

# NOTICES

OF THE

## AMERICAN MATHEMATICAL SOCIETY

EDITED BY

W. T. MARTIN

G. B. PRICE

ISSUE NUMBER 5

October, 1954

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## REDUCED DUES FOR SERVICE MEN

The Council of the Society, with the approval of the Trustees, has authorized reduced dues for members of the Society who are serving as enlisted men in the armed forces of the United States or Canada. Dues have been fixed at \$1.00 per year for such individuals. Members taking advantage of these reduced dues will continue to receive all the privileges of membership in the Society, including the Bulletin, Proceedings, and Notices.

In order to obtain this privilege of reduced dues, a member must be in good standing at the time he requests the privilege and, in particular, must have discharged any past dues and other financial obligations to the Society.

This privilege is normally available for a period of two years, but extensions may be made at the discretion of the Secretary of the Society.

E. G. Begle  
Secretary

## MEMOIRS OF THE AMERICAN MATHEMATICAL SOCIETY NUMBER 13

*Contributions to the asymptotic theory of ordinary differential equations in the complex domain.* By Walter Strodt. 84 pages. \$1.50. To appear soon.

The author initiates a study of the  $n$ th order ordinary differential equation, from the point of view of determining those solutions which are of minimal rate of growth in a sectorial neighborhood of infinity. The concept of minimal rate of growth is defined in terms of a new order relation, abstracted from the comparison of logarithmic monomials, that is, products of real powers of  $x$ ,  $\log x$ ,  $\log \log x$ ,  $\dots$ . The coefficients in the equations are assumed to be asymptotically equivalent to logarithmic monomials, in a sense natural to the order relation, and are subjected to subsidiary restrictions. An algorithm is introduced which yields one or several logarithmic monomials (principal monomials) which are approximate solutions and are minimal among all approximate solutions. In the first order case solutions are found which are asymptotically equivalent to the principal monomials. These solutions are minimal, and the totality of all minimal solutions is completely determined. This extends classical results of Briot and Bouquet, Chazy, and Horn.

Order directly from the American Mathematical Society, 80 Waterman Street, Providence 6, Rhode Island. 25 percent discount to members of the Society.

## FIVE HUNDRED SIXTH MEETING

Cambridge, Massachusetts

October 30, 1954

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### PROGRAM

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The five hundred sixth meeting of the American Mathematical Society will be held on Saturday, October 30, at the Massachusetts Institute of Technology, Cambridge, Massachusetts.

Professor Arne Beurling of the Institute for Advanced Study will deliver an address entitled: *On the Lebesgue-Stieltjes integral* at 2:00 P.M. by invitation of the Committee to Select Hour Speakers for Eastern Sectional Meetings, in Room 2-190, Building 2.

Sessions for contributed papers will be held at 10:00 A.M. and at 3:10 P.M. in Rooms 2-190, 2-146, Building 2 and Room 6-120, Building 6.

The Mathematics Common Room, 2-251, will be available for informal discussions.

The Massachusetts Institute of Technology is located on the Cambridge side of the Charles River approximately one to two miles from the various railway stations in Boston. It is easily accessible by automobile, subway, trackless trolley, or taxicab. There will be ample free parking space in the East Parking Lot of the Institute grounds for those travelling by automobile. The entrance to this parking lot is at the corner of Main and Vassar Streets.

The sessions will be held on Buildings 2 and 6. The most convenient entrance for those coming by automobile or subway is the Building 6 entrance. It is a 7-10 minute walk from the Kendall Square Station of the Cambridge-Dorchester subway. This subway may be boarded at various points including South Station, Boston. Those coming by taxicab or trackless trolley should enter at the main entrance, 77 Massachusetts Avenue. This entrance and the Building 6 entrance will be the only ones open.

A registration desk will be maintained in Building 2.

The time indicated is Eastern Daylight Saving Time.

PROGRAM OF THE SESSIONS  
(Time limit for contributed papers, 10 minutes)

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SATURDAY 10:00 A.M.

**Session on Algebra and Geometry, Room 6-120, Building 6**

- (1) Lie algebras of algebraic linear transformations  
Dr. C. W. Curtis, University of Wisconsin and Institute for Advanced Study
- (2) The group of formal power series under iteration  
Professor N. J. Fine, University of Pennsylvania and Dr. Bertram Kostant, Institute for Advanced Study
- (3) Automorphisms of finite factors  
Professor I. M. Singer, University of California, Los Angeles, and Columbia University
- (4) The Lie algebra of infinitesimal motions of a Riemannian manifold. Preliminary report  
Dr. Bertram Kostant, Institute for Advanced Study
- (5) On the total curvature of a simple closed curve in a Riemannian manifold  
Professor C. C. Hsiung, Lehigh University
- (6) On the determination of affine connection in metric spaces  
Professor Valdemars Punga, Rensselaer Polytechnic Institute

**Session on Analysis, Room 2-190, Building 2**

- (7) Fejér's theorem on the zeros of extremal polynomials generalized. Preliminary report  
Mr. Mishael Zedek, Harvard University  
(Introduced by Professor Garrett Birkhoff)
- (8) On completeness of Boolean algebras of projections in Banach spaces  
Dr. W. G. Bade, Yale University
- (9) On a class of polynomials orthogonal over a denumerable set  
Dr. H. O. Pollak, Dr. G. H. Wannier, Bell Telephone Laboratories, Incorporated, and Professor D. J. Dickinson, Pennsylvania State University
- (10) Projections in the space ( $m$ )  
Professor R. C. James, Haverford College
- (11) Weak compactness and vector measures  
Dr. R. G. Bartle, Professor Nelson Dunford, and Professor J. T. Schwartz, Yale University

