From the AMS

Bylaws of the American Mathematical Society

Article I

Officers

Section 1. There shall be a president, a president elect (during the even-numbered years only), an immediate past president (during the odd-numbered years only), three vice presidents, a secretary, four associate secretaries, a treasurer, and an associate treasurer.

Section 2. It shall be a duty of the president to deliver an address before the Society at the close of the term of office or within one year thereafter.

Article II

Board of Trustees

Section 1. There shall be a Board of Trustees consisting of eight trustees, five trustees elected by the Society in accordance with Article VII, together with the president, the treasurer, and the associate treasurer of the Society *ex officio*. The Board of Trustees shall designate its own presiding officer and secretary.

Section 2. The function of the Board of Trustees shall be to receive and administer the funds of the Society, to have full legal control of its investments and properties, to make contracts, and, in general, to conduct all business affairs of the Society.

Section 3. The Board of Trustees shall have the power to appoint such assistants and agents as may be necessary or convenient to facilitate the conduct of the affairs of the Society and to fix the terms and conditions of their employment. The Board may delegate to the officers of the Society duties and powers normally inhering in their respective corporative offices, subject to supervision by the Board. The Board of Trustees may appoint committees to facilitate the conduct of the financial business of the Society and delegate to such committees such powers as may be necessary or convenient for the proper exercise of those powers. Agents appointed, or members of committees designated, by the Board of Trustees need not be members of the Board.

Nothing herein contained shall be construed to empower the Board of Trustees to divest itself of responsibility for, or legal control of, the investments, properties, and contracts of the Society.

Article III

Committees

Section 1. There shall be eight editorial committees as follows: committees for the *Bulletin*, for the *Proceedings*, for the *Colloquium Publications*, for the *Journal*, for *Mathematical Surveys and Monographs*, for *Mathematical Reviews*; a joint committee for the *Transactions* and the *Memoirs*; and a committee for *Mathematics of Computation*.

Section 2. The size of each committee shall be determined by the Council.

Article IV

Council

Section 1. The Council shall consist of fifteen members at large and the following *ex officio* members: the officers of the Society specified in Article I, except that it shall include only one associate secretary, the chairman of each of the editorial committees specified in Article III, any former secretary for a period of two years following the terms of office, and members of the Executive Committee (Article V) who remain on the Council by the operation of Article VII, Section 4.

The chairman of any committee designated as a Council member may name a deputy from the committee as substitute. The associate secretary shall be the one charged with the scientific program of the meeting at which the Council meets except that at a meeting associated with no scientific meeting of the Society the secretary may designate the associate secretary.

Section 2. The Council shall formulate and administer the scientific policies of the Society and shall act in an advisory capacity to the Board of Trustees.

Section 3. In the absence of the secretary from any meeting of the Council, a member may be designated as acting secretary for the meeting, either by written authorization of the secretary, or, failing that, by the presiding officer.

Section 4. All members of the Council shall be voting members. Each member, including deputies and the designated associate secretary, shall have one vote. The method for settling matters before the Council at any meeting shall be by majority vote of the members present. If the result of a vote is challenged, it shall be the duty of the presiding officer to determine the true vote by a roll call. In a roll call vote, each Council member shall vote only once (although possibly a member of the Council in several capacities).

Section 5. Any five members of the Council shall constitute a quorum for the transaction of business at any meeting of the Council.

Section 6. Between meetings of the Council, business may be transacted by a mail vote. Votes shall be counted as specified in Section 4 of this Article, "members present" being replaced by "members voting". An affirmative vote by mail on any proposal shall be declared if, and only if, (a) more than half of the total number of possible votes is received by the time announced for the closing of the polls, and (b) at least three-quarters of the votes received by then are affirmative. If five or more members request postponement at the time of voting, action on the matter at issue shall be postponed until the next meeting of the Council, unless either (1) at the discretion of the secretary, the question is made the subject of a second vote by mail, in connection with which brief statements of reason, for and against, are circulated; or (2) the Council places the matter at issue before the Executive Committee for action.

Section 7. The Council may delegate to the Executive Committee certain of its duties and powers. Between meetings of the Council, the Executive Committee shall act for the Council on such matters and in such ways as the Council may specify. Nothing herein contained shall be construed as empowering the Council to divest itself of responsibility for formulating and administering the scientific policies of the Society.

Section 8. The Council shall also have power to speak in the name of the Society with respect to matters affecting the status of mathematics or mathematicians, such as proposed or enacted federal or state legislation; conditions of employment in universities, colleges, or business, research or industrial organizations; regulations, policies, or acts of governmental agencies or instrumentalities; and other items which tend to affect the dignity and effective position of mathematics.

With the exception noted in the next paragraph, a favorable vote of two-thirds of the entire membership of the Council shall be necessary to authorize any statement in the name of the Society with respect to such matters. With the exception noted in the next paragraph, such a vote may be taken only if written notice shall have been given to the secretary by the proposer of any such resolution not later than one month prior to the Council meeting at which the matter is to be presented, and the vote shall be taken not earlier than one month after the resolution has been discussed by the Council.

If, at a meeting of the Council, there are present twelve members, then the prior notification to the secretary may be waived by unanimous consent. In such a case, a unanimous favorable vote by those present shall empower the Council to speak in the name of the Society.

The Council may also refer the matter to a referendum by mail of the entire membership of the Society and shall make such reference if a referendum is requested, prior to final action by the Council, by two hundred or more members. The taking of a referendum shall act as a stay upon Council action until the votes have been canvassed, and thereafter no action may be taken by the Council except in accordance with a plurality of the votes cast in the referendum.

Article V

Executive Committee

Section 1. There shall be an Executive Committee of the Council, consisting of four elected members and the following *ex officio* members: the president, the secretary, the president elect (during even-numbered years), and the immediate past president (during odd-numbered years).

Section 2. The Executive Committee of the Council shall be empowered to act for the Council on matters which have been delegated to the Executive Committee by the Council. If three members of the Executive Committee request that any matter be referred to the Council, the matter shall be so referred. The Executive Committee shall be responsible to the Council and shall report its actions to the Council. It may consider the agenda for meetings of the Council and may make recommendations to the Council.

Section 3. Each member of the Executive Committee shall have one vote. An affirmative vote on any proposal before the Executive Committee shall be declared if, and only if, at least four affirmative votes are cast for the proposal. A vote on any proposal may be determined at a meeting of the Executive Committee, but it shall not be necessary to hold a meeting to determine a vote.

Article VI

Executive Director

Section 1. There shall be an Executive Director who shall be a paid employee of the Society. The Executive Director shall have charge of the offices of the Society, except for the office of the secretary, and shall be responsible for the general administration of the affairs of the Society in accordance with the policies that are set by the Board of Trustees and by the Council.

Section 2. The Executive Director shall be appointed by the Board of Trustees with the consent of the Council. The terms and conditions of employment shall be fixed by the Board of Trustees, and the performance of the Executive Director will be reviewed regularly by the Board of Trustees.

Section 3. The Executive Director shall be responsible to and shall consult regularly with a liaison committee consisting of the president as chair, the secretary, the treasurer, and the chair of the Board of Trustees.

Section 4. The Executive Director shall attend meetings of the Board of Trustees, the Council, and the Executive Committee, but shall not be a member of any of these bodies.

