENTS

May, 1973

Mark B. Wells. Review of "The Art of Computer Programming, Volume 1. Fundamental Algorithms and Volume 2. Semi-numerical Algorithms" by Donald E. Knuth	501
R. D. Schafer. Review of "Structure and Representations of Jordan Algebras" by Nathan Jacobson	509
Larry Joel Goldstein. Review of "Introduction to the Arithmetic Theory of Automorphic Functions" by Goro Shimura.....	514
The October Meeting in Providence.....	517
Edward A. Bender and Norman P. Herzberg. Symmetric matrices, characteristic polynomials, and Hilbert symbols over local number fields	518
Frank Gerth III. Ranks of Sylow 3-subgroups of ideal class groups of certain cubic fields.....	521
C. T. C. Wall. Some L groups of finite groups.....	526
R. A. Tapia. A characterization of inner product spaces.....	530
J. M. Bownds and J. M. Cushing. A representation formula for linear Volterra integral equations.....	532
J. Marsden. The Hopf bifurcation for nonlinear semigroups.....	537
R. B. Kirk. Topologies on spaces of Baire measures	542
I. E. Leonard and K. Sundaresan. Geometry of Lebesgue-Bochner function spaces—smoothness	546
G. Lusztig. On the discrete representations of the general linear groups over a finite field.....	550
Louis Brickman. Φ -like analytic functions. I	555
Masamichi Takesaki. Periodic and homogeneous states on a von Neumann algebra. III.....	559
E. H. Luchins and K. C. Mastan. Quasinilpotent operators as norm limits of nilpotent operators	564
P. C. Rosenbloom. A fixed point theorem for mappings in scaled metric spaces, with applications to partial differential equations	566
Louis H. Kauffman. Link manifolds and periodicity	570
Judith D. Sally and Wolmer V. Vasconcelos. Stable rings and a problem of Bass	574
Sylvain E. Cappell and Julius L. Shaneson. Nonlocally flat embeddings, smoothings, and group actions.....	577
James H. White. Equilibrium positions for equally charged particles on a surface	583
Chaim Samuel Hönl. The Green function of a linear differential equation with a lateral condition	587