- (12) Summation of bounded divergent sequences, topological methods  
Professor Albert Wilansky, Lehigh University and Dr. Karl Zeller, Tubingen University
- (13) Probability of roots of a real quadratic equation whose absolute value is less than a positive constant  $c$   
Professor Joseph Andrushkiw, Seton Hall University
- (14) Compact transformations and the  $k$ -topology in Hilbert space  
Mr. R. A. Raimi, University of Rochester

**Session on Analysis and Applied Mathematics, Room 2-146, Building 2**

- (15) On the classification of Bôcher equations  
Professor Domina E. Spencer, University of Connecticut
- (16) Digitalization and systematization of some aspects of the functional calculus of symbolic logic  
Dr. R. S. Ledley, National Bureau of Standards, Washington
- (17) Application of two methods of numerical analysis to the computation of the reflected radiation of a point source  
Professor Peter Henrici, American University
- (18) On a class of minimum-maximum problems  
Mr. D. S. Carter, Los Alamos Scientific Laboratory  
(Introduced by Professor Joseph Lehner)
- (19) Weak solutions of difference equations  
Professor P. E. Guenther, Case Institute of Technology
- (20) Asymptotic distribution of eigenvalues and eigenfunctions for the general self-adjoint elliptic boundary value problem  
Dr. F. E. Browder, Fayetteville, North Carolina
- (21) On an inequality of Fejér and Riesz  
Dr. A. O. Huber, University of Maryland
- (22) A new form for the solution of Laplace's equation in cylindrical coordinates  
Dr. Jenny E. Rosenthal, A. B. Du Mont Laboratories

SATURDAY, 2:00 P.M.

**General Session, Room 2-190, Building 2**

- On the Lebesgue-Stieltjes integral (one hour)  
Professor Arne Beurling, Institute for Advanced Study

SATURDAY, 3:10 P.M.

**Session on Algebra and Theory of Numbers, Room 6-120, Building 6**

- (23) On finite groups related to permutation groups of prime degree  
Mr. W. F. Reynolds, Harvard University

- (24) A theorem concerning three fields  
Professor I. N. Herstein, University of Pennsylvania
- (25) Noncommutative Jordan algebras of characteristic 0  
Professor R. D. Schafer, University of Connecticut
- (26) On finite groups with cyclic Sylow subgroups for all odd primes  
Dr. Michio Suzuki, University of Illinois
- (27) On the construction of  $R$ -modules  
Professor R. A. Beaumont, Institute for Advanced Study and  
University of Washington
- (28) Maximal sets of involutions  
Professor Irving Reiner, Institute for Advanced Study and  
University of Illinois
- (29) On a conjecture of Frobenius  
Mr. Walter Feit, Cornell University

**Session on Analysis, Probability and Logic, Room 2-190, Building 2**

- (30) On  $\lim_{h_n \rightarrow 0} [f(x+h_n) - f(x)] / h_n$  for approximately derivable functions  
Dr. D. G. Austin, Syracuse University
- (31) On the approximation to stable distributions  
Dr. Miriam Lipschutz, City College of New York
- (32) Entire functions and Ostrowski sequences  
Dr. L. A. Rubel, Cornell University
- (33) Cantor-type uniqueness of multiple trigonometric integrals. II  
Professor V. L. Shapiro, Rutgers University and Institute for  
Advanced Study
- (34) On a problem of Collingwood and Cartwright  
Professor Walter Rudin, University of Rochester
- (35) Runge's theorem and the correspondence between linear quaternion functionals and their indicatrices  
Professor H. G. Haefeli, Boston College
- (36) On arithmetical classes not closed under direct union  
Professor Kurt Bing, Rensselaer Polytechnic Institute
- (37) Maximal subalgebras and Riemann surfaces  
Professor John Wermer, Brown University
- (38) Trajectories tending to a critical point in 3-space  
Mr. R. E. Gomory, Princeton University

## SUPPLEMENTARY PROGRAM

(To be presented by title)

- (39) Holonomy of flat affinely connected manifolds  
Mr. Louis Auslander and Dr. L. F. Markus, Yale University
- (40) Desboves transforms for Pythagorean tetrahedrons: I, II  
Mr. H. W. Becker, Station WOW
- (41) Desboves transforms for Pythagorean tetrahedrons: III, IV. Preliminary report  
Mr. H. W. Becker, Station WOW
- (42) Desboves transforms for Pythagorean tetrahedrons: V. Preliminary report  
Mr. H. W. Becker, Station WOW
- (43) Concerning the zeros of zeta-functions  
Professor Sarvadaman Chowla, University of Colorado
- (44) The quadratic singular sum  
Professor Eckford Cohen, University of South Carolina
- (45) The fourth boundary value problem for third order composite equations  
Professor R. B. Davis, University of New Hampshire
- (46) Trajectories near limit cycles in three-space  
Dr. R. E. Gomory and Dr. Felix Haas, Princeton University
- (47) Morse type inequalities for the limit sets of an ordinary differential equation  
Dr. Felix Haas, Princeton University
- (48) On helical springs of finite thickness  
Professor Peter Henrici, American University
- (49) An eigenvalue problem in the theory of viscous flow  
Professor Peter Henrici, American University
- (50) Distributive sublattices of a modular lattice  
Professor Bjarni Jónsson, Brown University
- (51) A unique decomposition theorem for binary relations  
Professor Bjarni Jónsson, Brown University
- (52) Isomorphisms of factors of type  $\Pi_{\infty}$   
Professor R. V. Kadison, Columbia University and University of Copenhagen
- (53) Representations of a Lie algebra on Hilbert space. Preliminary report  
Dr. Bertram Kostant, Institute for Advanced Study