Article VII

Election of Officers and Terms of Office

Section 1. The term of office shall be one year in the case of the president elect and the immediate past president; two years in the case of the president, the secretary, the associate secretaries, the treasurer, and the associate treasurer; three years in the case of vice presidents and members at large of the Council, one vice president and five members at large retiring annually; and five years in the case of the trustees. In the case of members of the editorial committees and appointed members of the communications committees, the term of office shall be determined by the Council. The term of office for elected members of the Executive Committee shall be four years, one of the elected members retiring annually. All terms of office shall begin on February 1 and terminate on January 31, with the exception that the officials specified in Articles I, II, III, IV, and V (excepting the president elect and immediate past president) shall continue to serve until their successors have been duly elected or appointed and qualified.

Section 2. The president elect, the vice presidents, the trustees, and the members at large of the Council shall be elected by written ballot. An official ballot shall be sent to each member of the Society by the secretary on or before October 10, and such ballots, if returned to the secretary in envelopes bearing the name of the voter and received within thirty days, shall be counted. Each ballot shall contain one or more names proposed by the Council for each office to be filled, with blank spaces in which the voter may substitute other names. A plurality of all votes cast shall be necessary for election. In case of failure to secure a plurality for any office, the Council shall choose by written ballot among the members having the highest number of votes. The secretary, the associate secretaries, the treasurer, and the associate treasurer shall be appointed by the Council in a manner designated by the Council. Each committee named in Article III shall be appointed by the Council in a manner designated by the Council. Each such committee shall elect one of its members as chairman in a manner designated by the Council.

Section 3. The president becomes immediate past president at the end of the term of office and the president elect becomes president.

Section 4. On or before February 15, the secretary shall send to all members of the Council for a mail vote a ballot containing two names for each place to be filled on the Executive Committee. The nominees shall be chosen by a committee appointed by the president. Members of the Council may vote for persons not nominated. Any member of the Council who is not an *ex officio* member of the Executive Committee (see Article V, Section 1) shall be el-igible for election to the Executive Committee. In case a member is elected to the Executive Committee for a term extending beyond the regular term on the Council, that person shall automatically continue as a member of the Council during the remainder of that term on the Executive Committee.

Section 5. The president and vice presidents shall not be eligible for immediate re-election to their respective offices. A member at large or an *ex officio* member of the Council shall not be eligible for immediate election (or re-election) as a member at large of the Council.

Section 6. If the president of the Society should die or resign while a president elect is in office, the president elect shall serve as president for the remainder of the year and thereafter shall serve the regular two-year term. If the president of the Society should die or resign when no president elect is in office, the Council, with the approval of the Board of Trustees, shall designate one of the vice presidents to serve as president for the balance of the regular presidential term. If the president elect of the Society should die or resign before becoming president, the office shall remain vacant until the next regular election of a president elect, and the Society shall, at the next annual meeting, elect a president for a two-year term. If the immediate past president should die or resign before expiration of the term of office, the Council, with the approval of the Board of Trustees, shall designate a former president of the Society to serve as immediate past president during the remainder of the regular term of the immediate past president. Such vacancies as may occur at any time in the group consisting of the vice presidents, the secretary, the associate secretaries, the treasurer, and the associate treasurer shall be filled by the Council with the approval of the Board of Trustees. If a member of an editorial or communications committee should take temporary leave from duties, the Council shall then appoint a substitute. The Council shall fill from its own membership any vacancy in the elected membership of the Executive Committee.

Section 7. If any elected trustee should die while in office or resign, the vacancy thus created shall be filled for the unexpired term by the Board of Trustees.

Section 8. If any member at large of the Council should die or resign more than one year before the expiration of the term, the vacancy for the unexpired term shall be filled by the Society at the next annual meeting.

Section 9. In case any officer should die or decline to serve between the time of election and the time to assume office, the vacancy shall be filled in the same manner as if that officer had served one day of the term.

Article VIII

Members and Their Election

Section 1. Election of members shall be by vote of the Council or of its Executive Committee.

Section 2. There shall be four classes of members, namely, ordinary, contributing, corporate, and institutional.

Section 3. Application for admission to ordinary membership shall be made by the applicant on a blank provided by the secretary. Such applications shall not be acted upon

until at least thirty days after their presentation to the Council (at a meeting or by mail), except in the case of members of other societies entering under special action of the Council approved by the Board of Trustees.

Section 4. An ordinary member may become a contributing member by paying the dues for such membership. (See Article IX, Section 3.)

Section 5. A university or college, or a firm, corporation, or association interested in the support of mathematics may be elected a corporate or an institutional member.

Article IX

Dues and Privileges of Members

Section 1. Any applicant shall be admitted to ordinary membership immediately upon election by the Council (Article VIII) and the discharge within sixty days of election of the first annual dues. Dues may be discharged by payment or by remission when the provision of Section 7 of this Article is applicable. The first annual dues shall apply to the year of election, except that any applicant elected after August 15 of any year may elect to have the first annual dues apply to the following year.

Section 2. The annual dues of an ordinary member of the Society shall be established by the Council with the approval of the Trustees. The Council, with the approval of the Trustees, may establish special rates in exceptional cases and for members of an organization with which the Society has a reciprocity agreement.

Section 3. The minimum dues for a contributing member shall be three-halves of the dues of an ordinary member per year. Members may, upon their own initiative, pay larger dues.

Section 4. The minimum dues of an institutional member shall depend on the scholarly activity of that member. The formula for computing these dues shall be established from time to time by the Council, subject to approval by the Board of Trustees. Institutions may pay larger dues than the computed minimum.

Section 5. The privileges of an institutional member shall depend on its dues in a manner to be determined by the Council, subject to approval by the Board of Trustees. These privileges shall be in terms of Society publications to be received by the institution and of the number of persons it may nominate for ordinary membership in the Society.

Section 6. Dues and privileges of corporate members of the Society shall be established by the Council subject to approval by the Board of Trustees.

Section 7. The dues of an ordinary member of the Society shall be remitted for any years during which that member is the nominee of an institutional member.

Section 8. After retirement from active service on account of age or on account of long-term disability, any ordinary or contributing member who is not in arrears of dues and with membership extending over at least twenty years may, by giving proper notification to the secretary, have dues remitted. Such a member shall receive the *Notices* and may request to receive *Bulletin* as privileges of membership during each year until membership ends.

Section 9. An ordinary or contributing member shall receive the *Notices* and *Bulletin* as privileges of membership during each year for which dues have been discharged.

Section 10. The annual dues of ordinary, contributing, and corporate members shall be due by January 1 of the year to which they apply. The Society shall submit bills for dues. If the annual dues of any member remain undischarged beyond what the Board of Trustees deems to be a reasonable time, the name of that member shall be removed from the list of members after due notice. A member wishing to discontinue membership at any time shall submit a resignation in writing to the Society.

Section 11. Any person who has attained the age of 62 and has been a member for at least twenty years may become a life member by making a single payment equal to five times the dues of an ordinary member for the coming year. Insofar as there is more than one level of dues for ordinary membership, it is the highest such dues that shall be used in the calculation, with the exception for members by reciprocity noted in the following paragraph. A life member is subsequently relieved of the obligation of paying dues. The status and privileges are those of ordinary members.

A member of the Society by reciprocity who has reached the age of 62, has been a member for at least 20 years, has been a member by reciprocity for at least 15 of those 20 years and asserts the intention of continuing to be a member by reciprocity may purchase a life membership by a one-time payment of a special rate established by the Council, with the approval of the Trustees.