- (54) On integers  $n$  relatively prime to  $f(n)$   
 Professor Joachim Lambek, McGill University and Professor  
 Leo Moser, University of Alberta
- (55) Initial segments of positive semigroups  
 Professor Joachim Lambek, McGill University
- (56) A many-component propositional, two-valued logic  
 Dr. R. S. Ledley, Johns Hopkins University
- (57) A general method for introducing constraints on the generating  
 propositions of a propositional calculus of symbolic logic  
 Dr. R. S. Ledley, Johns Hopkins University
- (58) Representation of relation algebras. II  
 Professor R. C. Lyndon, University of Michigan
- (59) On the Peano curves associated with some conformal maps  
 Professor G. R. MacLane, Rice Institute
- (60) On kernel representation of linear operators  
 Dr. Dorothy Maharam, Manchester University
- (61) Asymptotic behavior of linear systems  
 Dr. M. D. Marcus, University of British Columbia
- (62) A note on the Hurewicz theorem  
 Mr. J. R. Munkres, University of Michigan
- (63) A generalization of Bernstein's probabilistic proof of Weierstrass's  
 theorem. Preliminary report  
 Dr. Emanuel Parzen, Columbia University
- (64) On parallel displacement of a vector  
 Professor Valdemars Punga, Rensselaer Polytechnic Institute
- (65) The principle of linear displacement of length and Weyl's geome-  
 try  
 Professor Valdemars Punga, Rensselaer Polytechnic Institute
- (66) On transverse vibrations of thin shallow elastic shells  
 Professor Eric Reissner, Massachusetts Institute of Technol-  
 ogy
- (67) On axi-symmetrical vibrations of shallow spherical shells  
 Professor Eric Reissner, Massachusetts Institute of Technol-  
 ogy
- (68) A survey of differential equation theories and related subjects  
 Dr. A. R. Schweitzer, Lake Forest, Illinois
- (69) On the convergence of an approximation method of M. J. Lighthill  
 Dr. W. R. Wasow, University of California, Los Angeles



(70) Singular perturbations of boundary value problems for nonlinear differential equations of the second order

Dr. W. R. Wasow. University of California, Los Angeles

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Titles and abstracts of papers intended for presentation before the Society should be addressed to the American Mathematical Society, 80 Waterman Street, Providence 6, Rhode Island. The deadline for inclusion in the program of any meeting and other details will be found under Official Communications on the back cover of current numbers of the Bulletin. Instructions for the preparation of abstracts are given on the abstract blanks which will be furnished to members on application to the Providence Office or one of the Secretaries.

In so far as correct information is available, the institution listed as the address of an author is that with which he is connected during the academic year, September 1, 1954 to July 1, 1955.

L. W. Cohen  
Associate Secretary

Washington, D. C.  
September 21, 1954

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JOINT SESSION WITH THE  
AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

The Executive Committee of the Council of the Society has approved a joint session of the Society and Section A of the American Association for the Advancement of Science to be held in conjunction with the annual meeting of the American Association at Berkeley, California, December 26-31, 1954.

Abstracts of contributed papers to be presented at this session must reach the Society's office by the deadline, November 13, 1954. The program of this session will be printed in the issue of the *Notices* of the American Mathematical Society containing the program of the annual meeting, and the abstracts of papers presented will be published in the Bulletin.

**NATIONAL RESEARCH COUNCIL**  
**DIVISION OF MATHEMATICS**

The Division of Mathematics wishes to call to the attention of the members of the American Mathematical Society the fact that several foundations and offices will offer financial support to research in mathematics during the year 1955-56. A number of fellowships will be made available, as well as opportunities for mathematicians to engage in contract research on basic problems.

A partial list, with comments, is given below.

1. *NATIONAL SCIENCE FOUNDATION. Fellowships.* The National Science Foundation will continue a fellowship program in the sciences, including mathematics. Pre-doctoral fellowships will be awarded for the First Year, Intermediate Year, or Terminal Year of graduate study. The closing date for pre-doctoral applications is January 3, 1955. A post-doctoral fellowship program will also continue, with December 20, 1954 as the closing date for applications. For information and application blanks write to Fellowship Office, National Research Council, 2101 Constitution Avenue, Washington 25, D. C.

*Research Grants.* The National Science Foundation also supports basic research in all the mathematical sciences by means of grants. While proposals for such support are accepted at any time, individuals desiring support to begin in the summer or at a fall semester should preferably submit their proposals in the mathematical sciences by January 1; persons desiring support to begin in the spring semester should preferably submit their proposals by August 1. A guide for preparing proposals is available upon application to the Program Director for Mathematical Sciences, National Science Foundation, 1520 H. Street N.W., Washington 25, D. C.

2. *OFFICE OF NAVAL RESEARCH.* The Office of Naval Research, through contracts with universities and other organizations, supports basic research in broadly selected fields of mathematics which are considered to have an important bearing on Navy problems. Proposals should be directed to the Mathematics Branch, Office of Naval Research, Washington 25, D. C.

3. *OFFICE OF SCIENTIFIC RESEARCH.* The Office of Scientific Research supports research in mathematics directly through contracts with colleges, universities, foundations, and industrial laboratories. Such organizations are encouraged to propose appropriate research which they are capable of undertaking. Proposals should be mailed to the Commander, Air Research and Development Command, ATTN: RDTRRM,

Post Office Box 1395, Baltimore 3, Maryland.

4. *OFFICE OF ORDNANCE RESEARCH.* Among the functions of the Office of Ordnance Research is the support of basic research in mathematics. Proposals for projects are ordinarily made by individual scientists or groups of scientists in a form which leads to a contract between the Office of Ordnance Research and a university or research laboratory. For further information write to Commanding Officer, Office of Ordnance Research, Box CM, Duke Station, Durham, North Carolina.