Article X

Meetings

Section 1. The annual meeting of the Society shall be held between the fifteenth of December and the tenth of February next following. Notice of the time and place of this meeting shall be mailed by the secretary or an associate secretary to the last known post office address of each member of the Society. The times and places of the annual and other meetings of the Society shall be designated by the Council.

Section 2. There shall be a business meeting of the Society only at the annual meeting. The agenda for the business meeting shall be determined by the Council. A business meeting of the Society can take action only on items notified to the full membership of the Society in the call for the meeting. A business meeting can act on items recommended to it jointly by the Council and the Board of Trustees; a majority of members present and voting is required for passage of such an item. A business meeting of the Society can place action items on the agenda for a future business meeting. Final action on an item proposed by a previous business meeting can be taken only provided there is a quorum of 400 members, a majority of members at a business meeting with a quorum being required for passage of such an item.

Section 3. Meetings of the Executive Committee may be called by the president. The president shall call a meeting at any time upon the written request of two of its members.

Section 4. The Council shall meet at the annual meeting of the Society. Special meetings of the Council may be called by the president. The president shall call a special meeting at any time upon the written request of five of its members. No special meeting of the Council shall be held unless written notice of it shall have been sent to all members of the Council at least ten days before the day set for the meeting.

Section 5. The Board of Trustees shall hold at least one meeting in each calendar year. Meetings of the Board of Trustees may be called by the president, the treasurer, or the secretary of the Society upon three days' notice of such meetings mailed to the last known post office address of each trustee. The secretary of the Society shall call a meeting upon the receipt of a written request of two of the trustees. Meetings may also be held by common consent of all the trustees.

Section 6. Papers intended for presentation at any meeting of the Society shall be passed upon in advance by a program committee appointed by or under the authority of the Council, and only such papers shall be presented as shall have been approved by such committee. Papers in form unsuitable for publication, if accepted for presentation, shall be referred to on the program as preliminary communications or reports.

Article XI

Publications

Section 1. The Society shall publish an official organ called the *Bulletin of the American Mathematical Society*. It shall publish four journals, known as the *Journal of the American Mathematical Society*, the *Transactions of the American Mathematical Society*, the *Proceedings of the American Mathematical Society*, and *Mathematics of Computation*. It shall publish a series of mathematical papers known as the *Memoirs of the American Mathematical Society*. The object of the *Journal*, *Transactions, Proceedings, Memoirs*, and *Mathematics of Computation* is to make known important mathematical researches. It shall publish a periodical called *Mathematical Reviews*, containing abstracts or reviews of current mathematical literature. It shall publish a series of volumes called *Colloquium Publications* which shall embody in book form new mathematical developments. It shall publish a series of monographs called *Mathematical Surveys and Monographs* which shall furnish expositions of the principal methods and results of particular fields of mathematical research. It shall publish a news periodical known as the *Notices of the American Mathematical Society*, containing programs of meetings, items of news of particular interest to mathematicians, and such other materials as the Council may direct.

Section 2. The editorial management of the publications of the Society listed in Section 1 of this article, with the exception of the *Notices*, shall be in the charge of the respective editorial committees as provided in Article III, Section 1. The editorial management of the *Notices* shall be in the hands of a committee chosen in a manner established by the Council.

Article XII

Indemnification

Any person who at any time serves or has served as a trustee or officer of the Society, or as a member of the Council, or, at the request of the Society, as a director or officer of another corporation, whether for profit or not for profit, shall be indemnified by the Society and be reimbursed against and for expenses actually and necessarily incurred in connection with the defense or reasonable settlement of any action, suit, legal or administrative proceeding, whether civil, criminal, administrative or investigative, threatened, pending or completed, to which that person is made a party by reason of being or having been such trustee, officer or director or Council member, except in relation to matters as to which the person shall be adjudged in such action, suit, or proceeding to be liable for negligence or misconduct in the performance of official duties. Such right of indemnification and reimbursement shall also extend to the personal representatives of any such person and shall be in addition to and not in substitution for any other rights to which such person or personal representatives may now or hereafter be entitled by virtue of the provisions of applicable law or of any other agreement or vote of the Board of Trustees, or otherwise.

Article XIII

Amendments

These bylaws may be amended or suspended on recommendation of the Council and with the approval of the membership of the Society, the approval consisting of an affirmative vote by two-thirds of the members present at a business meeting or of two-thirds of the members voting in a mail ballot in which at least ten percent of the members vote, whichever alternative shall have been designated by the Council, and provided notice of the proposed action and of its general nature shall have been given in the call for the meeting or accompanies the ballot in full.

As amended December 1998

AMS Lecturers, Officers, Prizes, and Funds

Colloquium Lecturers

James Pierpont, 1896
Maxime Bôcher, 1896
W. F. Osgood, 1898
A. G. Webster, 1898
Oskar Bolza, 1901
E. W. Brown, 1901
H. S. White, 1903
F. S. Woods, 1903
E. B. Van Vleck, 1903
E. H. Moore, 1906
E. J. Wilczynski, 1906
Max Mason, 1906
G. A. Bliss, 1909
Edward Kasner, 1909
L. E. Dickson, 1913
W. F. Osgood, 1913
G. C. Evans, 1916
Oswald Veblen, 1916
G. D. Birkhoff, 1920
F. R. Moulton, 1920
L. P. Eisenhart, 1925
Dunham Jackson, 1925
E. T. Bell, 1927
Anna Pell-Wheeler, 1927
A. B. Coble, 1928
R. L. Moore, 1929
Solomon Lefschetz, 1930
Marston Morse, 1931
J. F. Ritt, 1932
R. E. A. C. Paley, 1934
Norbert Wiener, 1934
H. S. Vandiver, 1935
E. W. Chittenden, 1936
John von Neumann, 1937
A. A. Albert, 1939
M. H. Stone, 1939
G. T. Whyburn, 1940
Oystein Ore, 1941
R. L. Wilder, 1942
E. J. McShane, 1943
Einar Hille, 1944
Tibor Radó, 1945
Hassler Whitney, 1946
Oscar Zariski, 1947
Richard Brauer, 1948
G. A. Hedlund, 1949
Deane Montgomery, 1951
Alfred Tarski, 1952
Antoni Zygmund, 1953
Nathan Jacobson, 1955
Salomon Bochner, 1956
N. E. Steenrod, 1957
J. L. Doob, 1959
S. S. Chern, 1960
G. W. Mackey, 1961
Saunders Mac Lane, 1963
C. B. Morrey, Jr., 1964
A. P. Calderón, 1965
Samuel Eilenberg, 1967
D. C. Spencer, 1968

J. W. Milnor, 1968
Raoul H. Bott, 1969
Harish-Chandra, 1969
R. H. Bing, 1970
Lipman Bers, 1971
Armand Borel, 1971
Stephen Smale, 1972
John T. Tate, 1972
M. F. Atiyah, 1973
E. A. Bishop, 1973
F. E. Browder, 1973
Louis Nirenberg, 1974
John G. Thompson, 1974
H. Jerome Keisler, 1975
Ellis R. Kolchin, 1975
Elias M. Stein, 1975
I. M. Singer, 1976
Jürgen K. Moser, 1976
William Browder, 1977
Herbert Federer, 1977
Hyman Bass, 1978
Philip A. Griffiths, 1979
George D. Mostow, 1979
Julia B. Robinson, 1980
Wolfgang M. Schmidt, 1980
Mark Kac, 1981
Serge Lang, 1981
Dennis Sullivan, 1982
Morris W. Hirsch, 1982
Charles L. Fefferman, 1983
Bertram Kostant, 1983
Barry Mazur, 1984
Paul H. Rabinowitz, 1984
Daniel Gorenstein, 1985
Karen K. Uhlenbeck, 1985
Shing-Tung Yau, 1986
Peter D. Lax, 1987
Edward Witten, 1987
Victor W. Guillemin, 1988
Nicholas Katz, 1989
William P. Thurston, 1989
Shlomo Sternberg, 1990
Robert D. MacPherson, 1991
Robert P. Langlands, 1992
Luis A. Caffarelli, 1993
Sergiu Klainerman, 1993
Jean Bourgain, 1994
Clifford H. Taubes, 1995
Andrew W. Wiles, 1996
Daniel W. Stroock, 1997
Gian-Carlo Rota, 1998
Helmut H. Hofer, 1999