5. *FULBRIGHT AWARDS—PUBLIC LAW 584 (79th Congress).* Approximately 300 awards offered annually for university lecturing and post-doctoral research in all academic fields in Australia, Burma, Ceylon, India, New Zealand, Philippines, Thailand (competition for the preceding countries closes April 15, 1955); Austria, Belgium-Luxembourg, Denmark, Egypt, Finland, France, Germany, Greece, Iraq, Italy, Japan, the Netherlands, Norway, Pakistan, Sweden and the United Kingdom, including colonial dependencies (competition for the latter countries closes October 15, 1954). Awards in the first group of competitions will be for the academic year 1956-57; in the second group the awards will be for the academic year 1955-56. Awards are payable in foreign currency and usually include travel for the grantee, and a maintenance allowance, which may be adjusted in relation to the number of accompanying dependents up to four. Dependents' travel is not included. Requests for information should be addressed to the Committee on International Exchange of Persons, Conference Board of Associated Research Councils, 2101 Constitution Avenue, Washington, 25, D. C.

A. A. Albert  
Chairman of the Division

J. A. Clarkson  
Executive Secretary of the Division

## NOTES

The Department of Mathematics of Harvard University is receiving applications for Benjamin Peirce Instructorships for the academic year 1955-56. A candidate should ordinarily have the doctorate or its equivalent. It is expected that there will be three vacancies for 1955-56. Applications and requests for further information may be sent to the Chairman of the Department.

Professor K. A. Hirsch of Queen Mary College, University of London is on leave of absence and has been appointed to a visiting professorship at the University of Colorado.

Mr. D. R. Anderson of the California Institute of Technology has accepted a position as assistant mathematician with the Rand Corporation, Santa Monica, California.

Assistant Professor R. W. Ball of the University of Washington has been appointed to an assistant professorship at the Alabama Polytechnic Institute.

Dr. D. R. Belcher has accepted a position as assistant director of the Bureau of the Budget, Washington, D. C.

Dr. Archie Blake of the Cornell Aeronautical Laboratory, Buffalo, New York has accepted a position as advisory engineer with the Westinghouse Electric Corporation, Baltimore, Md.

Dr. A. A. Blank of the University of Illinois has been appointed to an assistant professorship at the University of Tennessee.

Dr. W. A. Blankinship has accepted a position as executive with the National Security Agency, Washington, D. C.

Dr. I. E. Block of the Philco Radio and Television Corporation has accepted a position as staff consultant with the Burroughs Computation Laboratory, Philadelphia, Pennsylvania.

Associate Professor J. L. Brenner of the State College of Washington is on leave of absence at the Ballistic Research Laboratories, Aberdeen Proving Ground, Maryland.

Dr. A. R. Brown, Jr. of the Ballistics Research Laboratory, Aberdeen Proving Ground, has been appointed to an associate professorship at Drury College.

Mr. L. L. Campbell of the University of Toronto has accepted a position as Scientific Research Officer with the Defense Research Board, Ottawa, Ontario, Canada.

Professor S. S. Chern is on leave of absence from the University of Chicago at the Institute for Advanced Study.

Associate Professor Harvey Cohn of Wayne University is on leave of absence and has been appointed to a visiting associate professorship at

Stanford University.

Dr Margaret F. Conroy of Purdue University has been appointed to an assistant professorship at Washington University.

Assistant Professor K. L. Cooke of the State College of Washington is on leave of absence and has been appointed a research associate at the Massachusetts Institute of Technology.

Dr. W. R. Cowell of the University of Wisconsin has been appointed to an assistant professorship at Montana State University.

Dr. E. H. Crisler of the University of Michigan has been appointed to an assistant professorship at the University of Notre Dame.

Mr. H. F. Davis of the Massachusetts Institute of Technology has been appointed to an assistant professorship at Miami University.

Miss Irene L. Doto of Temple University has accepted a position as statistician with the Communicable Disease Center of the U. S. Public Health Service.

Mr. J. S. Dwork of the General Electric Company has been appointed to an associate professorship at the University of Vermont.

Dr. A. R. Eckler of Princeton University has accepted a position as a member of the technical staff of Bell Telephone Laboratories, Whippany, New Jersey.

Rev. A. J. Eiardi of Boston College has been appointed to an associate professorship at Fairfield University.

Professor Howard Eves of the State University of New York is on leave of absence and has been appointed to a visiting professorship at the University of Maine.

Dr. P. H. P. Fan of the Catholic University of America has accepted a position as project engineer with the Philco Corporation, Lansdale, Pennsylvania.

Dr. H. H. Fox of the Mound Laboratories, Miamisburg, Ohio has accepted a position with the Applied Physics Laboratory, Johns Hopkins University, Silver Spring, Maryland.

Dr. H. P. Galliher of Arthur D. Little, Inc., has been appointed to the Staff of the Division of Industrial Cooperation, Massachusetts Institute of Technology.

Dr. R. A. Gambill of Purdue University has accepted a position as mathematician with the U. S. Naval Ordnance Plant, Indianapolis, Indiana.

Dr. L. D. Gates, Jr. of the Department of Defense has accepted a position as mathematician at the Computation and Ballistics Department, Naval Proving Ground, Dahlgren, Virginia.

Professor David Gilbarg of Indiana University is on leave of absence and has been appointed to a visiting associate professorship at Stanford

University.

Mr. R. L. Glass of the University of Wisconsin has accepted a position with North American Aviation, Incorporated, Columbus, Ohio.

Professor E. L. Godfrey of Defiance College has accepted a position as mathematician at the Wright-Patterson Air Force Base.

Associate Professor Casper Goffman of Wayne University has been appointed to a professorship at the University of Oklahoma.

Mr. Malcolm Goldman of the University of Chicago has accepted a position as a member of the technical staff of the Bell Telephone Laboratories, Inc., New York, New York.

Professor J. O. Hassler of the University of Oklahoma has retired with the title Professor Emeritus.

Associate Professor Carl Holtom of the U. S. Air Force Institute of Technology has accepted a position as staff member at the Los Alamos Scientific Laboratory.

Mrs. Betty W. Holz of Melpar, Incorporated, Alexandria, Virginia has accepted a position as operations research analyst with the Operations Research Office, Johns Hopkins University, Chevy Chase, Maryland.

Dr. T. R. Horton of the University of Florida has accepted a position as applied science representative with the International Business Machines Corporation, Atlanta, Georgia.

Mr. C. W. Huff of the University of Georgia has been appointed to an assistant professorship at the Alabama Polytechnic Institute.

Professor W. A. Hurwitz of Cornell University has retired with the title professor Emeritus.

Mr. Ding Hwang has been appointed to an associate professorship at LeMoyne College.

Assistant Professor S. L. Jamison of Florida State University has accepted a position as applied science representative with the International Business Machines Corporation, Los Angeles, California.

Professor B. W. Jones of the University of Colorado is on leave of absence and has been appointed to a visiting professorship at Queen Mary College, University of London.

Dr. R. H. Kasriel of the National Advisory Committee for Aeronautics has been appointed to an assistant professorship at the Georgia Institute of Technology.

Dr. D. C. Kleinecke of the University of California, Berkeley, has accepted a position as staff member with the Sandia Corporation.

Dr. A. H. Koschmann of Purdue University has been appointed to an assistant professorship in Electrical Engineering at the University of Minnesota.

Dr. Bertram Kostant of the University of Chicago has been appointed a member of the Institute for Advanced Study.

Mr. R. E. Krucklin of A. H. Johnson and Co. has accepted a position with North Atlantic Constructors as Department Head, Materials and Procurement Control Department.

Mr. R. S. Ledley of ACF Electronics has accepted a position as Operations Research Analyst with the Operations Research Office of Johns Hopkins University, Chevy Chase, Maryland.

Assistant Professor Benjamin Lepson of Catholic University has accepted a position as head of the Digital Computer Section, Applied Mathematics Branch, Naval Research Laboratory, Washington, D. C.

Mr. D. R. Lewis of the University of Minnesota has been appointed to an assistant professorship at the State Teachers College in Mankato, Minnesota.

Professor C. C. Lin of Massachusetts Institute of Technology has been awarded a Guggenheim Fellowship and will be on leave of absence at Cornell University and the California Institute of Technology.

Mr. J. W. Lindsay has been appointed to an assistant professorship at Texas Technological College.

Dr. Viktors Linis of the University of Saskatchewan has been appointed to an assistant professorship at the University of Ottawa.

Mr. R. F. McIntosh of the Massachusetts Institute of Technology has accepted a position as Aircraft Systems Analyst with the General Electric Company, West Lynn, Massachusetts.

Mr. D. B. MacMillan of Columbia University has accepted a position as mathematician with the Knolls Atomic Power Laboratory.

Dr. E. A. Maier of the University of Oregon has accepted a position on the research staff of the Giustina Brothers Lumber Company, Eugene, Oregon.

Dr. Lucien Massé of Weiss Geophysical Corporation of Canada has accepted a position as Senior Research Physicist with Magnolia Petroleum Company, Dallas, Texas.

Assistant Professor Josephine Mitchell is on leave from the University of Illinois and has been appointed a member of the Institute for Advanced Study and has been awarded the Marion Talbot Fellowship of the American Association of University Women.

Professor P. B. Norman of the Polytechnic Institute of Brooklyn has been appointed to a professorship at Long Island University.

Professor E. P. Northrop of the University of Chicago is on leave of absence and has accepted a position as consultant for the National Science Foundation and as part-time consultant for the Fund for the Advancement of Education.

Dr. F. R. Olson of Duke University has been appointed to an assistant professorship at the University of Buffalo.

Mr. G. P. Owen, Jr. of the University of Texas has accepted a position as aerophysics engineer with Consolidated Vultee Aircraft, Fort Worth, Texas.

Mr. G. B. Pedrick of the University of Kansas has accepted a position as senior aerophysics engineer with the Consolidated Vultee Aircraft, Fort Worth, Texas.

Dr. A. M. Peiser has accepted a position as head of the electronic computer section with the M. W. Kellogg Company, Jersey City, New Jersey.

Mr. T. J. Pignani of Loyola University is on leave of absence and has been appointed part time lecturer at the University of North Carolina.

Assistant Professor R. L. Plunkett of Vanderbilt University has been appointed to an assistant professorship at Florida State University.

Mr. E. R. Rang of the Naval Ordnance Test Station, China Lake, California, has accepted a position as research laboratory analyst with the Douglas Aircraft Company, Santa Monica, California.

Mr. John Rausen of the University of Connecticut has been appointed a lecturer at Columbia University.

Mr. Edgar Reich is on leave of absence from Rand Corporation and has been appointed a member of the Institute for Advanced Study.

Professor W. E. Roth of the University of Tulsa has retired.

Mr. Arthur Saastad of the of the United States Steel Company has accepted a position as research engineer with Consolidated Vultee Aircraft, San Diego, California.

Assistant Professor Lowell Schoenfeld is on leave from the University of Illinois and has been appointed a member of the Institute for Advanced Study and is holding a post-doctoral Harrison Fellowship at the University of Pennsylvania.

Mr. R. J. Semple of Princeton University has been appointed a lecturer at Carleton College.

Dr. Seymour Sherman of the Lockheed Aircraft Corporation has been appointed to a visiting professorship at the University of Pennsylvania.

Dr. K. S. Shih of Washington University has been appointed to a professorship at the National Taiwan University.