Gibbs Lecturers

M. I. Pupin, 1923
Robert Henderson, 1924
James Pierpont, 1925
H. B. Williams, 1926
E. W. Brown, 1927
G. H. Hardy, 1928
Irving Fisher, 1929

E. B. Wilson, 1930
P. W. Bridgman, 1931
R. C. Tolman, 1932
Albert Einstein, 1934
Vannevar Bush, 1935
H. N. Russell, 1936
C. A. Kraus, 1937
Theodore von Kármán, 1939
Sewall Wright, 1941
Harry Bateman, 1943
John von Neumann, 1944
J. C. Slater, 1945
S. Chandrasekhar, 1946
P. M. Morse, 1947
Hermann Weyl, 1948
Norbert Wiener, 1949
G. E. Uhlenbeck, 1950
Kurt Gödel, 1951
Marston Morse, 1952
Wassily Leontief, 1953
K. O. Friedrichs, 1954
J. E. Mayer, 1955
M. H. Stone, 1956
H. J. Muller, 1958
J. M. Burgers, 1959
Julian Schwinger, 1960
J. J. Stoker, 1961
C. N. Yang, 1962
C. E. Shannon, 1963
Lars Onsager, 1964
D. H. Lehmer, 1965
Martin Schwarzschild, 1966
Mark Kac, 1967
E. P. Wigner, 1968
R. L. Wilder, 1969
W. H. Munk, 1970
E. F. F. Hopf, 1971
F. J. Dyson, 1972
J. K. Moser, 1973
Paul A. Samuelson, 1974
Fritz John, 1975
Arthur S. Wightman, 1976
Joseph B. Keller, 1977
Donald E. Knuth, 1978
Martin D. Kruskal, 1979
Kenneth G. Wilson, 1980
Cathleen Synge Morawetz, 1981
Elliott W. Montroll, 1982
Samuel Karlin, 1983
Herbert A. Simon, 1984
Michael O. Rabin, 1985
L. E. Scriven, 1986
Thomas C. Spencer, 1987
David P. Ruelle, 1988
Elliott H. Lieb, 1989
George B. Dantzig, 1990
Michael F. Atiyah, 1991
Michael E. Fisher, 1992
Charles S. Peskin, 1993
Robert M. May, 1994
Andrew J. Majda, 1995

Prizes

The George David Birkhoff Prize in Applied Mathematics

This prize was established in 1967 in honor of Professor George David Birkhoff. The initial endowment of $2,066 was contributed by the Birkhoff family and there have been subsequent additions by others. It is normally awarded every five years, beginning in 1968, for an outstanding contribution to "applied mathematics in the highest and broadest sense." The award is made jointly by the American Mathematical Society and the Society for Industrial and Applied Mathematics. The recipient must be a member of one of these societies and a resident of the United States, Canada, or Mexico.

First award, 1968: To Jürgen K. Moser for his contributions to the theory of Hamiltonian dynamical systems, especially his proof of the stability of periodic solutions of Hamiltonian systems having two degrees of freedom and his specific applications of the ideas in connection with this work.

Second award, 1973: To Fritz John for his outstanding work in partial differential equations, in numerical analysis, and, particularly, in nonlinear elasticity theory; the latter work has led to his study of quasi–isometric mappings as well as functions of bounded mean oscillation, which have had impact in other areas of analysis.

Third award, 1973: To James B. Serrin for his fundamental contributions to the theory of nonlinear partial differential equations, especially his work on existence and regularity theory for nonlinear elliptic equations, and applications of his work to the theory of minimal surfaces in higher dimensions.

Fourth award, 1978: To Garrett Birkhoff for bringing the methods of algebra and the highest standards of mathematics to scientific applications.

Fifth award, 1978: To Mark Kac for his important contributions to statistical mechanics and to probability theory and its applications.

Sixth award, 1978: To Clifford A. Truesdell for his outstanding contributions to our understanding of the subjects of rational mechanics and nonlinear materials, for his efforts to give precise mathematical formulation to these classical subjects, for his many contributions to applied mathematics in the fields of acoustic theory, kinetic theory, and nonlinear elastic theory, and the thermodynamics of mixtures, and for his major work in the history of mechanics.

Seventh award, 1983: To Paul R. Garabedian for his important contributions to partial differential equations, to the mathematical analysis of problems of transonic flow and airfoil design by the method of complexification, and to the development and application of scientific computing to problems of fluid dynamics and plasma physics.

Eighth award, 1988: To Elliott H. Lieb for his profound analysis of problems arising in mathematical physics.

Ninth award, 1994: To Ivo Babuška for important contributions to the reliability of finite element methods, the development of a general framework for finite element error

estimation, and the development of p and $h - p$ finite element methods; and to S. R. S. Varadhan for important contributions to the martingale characterization of diffusion processes, to the theory of large deviations for functionals of occupation times of Markov processes, and to the study of random media.

Tenth award, 1998: To Paul H. Rabinowitz for his deep influence on the field of nonlinear analysis.

The Bôcher Memorial Prize

This prize was founded in memory of Professor Maxime Bôcher with an original endowment of $1,450. It is awarded every five years for a notable research memoir in analysis that has appeared during the past five years in a recognized North American journal. This provision, introduced in 1971 and modified in 1993, is a liberalization of the terms of the award.

First (preliminary) award, 1923: To G. D. Birkhoff for his memoir, *Dynamical systems with two degrees of freedom*. Transactions of the American Mathematical Society, volume 18 (1917), pp. 199–300.

Second award, 1924: To E. T. Bell for his memoir, *Arithmetical paraphrases*. I, II, Transactions of the American Mathematical Society, volume 22 (1921), pp. 1–30, 198–219; and to Solomon Lefschetz for his memoir, *On certain numerical invariants with applications to Abelian varieties*, Transactions of the American Mathematical Society, volume 22 (1921), pp. 407–482.

Third award, 1928: To J. W. Alexander for his memoir, *Combinatorial analysis situs*, Transactions of the American Mathematical Society, volume 28 (1926), pp. 301–329.

Fourth award, 1933: To Marston Morse for his memoir, *The foundations of a theory of the calculus of variations in the large in m-space*, Transactions of the American Mathematical Society, volume 31 (1929), pp. 379–404; and to Norbert Wiener for his memoir, *Tauberian theorems*, Annals of Mathematics, Series 2, volume 33 (1932),pp. 1–100.

Fifth award, 1938: To John von Neumann for his memoir, *Almost periodic functions and groups*. I, II, Transactions of the American Mathematical Society, volume 36 (1934), pp. 445–492, and volume 37 (1935), pp. 21–50.