Assistant Professor I. M. Singer of the University of California, Los Angeles, is on leave of absence and has been appointed to an acting assistant professorship at Columbia University.

Mr. E. C. Smith, Jr. of the University of Oregon has been appointed to an assistant professorship at the University of Utah.

Dr. J. J. Sopka of Johns Hopkins University has been appointed an



applied science representative with the International Business Machines Corporation.

Professor T. T. Tanimoto of Allegheny College has accepted a position as mathematician with International Business Machines Corporation.

Associate Professor S. L. Thorndike of the College of Emporia has been appointed to a professorship at Alma College.

Associate Professor Wolfgang Thron of Washington University has been appointed to an associate professorship at the University of Colorado.

Assistant Professor R. N. Tompson of the Florida State University has accepted a position as a member of the technical staff Bell Telephone Laboratories, Murray Hill, New Jersey.

Mr. R. N. Van Norton of New York University has accepted a position as mathematician with the Nuclear Development Associates, White Plains, New York.

Professor H. C. Wang is on leave of absence from Alabama Polytechnic Institute and has been appointed a member of the Institute for Advanced Study.

Dr. J. E. Whitesitt of the University of Illinois has been appointed to an assistant professorship at Montana State College.

Dr. Hidehiko Yamabe of the Institute for Advanced Study has been appointed to an assistant professorship at the University of Minnesota.

Dr. C. T. Yang of the University of Illinois has been appointed a member of the Institute for Advanced Study.

The following promotions are announced.

J. G. Bowker, Middlebury College, to Dean of the Faculty.

R. C. Buck, University of Wisconsin, to a professorship.

C. E. Bures, California Institute of Technology, to an associate professorship.

W. B. Evans, Georgia Institute of Technology, to an associate professorship.

Gerald Freilich, City College, New York, New York, to an assistant professorship.

Herta T. Freitag, Hollins College, to an associate professorship.

F. E. Hohn, University of Illinois, to an associate professorship.

J. E. McLaughlin, University of Michigan, to an assistant professorship.

M. H. Martin, University of Maryland, to director of the Institute of Fluid Dynamics and Applied Mathematics.

K. S. Miller, New York University, to an associate professorship.

F. M. Pulliam, U. S. Naval Postgraduate School, to a Professorship.

I. H. Rose, University of Massachusetts, to an associate professorship.

Hans Samelson, University of Michigan, to a professorship.

A. L. Shields, Tulane University, to an assistant professorship.

R. L. Shively, Western Reserve University, to an assistant professorship.

Abraham Spitzbart, University of Wisconsin in Milwaukee, to an associate professorship.

J. H. Wahab, Georgia Institute of Technology, to an associate professorship.

R. A. Willoughby, Georgia Institute of Technology, to an associate professorship.

Daniel Zelinsky, Northwestern University, to an associate professorship.

The following appointments to instructorships are announced:

Brandeis University: Mr. Arno Cronheim; University of British Columbia: Dr. Barron Brainerd, Dr. M. D. Marcus; Barnard College, Columbia University: Dr. Jacqueline L. Penez; Cornell University: Dr. L. A. Rubel; University of Delaware: Mr. W. G. Spohn; Franklin and Marshall College: Mr. W. H. Leser; Illinois Institute of Technology: Dr. Pasquale Porcelli; Marquette University: Rev. L. J. Heider, Mr. J. E. Kelley; Massachusetts Institute of Technology: Mr. W. C. Fox, Dr. Sigurdur Helgason; University of Michigan: Dr. T. R. Jenkins, Mr. J. H. Walter; Muhlenberg College: Mr. G. F. Feeman; University of Nebraska: Dr. Arne Magnus; Ohio State University: Mr. J. S. Minas, Dr. J. M. Shapiro, Mr. Clifford Spector; Portland State Extension Center, Portland, Oregon: Dr. J. R. Byrne; Princeton University: Mr. F. P. Palermo, Dr. G. B. Seligman; University of Rochester: Mr. E. H. Batho; St. Peter's College, Jersey City, New Jersey: Mr. J. W. Toole; Trinity College: Mr. E. F. Whittlesey; Tulane University: Mr. Leon Brown, Dr. J. R. Isbell; University of Washington: Dr. H. A. Forrester; Racine Extension, University of Wisconsin: Mr. W. F. Ames.

Dr. R. C. Briant of the Oak Ridge National Laboratory died on April 25, 1954. He had been a member of the Society for seventeen years.

Rev. J. P. Smith of Georgetown University died on March 5, 1954, at the age of sixty-six years. He had been a member of the Society for fifteen years.

Dean Emeritus R. P. Stephens of the University of Georgia died on June 1, 1954, at the age of seventy-nine. He had been a member of the Society for forty-eight years.