Sixth award, 1943: To Jesse Douglas for his memoirs, *Green's function and the problem of Plateau*, American Journal of Mathematics, volume 61 (1939), pp. 545–589; *The most general form of the problem of Plateau*, American Journal of Mathematics, volume 61(1939), pp. 590–608; and *Solution of the inverse problem of the calculus of variations*, Proceedings of the National Academy of Sciences, volume 25 (1939), pp. 631–637.

Seventh award, 1948: To A. C. Schaeffer and D. C. Spencer for their memoir, *Coefficients of schlicht functions*. I, II, III, IV, Duke Mathematical Journal, volume 10 (1943), pp. 611–635, volume 12 (1945), pp. 107–125, and the Proceedings of the National Academy of Sciences, volume 32 (1946), pp. 111–116, volume 35 (1949), pp. 143–150.

Eighth award, 1953: To Norman Levinson for his contributions to the theory of linear, nonlinear, ordinary, and partial differential equations contained in his papers of recent years.

Ninth award, 1959: To Louis Nirenberg for his work in partial differential equations.

Tenth award, 1964: To Paul J. Cohen for his paper, *On a conjecture of Littlewood and idempotent measures*, American Journal of Mathematics, volume 82 (1960), pp. 191–212.

Eleventh award, 1969: To I. M. Singer in recognition of his work on the index problem, especially his share in two joint papers with Michael F. Atiyah, *The index of elliptic operators*. I, III, Annals of Mathematics, Series 2, volume 87 (1968), pp. 484–530, 546–604.

Twelfth award, 1974: To Donald S. Ornstein in recognition of his paper, *Bernoulli shifts with the same entropy are isomorphic*, Advances in Mathematics, volume 4 (1970), pp. 337–352.

Thirteenth award, 1979: To Alberto P. Calderon in recognition of his fundamental work on the theory of singular integrals and partial differential equations, and in particular for his paper *Cauchy integrals on Lipschitz curves and related operators*, Proceedings of the National Academy of Sciences, USA, volume 74 (1977), pp. 1324–1327.

Fourteenth award, 1984: To Luis A. Caffarelli for his deep and fundamental work in nonlinear partial differential equations, in particular his work on free boundary problems, vortex theory and regularity theory.

Fifteenth award, 1984: To Richard B. Melrose for his solution of several outstanding problems in diffraction theory and scattering theory and for developing the analytical tools needed for their resolution.

Sixteenth award, 1989: To Richard M. Schoen for his work on the application of partial differential equations to differential geometry, in particular his completion of the solution to the Yamabe Problem in *Conformal deformation of a Riemannian metric to constant scalar curvature*, Journal of Differential Geometry, volume 20 (1984), pp. 479–495.

Seventeenth award, 1994: To Leon Simon for his profound contributions toward understanding the structure of singular sets for solutions of variational problems.

Eighteenth award, 1999: To Demetrios Christodoulou for his contributions to the mathematical theory of general relativity, and to Sergiu Klainerman for his contributions to nonlinear hyperbolic equations, and to Thomas Wolff for his work in harmonic analysis.

The Frank Nelson Cole Prize in Algebra
The Frank Nelson Cole Prize in Number Theory

These prizes were founded in honor of Professor Frank Nelson Cole on the occasion of his retirement as secretary of the American Mathematical Society after twenty–five years of service and as editor–in–chief of the *Bulletin* for twenty-one years. The original fund was donated by Professor Cole from moneys presented to him on his retirement, was augmented by contributions from members of the Society, and was later doubled by his son, Charles A. Cole. The present endowment is $2,250. The prizes are awarded at five-year intervals for contributions to algebra and the theory of numbers, respectively, under restrictions similar to those for the Bôcher Prize.

First award, 1928: To L. E. Dickson for his book *Algebren und ihre Zahlentheorie*, Orell Füssli, Zürich and Leipzig, 1927.

Second award, 1931: To H. S. Vandiver for his several papers on Fermat's last theorem published in the Transactions of the American Mathematical Society and in the Annals of Mathematics during the preceding five years, with special reference to a paper entitled *On Fermat's last theorem*, Transactions of the American Mathematical Society, volume 31 (1929), pp. 613–642.

Third award, 1939: To A. Adrian Albert for his papers on the construction of Riemann matrices published in the Annals of Mathematics, Series 2, volume 35 (1934) and volume 36 (1935).

Fourth award, 1941: To Claude Chevalley for his paper, *La théorie du corps de classes*, Annals of Mathematics, Series 2, volume 41 (1940), pp. 394–418.

Fifth award, 1944: To Oscar Zariski for four papers on algebraic varieties published in the American Journal of Mathematics, volumes 61 (1939) and 62 (1940), and in the Annals of Mathematics, Series 2, volumes 40 (1939) and 41 (1940).

Sixth award, 1946: To H. B. Mann for his paper, *A proof of the fundamental theorem on the density of sums of sets of positive integers*, Annals of Mathematics, Series 2, volume 43 (1942), pp. 523–527.

Seventh award, 1949: To Richard Brauer for his paper, *On Artin's L-series with general group characters*, Annals of Mathematics, Series 2, volume 48 (1947), pp. 502–514.

Eighth award, 1951: To Paul Erdös for his many papers in the theory of numbers, and in particular for his paper, *On a new method in elementary number theory which leads to an elementary proof of the prime number theorem*, Proceedings of the National Academy of Sciences, volume 35 (1949), pp. 374–385.

Ninth award, 1954: To Harish–Chandra for his papers on representations of semisimple Lie algebras and groups, and particularly for his paper, *On some applications of the universal enveloping algebra of a semisimple Lie algebra*, Transactions of the American Mathematical Society, volume 70 (1951), pp. 28–96.

Tenth award, 1956: To John T. Tate for his paper, *The higher dimensional cohomology groups of class field theory*, Annals of Mathematics, Series 2, volume 56 (1952), pp. 294–297.

Eleventh award, 1960: To Serge Lang for his paper, *Unramified class field theory over function fields in several variables*, Annals of Mathematics, Series 2, volume 64 (1956), pp. 285–325; and to Maxwell A. Rosenlicht for his papers, *Generalized Jacobian varieties*, Annals of Mathematics, Series 2, volume 59 (1954), pp. 505–530, and *A universal mapping property of generalized Jacobians*, Annals of Mathematics, Series 2, volume 66 (1957), pp. 80–88.

Twelfth award, 1962: To Kenkichi Iwasawa for his paper, *Gamma extensions of number fields*, Bulletin of the American Mathematical Society, volume 65 (1959), pp. 183–226; and to Bernard M. Dwork for his paper, *On the rationality of the zeta function of an algebraic variety*, American Journal of Mathematics, volume 82 (1960), pp. 631–648.

Thirteenth award, 1965: To Walter Feit and John G. Thompson for their joint paper, *Solvability of groups of odd order*, Pacific Journal of Mathematics, volume 13 (1963), pp. 775–1029.

Fourteenth award, 1967: To James B. Ax and Simon B. Kochen for a series of three joint papers, *Diophantine problems over local fields*. I, II, III, American Journal of Mathematics, volume 87 (1965), pp. 605–630, 631–648, and Annals of Mathematics, Series 2, volume 83 (1966), pp. 437–456.

Fifteenth award, 1970: To John R. Stallings for his paper, *On torsion-free groups with infinitely many ends*, Annals of Mathematics, Series 2, volume 88 (1968), pp. 312–334; and to Richard G. Swan for his paper, *Groups of cohomological dimension one*, Journal of Algebra, volume 12 (1969), pp. 585–610.

Sixteenth award, 1972: To Wolfgang M. Schmidt for the following papers: *On simultaneous approximation of two algebraic numbers by rationals*, Acta Mathematica (Uppsala), volume 119 (1967), pp. 27–50; *T-numbers do exist*, Symposia Mathematica, volume IV, Academic Press, 1970, pp. 1–26; *Simultaneous approximation to algebraic numbers by rationals*, Acta Mathematica (Uppsala), volume 125 (1970), pp. 189–201; *On Mahler's T-numbers*, Proceedings of Symposia in Pure Mathematics, volume 20, American Mathematical Society, 1971, pp. 275–286.

Seventeenth award, 1975: To Hyman Bass for his paper, *Unitary algebraic K-theory*, Springer Lecture Notes in Mathematics, volume 343, 1973; and to Daniel G. Quillen for his paper, *Higher algebraic K-theories*, Springer Lecture Notes in Mathematics, volume 341, 1973.

Eighteenth award, 1977: To Goro Shimura for his two papers, *Class fields over real quadratic fields and Heche operators*, Annals of Mathematics, Series 2, volume 95 (1972), pp. 130–190; and *On modular forms of half integral weight*, Annals of Mathematics, Series 2, volume 97 (1973), pp. 440–481.

Nineteenth award, 1980: To Michael Aschbacher for his paper, *A characterization of Chevalley groups over fields of odd order*, Annals of Mathematics, Series 2, volume 106 (1977), pp. 353–398; and to Melvin Hochster for his paper *Topics in the homological theory of commutative rings*, CBMS Regional Conference Series in Mathematics, Number 24, American Mathematical Society, 1975.

Twentieth award, 1982: To Robert P. Langlands for pioneering work on automorphic forms, Eisenstein series and product formulas, particularly for his paper *Base change for GL*(2), Annals of Mathematics Studies, volume 96, Princeton University Press, 1980; and to Barry Mazur for outstanding work on elliptic curves and Abelian varieties, especially on rational points of finite order, and his paper *Modular curves and the Eisenstein ideal*, Publications Mathematiques de l'Institut des Hautes Etudes Scientifiques, volume 47 (1977), pp. 33–186.

Twenty–First award, 1985: To George Lusztig for his fundamental work on the representation theory of finite groups of Lie type. In particular for his contributions to the classification of the irreducible representations in characteristic zero of the groups of rational points of reductive groups over finite fields, appearing in *Characters of reductive groups over finite fields*, Annals of Mathematics Studies, volume 107, Princeton University Press, 1984.

Twenty–Second award, 1987: To Dorian M. Goldfeld for his paper, *Gauss's class number problem for imaginary quadratic fields*, Bulletin of the American Mathematical Society, volume 13, (1985), pp. 23–37; and to Benedict H. Gross and Don B. Zagier for their paper, *Heegner points and derivatives of L-Series*, Inventiones Mathematicae, volume 84 (1986), pp. 225–320.

Twenty–Third award, 1990: To Shigefumi Mori for his outstanding work on the classification of algebraic varieties and, in particular, for his paper *Flip theorem and the existence of minimal models for 3-folds*, Journal of the American Mathematical Society, volume 1 (1988), pp. 117–253.

Twenty–Fourth award, 1992: To Karl Rubin for his work in the area of elliptic curves and Iwasawa Theory with particular reference to his papers *Tate-Shafarevich groups and L-functions of elliptic curves with complex multiplication* and *The "main conjectures" of Iwasawa theory for imaginary quadratic fields* and to Paul Vojta for his work on Diophantine problems with particular reference to his paper *Siegel's theorem in the compact case*.

Twenty–Fifth award, 1995: To Michel Raynaud and David Harbater for their solution of Abhyankar's conjecture. This work appeared in the papers *Revêtements de la droite affine en caractéristique p > 0*, Invent. Math. **116** (1994) 425–462 (Raynaud), and *Abhyankar's conjecture on Galois groups over curves*, Invent. Math. **117** (1994) 1–25 (Harbater).

Twenty-Sixth award, 1997: To Andrew J. Wiles for his work on the Shimura-Taniyama conjecture and Fermat's Last Theorem, published in *Modular elliptic curves and Fermat's Last Theorem*, Ann. of Math. **141** (1995), 443–551.

The Delbert Ray Fulkerson Prize

Gifts of friends of the late Professor Fulkerson have provided a fund in excess of $7,000. Part or all of the proceeds is to be used jointly by the Mathematical Programming Society and the American Mathematical Society for the award of one or more prizes in discrete mathematics at regular intervals.

First award, 1979: To Richard M. Karp, for *On the computational complexity of combinatorial problems*, Networks, volume 5 (1975), pp. 45–68; to Kenneth Appel and Wolfgang Haken, for *Every planar map is four colorable*, Part I: *Discharging*, Illinois Journal of Mathematics, volume 21 (1977), pp. 429–490; and to Paul D. Seymour, for *The matroids with the max–flow min–cut property*, Journal of Combinatorial Theory, Series B, volume 23 (1977), pp. 189–222.

Second award, 1982: To D. B. Judin and A. S. Nemirovskii, for *Informational complexity and effective methods of solution for convex extremal problems*, Ekonomika i Matematicheskie Metody 12 (1976), 357–369, and to L. G. Khachiyan for *A polynomial algorithm in linear programming*, Akademiia Nauk SSSR. Doklady 244 (1979), 1093–1096; to G. P. Egorychev, for *The solution of van der Waerden's problem for permanents*, Akademiia Nauk SSSR. Doklady 258 (1981), 1041–1044, and D. I. Falikman, for *A proof of the van der Waerden conjecture on the permanent of a doubly stochastic matrix*, Matematicheskie Zametki 29 (1981), 931–938; and to M. Grötschel, L. Lovasz, and A. Schri-

jver, for *The ellipsoid method and its consequences in combinatorial optimization*, Combinatorica 1 (1981), 169–197.

Third award, 1985: To Jozsef Beck, for *Roth's estimate of the discrepancy of integer sequences is nearly sharp*, Combinatorica 1 (4),319–325, (1981); and H. W. Lenstra Jr., for *Integer programming with a fixed number of variables*, Mathematics of Operations Research 8 (4), 538–548, (1983); and Eugene M. Luks for *Isomorphism of graphs of bounded valence can be tested in polynomial time*, Journal of Computer and System Sciences 25 (1), 42–65, (1982).

Fourth award, 1988: To Éva Tardos for *A strongly polynomial minimum cost circulation algorithm*, Combinatorica, volume 5 (1985), pp. 247–256; and to Narendra Karmarkar for *A new polynomial–time algorithm for linear programming*, Combinatorica, volume 4 (1984), pp. 373–395.

Fifth award, 1991: To Martin Dyer, Alan Frieze, and Ravi Kannan for *A random polynomial time algorithm for approximating the volume of convex bodies*, Journal of the Association for Computing Machinery, volume 38/1 (1991) pp. 1–17; to Alfred Lehman for *The width–length inequality and degenerate projective planes*, W. Cook and P. D. Seymour (eds.), Polyhedral Combinatorics, DIMACS Series in Discrete Mathematics and Theoretical Computer Science, volume 1, (American Mathematical Society, 1990) pp. 101–105; and to Nikolai E. Mnev for *The universality theorems on the classification problem of configuration varieties and convex polytope varieties*, O. Ya. Viro (ed.), Topology and Geometry–Rohlin Seminar, Lecture Notes in Mathematics 1346 (Springer–Verlag, Berlin, 1988) pp. 527–544.