## NEW PUBLICATIONS

- Achieser, N. I. *Vorlesungen über Approximations theorie*. Berlin, Akademie-Verlag, 1953. 9+309 pp. 29.00 DM.
- Aumann, G. *Reelle Funktionen*. Berlin, Springer, 1954. 8+416 pp. 59.60 DM.
- Azumaya, G. See Nakayama, T.
- Ball, R. W. See Beaumont, R. A.
- Bancroft, T. A. See *Statistics and mathematics in biology*.
- Bateman, P. T., Rådström, H., Hanner, O., Macbeath, A. M., Rogers, C. A., Pettis, B. J., and Klee, V. L. *Seminar on convex sets, 1949–1950*. Princeton, Institute for Advanced Study. 88 pp. (mimeographed) \$2.50.
- Beaumont, R. A., and Ball, R. W. *Introduction to modern algebra and matrix theory*. New York, Rinehart, 1954. 12+331 pp. \$6.00.
- Biometrika tables for statisticians*. Vol. I. Ed. by E. S. Pearson and H. O. Hartley. Cambridge University Press, 1954. 14+238 pp. \$4.50.
- Blaschke, W. *Analytische Geometrie*. 2d ed. Basel, Birkhäuser, 1954. 190 pp. 19.60 DM.
- Blaschke, W. *Projektive Geometrie*. 3d ed. Basel, Birkhäuser, 1954. 197 pp. 19.60 DM.
- Bouligand, G. *Mécanique rationnelle. Cours et problèmes résolus à l'usage des élèves des facultés des sciences*. 5th ed. Paris, Vuibert, 1954. 32+572 pp. 2400 fr.
- de Broglie, L. *Théorie général des particules a spin (méthode de fusion)*. 2d ed., rev. Paris, Gauthier-Villars, 1954. 6+209 pp., 7 figures. \$7.43.
- Chatelet, A. *Arithmétique et algèbre modernes*. Vol. I. *Notions fondamentales—Groupes*. Paris, Presses Universitaires de France, 1954. 276 pp. 1200 fr.
- Chung, K. L. See Gnedenko, B. V.
- Colloque sur les fonctions de plusieurs variables, tenu a Bruxelles du 11 au 14 mars 1953*. Liège, Thone, 1953. 164 pp. 250 Belgian fr.
- Davenport, A. See Vinogradov, I. M.
- Descartes, R. *The geometry of René Descartes*. Trans. by D. E. Smith and M. L. Latham. New York, Dover, 1954 with a facsimile of the first edition of 1637. 14+244 pp. \$2.95 cloth; \$1.50 paper.
- Doob, J. L. See Gnedenko, B. V.
- Eulerus, L. *Opera omnia*. Series 1. *Opera mathematica*. Vol. 27. *Commentationes geometricae*. 2nd. vol. Ed. by A. Speiser. Lausanne, Societatis Scientiarum Naturalium Helveticae, 1954. 47+400 pp.
- Fisz, M. *Rachunek prawdopodobieństwa i statystyka matematyczna*. [The calculus of probabilities and mathematical statistics.] Warsaw, Pań-

- stwowe Wydawnictwo Naukowe, 1954. 374 pp. 31.50 zł.
- Feldman, W. M. See Smith, C. A. B.
- Frankl, F. I., and Karpovich, E. A. *Gas dynamics of thin bodies*. Trans. by M. D. Friedman. New York, Interscience, 1953. 8+175 pp. \$5.75.
- Friedman, M. D. See Frankl, F. I.
- Gårding, L. *Applications of the theory of direct integrals of Hilbert spaces to some integral and differential operators*. (Institute for Fluid Dynamics and Applied Mathematics Lecture Series, no. 11.) College Park, University of Maryland, 1954. 4+23 pp.
- Geronimus, J. L. *Alexej Nikolajewitsch Krylow (1863 bis 1945). Näherungsrechnungen in der Schwingungs- und Elastizitätstheorie*. Berlin, Verlag Technik, 1953. 56 pp.
- Geronimus, J. L. *Ossip Iwanowitsch Somow (1815 bis 1876). Einige Probleme der höheren Dynamik*. Berlin, Verlag Technik, 1954. 55 pp. 3.60 DM.
- Gnedenko, B. V., and Kolmogorov, A. N. *Limit distributions for sums of independent random variables*. Trans. by K. L. Chung and appendix by J. L. Doob. Cambridge, Addison-Wesley, 1954. 9+264 pp. \$7.50.
- Gouyon, R. *Le problème de mécanique rationnelle à l'agrégation*. Paris, Vuibert, 1954. 256 pp. 2000 fr.
- Gowan, J. W. See *Statistics and mathematics in biology*.
- Gumbel, E. J. (With the assistance of J. Lieblein.) *Statistical theory of extreme values and some practical applications*. (National Bureau of Standards Applied Mathematics Series, no. 33.) Washington, Government Printing Office, 1954. 8+51 pp. \$.40.
- Haack, W. *Darstellende Geometrie. I. Die wichtigsten Darstellungsmethoden. Grund- und Aufriss ebenflächiger Körper*. (Sammlung Göschen, vol. 142.) Berlin, de Gruyter, 1954. 110 pp. 2.40 DM.
- Haack, W. *Darstellende Geometrie. II. Körper mit krummen Begrenzungsflächen. Kotierte Projektionen*. (Sammlung Göschen, vol. 143.) Berlin, de Gruyter, 1954. 129 pp. 2.40 DM.
- Haantjes, J. *Inleiding tot de Differentiaalmeetkunde*. [Introduction to differential geometry.] Groningen, Noordhoff, 1954. 5+173 pp. 7.50 florins; bound, 9.50 florins.
- Handbook of supersonic aerodynamics*. Vol. 5. Section 15. Navord Report 1488. Washington, Government Printing Office. \$2.00.
- Hanner, O. See Bateman, P. T.
- Hartley, H. O. See *Biometrika tables for statisticians*.
- Hauptman, H., and Karle, J. *Solution of the phase problem. I. The centrosymmetric crystal*. (ACA Monograph, no. 3.) American Crystallographic Association, 1953. 87 pp. \$1.50.

- Kaplansky, I. *Infinite abelian groups*. Ann Arbor, University of Michigan, 1954. 6+91 pp.
- Karle, J. See Hauptman, H.
- Karpovich, E. A. See Frankl, F. I.
- Kempthorne, O. See *Statistics and mathematics in biology*.
- Klee, V. L. See Bateman, P. T.
- Kojima, T. *The Japanese abacus, its use and theory*. Rutland, Vermont, Tuttle, 1954. 102 pp. \$1.25.
- Kolmogorov, A. N. See Gnedenko, B. V.
- Kravetz, S. See Vinogradov, I. M.
- Kuratowski, K. *Elementy topologii*. [The elements of topology.] Warsaw, Państwowe Wydawnictwo Naukowe, 1953. 182 pp. 14.00 zł.
- Latham, M. L. See Descartes, R.
- Leray, J. *Hyperbolic differential equations*. Princeton, Institute for Advanced Study, 1953. 240 pp. (mimeographed). \$4.00.
- Lieblein, J. See Gumbel, E. J.
- Ludwig, G. *Die Grundlagen der Quantenmechanik*. Berlin, Springer, 1954. 12+460 pp. 52.60 DM.
- Lush, J. L. See *Statistics and mathematics in biology*.
- Macbeath, A. M. See Bateman, P. T.
- Maxwell, E. A. *An analytical calculus for school and university*. Vol. III. Cambridge University Press, 1954. 8+195 pp. \$2.75.
- Menger, K. *Calculus, a modern approach*. 2d ed. Chicago, Illinois Institute of Technology, 1953. 24+304 pp. (mimeographed). \$4.85.
- Meyer zur Capellen, W. *Leitfaden der Nomographie*. Berlin, Springer, 1953. 2+178 pp. 17.40 DM.
- Monjallon, A. *Introduction à la méthode statistique*. Paris, Vuibert, 1954. 279 pp. 2000 fr.
- Nakayama, T., and Azumaya, G. *Daisūgaku*. II. *Kanron*. [Algebra. II. Theory of rings.] Tokyo, Inwanami shoten, 1954. 4+4+436 pp. 800 yen.
- Norden, A. P. *Elementarnoe vvedenie v geometriyu Lobačevskogo*. Moscow, Gosudarstvennoe Izdatel'stvo Tehniko-Teoretičeskoj Literatury, 1953. 248 pp. 5.05 rubles.
- Optical image evaluation*. Proceedings of the Symposium held October 18–20, 1951. Washington, Government Printing Office, 1954. 289 pp., 212 figures. \$2.25.
- Pearson, E. S. See *Biometrika tables for statisticians*.
- Pentkowski, M. W. *Nomographie*. Berlin, Akademie-Verlag, 1953. 15+268 pp. 15.00 DM.
- Pepinsky, R. See Vand, V.

- Pettis, B. J. See Bateman, P. T.
- Purday, H. F. P. *Linear equations in applied mechanics*. Edinburgh, Oliver and Boyd; New York, Interscience, 1954. 14+240 pp. \$3.50.
- Rådström, H. See Bateman, P. T.
- Rogers, C. A. See Bateman, P. T.
- Roth, K. F. See Vinogradov, I. M.
- Rothe, R. *Höhere Mathematik für Mathematiker, Physiker, Ingenieure*. Part V. *Formelsammlung*. 3d ed. Trans. by W. Schmeidler. Stuttgart, Teubner, 1954. 124 pp., 74 diagrams. 4.80 DM.
- Schmeidler, W. See Rothe, R.
- Schmeidler, W. *Lineare operatoren im Hilbertschen Raum*. Stuttgart, Teubner, 1954. 6+89 pp. 7.80 DM.
- Schwartz, L. *Produits tensoriels topologiques d'espaces vectoriels topologiques. Espaces vectoriels topologiques nucléaires. Applications*. 3+not paged (mimeographed). Paris, University of Paris, 1954.
- Smith, C. A. B. *Biomathematics, the principles of mathematics for students of biological science*. 3d ed. and a rewritten version of the work by the late W. M. Feldman, 1923 and 1935. New York, Hafner, 1954. 16+712 pp. \$13.50.
- Smith, D. E. See Descartes, R.
- Soroka, W. W. *Analog methods in computation and simulation*. New York, McGraw-Hill, 1954. 14+390 pp. \$7.50.
- Speiser, A. See Eulerus, L.
- Statistics and mathematics in biology*. Ed. by O. Kempthorne, T. A. Bancroft, J. W. Gowen, and J. L. Lush. Ames, Iowa State College Press, 1954. 9+632 pp. \$6.75.
- Teodorescu, N. *Metode vectoriale in fizica matematică*. Vol. I. *Algebra vectorială și introducere in algebra tensorială*. 456 pp. 14.65 Lei. Vol. II. *Analiza vectoriala și introducere in analiza tensoriala*. 300 pp. 9.67 Lei. Bucharest, Editura Tehnica, 1954.
- Truesdell, C. *The kinematics of vorticity*. Bloomington, Indiana University Press, 1954. 17+232 pp. \$6.00.
- Vand, V., and Pepinsky, R. *The statistical approach to X-ray structure analysis*. State College, Pa., X-ray and Crystal Analysis Laboratory, Department of Physics, Pennsylvania State University, 1953. 16+98 pp.
- Vinogradov, I. M. *Elements of number theory*. Trans. from the 5th rev. ed. by S. Kravetz. New York, Dover, 1954. 9+227 pp. \$3.00 cloth; \$1.75 paper.
- Vinogradov, I. M. *The method of trigonometrical sums in the theory of numbers*. Trans., rev., and annotated by K. F. Roth and A. Davenport. New York, Interscience. \$5.00.

# TRANSACTIONS OF THE AMERICAN MATHEMATICAL SOCIETY

Three volumes of the Transactions of the American Mathematical Society will be issued in 1955. Each volume, approximately 550 pages, will consist of two issues. Subscription rates *per volume* remain the same. Subscription rates *per year* are thus increased 50 per cent over 1954. The issues will be published in January, March, May, July, September, November.

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## DIRECTORY INFORMATION

Any member of the Society who has not informed the Providence Office of changes in position or rank should fill out the form below and send it to the Providence Office before October 15. If members are on leave from a permanent position, and have a temporary position, that information should be stated under "Remarks".

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