Sixth Award, 1994: To Lou Billera for *Homology of smooth splines: Generictriangulations and a conjecture of Strang*, Transactions of the AMS, volume 310 (1988) pp. 325–340; to Gil Kalai for *Upper bounds for the diameter and height of graphs of the convex polyhedra*, Discrete and Computational Geometry, volume 8 (1992) pp. 363–372; and to Neil Robertson, Paul D. Seymour, and Robin Thomas for *Hadwiger's conjecture for K_6 free graphs*, Combinatorica, volume 13 (1993) pp. 279–361.

Seventh award, 1997: To Jeong Han Kim for "The Ramsey Number $R(3, t)$ Has Order of Magnitude $\frac{t^2}{\log t}$" which appeared in *Random Structures and Algorithms*, volume 7, issue 3, 1995, pages 173–207.

The Frank and Brennie Morgan Prize for Outstanding Research in Mathematics by an Undergraduate Student

This prize, which was established in 1995, is to be awarded to an undergraduate student (or students having submitted joint work) for outstanding research in mathematics: it is entirely endowed by a gift of approximately $25,000 from Mrs. Frank (Brennie) Morgan. Any student who is an undergraduate in a college or university in Canada, Mexico, or the United States or its possessions is eligible to be considered for this prize. No more than one prize shall be awarded each year and a few honorable mentions may be made. The award is made jointly by the American Mathematical Society, the Mathematical Association of America, and the Society for Industrial and Applied Mathematics.

First award, 1995: Kannan Soundararajan for truly exceptional research in analytic number theory. Honorable mention: Kiran Kedlaya.

Second award, 1996: Manjul Bhargava for truly outstanding mathematical research in algebra. Honorable mention: Lenhard L. Ng.

Third award, 1997: Jade Vinson for wide-ranging research in analysis and geometry. Honorable mention: Vikaas Sohal.

Eighth award, 1998: Daniel Biss for his remarkable breadth, as well as depth. The most exciting aspect of his submission was his extension of a category which more closely binds the associations between combinatorial group theory and combinatorial topology. Honorable mention: Aaron E. Archer.

The Award for Distinguished Public Service

 To provide encouragement and recognition to those individuals who contribute their time to public service activities in support of mathematics, the Council of the Society established the Award for Distinguished Public Service. The award was established in response to a recommendation by the Society's Committee on Science Policy. The award is presented every two years to a research mathematician who has made a distinguished contribution to the mathematics profession during the preceding five years.

First award, 1990: Kenneth M. Hoffman for his outstanding leadership in establishing channels of communication between the mathematical community and makers of public policy as well as the general public.

Second award, 1992: Harvey B. Keynes for his multifaceted efforts to revitalize mathematics education, especially for young people.

Third award, 1993: Isadore M. Singer in recognition of his outstanding contributions to his profession, to science more broadly, and to the public good by bringing the best of mathematics and his own insights to bear on the activities of the National Academy of Sciences; on committees of the National Research Council, including the two so-called David Committees on the health of the mathematical sciences, and the Committee on Science, Engineering, and Public Policy; on the President's Science Advisory Council; on decisions of Congress, through testimony concerning the support of mathematics and mathematical research; and on a host of critical situations over many years in which his wisdom and intervention helped gain a hearing for the problems of his community and the contributions it makes to the nation.

Fourth award, 1995: Donald J. Lewis for his many contributions to mathematical education, mathematics policy, and mathematical research and administration during a career that has spanned several decades.

Fifth award, 1997: No award made.

Sixth award, 1998: Kenneth C. Millett for his work devoted to underrepresented minority students in the mathematical sciences. Professor Millett founded the University of California, Santa Barbara, Achievement Program and directed the mathematics component of the Summer Academic Research Internship and the Summer Institute in Mathematics at UCSB.

The Citation for Public Service

 To provide encouragement and recognition for contributions to public service activities in support of mathematics, the Council of the Society established the Citation for Public Service. The award was established in response to a recommendation by the Society's Committee on Science Policy. One to three citations are presented each year for notable contributions to the mathematics profession through public service.

First award, 1991: Andre Z. Manitius for the contributions he made to the mathematical community while employed in the Division of Mathematical Sciences at the National Science Foundation.

Second award, 1992: Marcia P. Sward for her contributions toward establishing and directing the Mathematical Sciences Education Board from its inception in the fall of 1985 until August 1989.

Third award, 1998: Liang-Shin Hahn and Arnold E. Ross. Liang-Shin Hahn for carrying forward and developing the New Mexico High School Mathematics Contest and for exposition and popularization of mathematics attractive to and suitable for potential candidates for the contest and others with similar intellectual interests. Arnold E. Ross for inspiring generations of young people through the mathematics programs he created and has continued to run for nearly forty years.

The Ruth Lyttle Satter Prize in Mathematics

 The prize was established in 1990 using funds donated by Joan S. Birman in memory of her sister, Ruth Lyttle Satter. Professor Birman requested that the prize be established to honor her sister's commitment to research and to encouraging women in science. The prizes are awarded every two years to recognize an outstanding contribution to mathematics research by a woman in the previous five years.

First award, 1991: To Dusa McDuff for her outstanding work during the past five years on symplectic geometry.

Second award, 1993: To Lai-Sang Young for her leading role in the investigation of the statistical (or ergodic) properties of dynamical systems.

Third award, 1995: To Sun-Yung Alice Chang for her deep contributions to the study of partial differential equations on Riemannian manifolds and in particular for her work on extremal problems in spectral geometry and the compactness of isospectral metrics within a fixed conformal class on a compact 3–manifold.

Fourth award, 1997: To Ingrid Daubechies for her deep and beautiful analysis of wavelets and their applications.

Fifth award, 1999: To Bernadette Perrin-Riou for her number theoretical research on p-adic L-functions and Iwasawa Theory.

The Leroy P. Steele Prizes

These prizes were established in 1970 in honor of George David Birkhoff, William Fogg Osgood, and William Caspar Graustein, and are endowed under the terms of a bequest amounting to $145,000 from Leroy P. Steele. From 1970 to 1976 one or more prizes were awarded each year for outstanding published mathematical research; most favorable consideration was given to papers distinguished for their exposition and covering broad areas of mathematics. In 1977 the Council of the AMS modified the terms under which the prizes are awarded. Since then, up to three prizes have been awarded each year in the following categories: (1) for the cumulative influence of the total mathematical work of the recipient, high level of research over a period of time, particular influence on the development of a field, and influence on mathematics through Ph.D. students; (2) for a book or substantial survey or expository-research paper; (3) for a paper, whether recent or not, that has proved to be of fundamental or lasting importance in its field, or a model of important research. In 1993, the Council formalized the three categories of the prize by naming each of them: (1) The Leroy P. Steele Prize for Lifetime Achievement; (2) The Leroy P. Steele Prize for Mathematical Exposition; and (3) The Leroy P. Steele Prize for Seminal Contribution to Research.

August 1970: To Solomon Lefschetz for his paper, *A page of mathematical autobiography*, Bulletin of the American Mathematical Society, volume 74 (1968), pp. 854–879.

August 1971: To James B. Carrell for his paper, written jointly with Jean A. Dieudonne, *Invariant theory, old and new*, Advances in Mathematics, volume 4 (1970), pp. 1–80.

August 1971: To Jean A. Dieudonné for his paper, *Algebraic geometry*, Advances in Mathematics, volume 3 (1969), pp. 223–321, and for his paper, written jointly with James B. Carrell, *Invariant theory, old and new*, Advances in Mathematics, volume 4 (1970), pp. 1–80.

August 1971: To Phillip A. Griffiths for his paper, *Periods of integrals on algebraic manifolds*, Bulletin of the American Mathematical Society, volume 76 (1970), pp. 228–296.

August 1972: To Edward B. Curtis for his paper, *Simplicial homotopy theory*, Advances in Mathematics, volume 6 (1971), pp. 107–209.

August 1972: To William J. Ellison for his paper, *Waring's problem*, American Mathematical Monthly, volume 78 (1971), pp. 10–36.

August 1972: To Lawrence F. Payne for his paper, *Isoperimetric inequalities and their applications*, SIAM Review, volume 9 (1967), pp. 453–488.

August 1972: To Dana S. Scott for his paper, *A proof of the independence of the continuum hypothesis*, Mathematical Systems Theory, volume 1 (1967), pp. 89–111.

January 1975: To Lipman Bers for his paper, *Uniformization, moduli, and Kleinian groups*, Bulletin of the London Mathematical Society, volume 4 (1972), pp. 257–300.

January 1975: To Martin D. Davis for his paper, *Hilbert's tenth problem is unsolvable*, American Mathematical Monthly, volume 80 (1973), pp. 233–269.

January 1975: To Joseph L. Taylor for his paper, *Measure algebras*, CBMS Regional Conference Series in Mathematics, Number 16, American Mathematical Society, 1972.

August 1975: To George W. Mackey for his paper, *Ergodic theory and its significance for statistical mechanics and probability theory*, Advances in Mathematics, volume 12 (1974), pp. 178–286.

August 1975: To H. Blaine Lawson for his paper, *Foliations*, Bulletin of the American Mathematical Society, volume 80 (1974), pp. 369–418.

1976, 1977, 1978: No awards were made.

January 1979: To Salomon Bochner for his cumulative influence on the fields of probability theory, Fourier analysis, several complex variables, and differential geometry.

January 1979: To Hans Lewy for three fundamental papers: *On the local character of the solutions of an atypical linear differential equation in three variables and a related theorem for regular functions of two complex variables*, Annals of Mathematics, Series 2, volume 64 (1956), pp. 514–522; *An example of a smooth linear partial differential equation without solution*, Annals of Mathematics, Series 2, volume 66 (1957), pp. 155–158; *On hulls of holomorphy*, Communications in Pure and Applied Mathematics, volume 13 (1960), pp. 587–591.

August 1979: To Antoni Zygmund for his cumulative influence on the theory of Fourier series, real variables, and related areas of analysis.

August 1979: To Robin Hartshorne for his expository research article *Equivalence relations on algebraic cycles and subvarieties of small codimension*, Proceedings of Symposia in Pure Mathematics, volume 29, American Mathematical Society, 1975, pp. 129–164; and his book *Algebraic geometry*, Springer–Verlag, Berlin and New York, 1977.

August 1979: To Joseph J. Kohn for his fundamental paper *Harmonic integrals on strongly convex domains*. I, II, Annals of Mathematics, Series 2, volume 78 (1963), pp. 112–248 and volume 79 (1964), pp. 450–472.

August 1980: To André Weil for the total effect of his work on the general course of twentieth century mathematics, especially in the many areas in which he has made fundamental contributions.

August 1980: To Harold M. Edwards for mathematical exposition in his books *Riemann's zeta function*, Pure and Applied Mathematics, number 58, Academic Press, New York and London, 1974; and *Fermat's last theorem*, Graduate Texts in Mathematics, number 50, Springer-Verlag, New York and Berlin, 1977.

August 1980: To Gerhard P. Hochschild for his significant work in homological algebra and its applications.

August 1981: To Oscar Zariski for his work in algebraic geometry, especially his fundamental contributions to the algebraic foundations of this subject.

August 1981: To Eberhard Hopf for three papers of fundamental and lasting importance: *Abzweigung einer periodischen Lösung von einer stationären Lösung eines Differential systems*, Berichte über die Verhandlungen der Sächsischen Akademie der Wissenschaften zu Leipzig. Mathematisch–Naturwissenschaftliche Klasse, volume 95 (1943), pp. 3–22; *A mathematical example displaying*

features of turbulence, Communications on Applied Mathematics, volume 1 (1948), pp. 303–322; and *The partial differential equation $u_t + uu_x = \mu u_{xx}$*, Communications on Pure and Applied Mathematics, volume 3 (1950), pp. 201–230.

August 1981: To Nelson Dunford and Jacob T. Schwartz for their expository book, *Linear operators*, Part I, *General theory*, 1958; Part II, *Spectral theory*, 1963; Part III, *Spectral operators*, 1971, Interscience Publishers, New York.

August 1982: To Lars V. Ahlfors for his expository work in *Complex analysis* (McGraw-Hill Book Company, New York, 1953), and in *Lectures on quasiconformal mappings* (D. Van Nostrand Co., Inc., New York, 1966) and *Conformal invariants* (McGraw-Hill Book Company, New York, 1973).

August 1982: To Tsit-Yuen Lam for his expository work in his book *Algebraic theory of quadratic forms* (1973), and four of his papers: *K_0 and K_1-an introduction to algebraic K-theory* (1975), *Ten lectures on quadratic forms over fields* (1977), *Serre's conjecture* (1978), and *The theory of ordered fields* (1980).

August 1982: To John W. Milnor for a paper of fundamental and lasting importance, *On manifolds homeomorphic to the 7-sphere*, Annals of Mathematics (2) 64 (1956), pp. 399–405.

August 1982: To Fritz John for the cumulative influence of his total mathematical work, high level of research over a period of time, particular influence on the development of a field, and influence on mathematics through Ph.D. students.

August 1983: To Paul R. Halmos for his many graduate texts in mathematics and for his articles on how to write, talk, and publish mathematics.

August 1983: To Steven C. Kleene for three important papers which formed the basis for later developments in generalized recursion theory and descriptive set theory: *Arithmetical predicates and function quantifiers*, Transactions of the American Mathematical Society 79 (1955), pp. 312–340; *On the forms of the predicates in the theory of constructive ordinals (second paper)*, American Journal of Mathematics 77 (1955), pp. 405–428; and *Hierarchies of number–theoretic predicates*, Bulletin of the American Mathematical Society 61 (1955), pp. 193–213.

August 1983: To Shiing-Shen Chern for the cumulative influence of his total mathematical work, high level of research over a period of time, particular influence on the development of the field of differential geometry, and influence on mathematics through Ph.D. students.

August 1984: To Elias M. Stein for his book, *Singular integrals and the differentiability properties of functions*, Princeton University Press (1970).

August 1984: To Lennart Carleson for his papers: *An interpolation problem for bounded analytic functions*, American Journal of Mathematics, volume 80 (1958), pp. 921–930; *Interpolation by bounded analytic functions and the Corona problem*, Annals of Mathematics (2), volume 76 (1962), pp. 547–559; and *On convergence and growth of partial sums of Fourier series*, Acta Mathematica volume 116 (1966), pp. 135–157.

August 1984: To Joseph L. Doob for his fundamental work in establishing probability as a branch of mathematics and for his continuing profound influence on its development.

August 1985: To Michael Spivak for his five-volume set, *A Comprehensive Introduction to Differential Geometry* (second edition, Publish or Perish, 1979).

August 1985: To Robert Steinberg for three papers on various aspects of the theory of algebraic groups: *Representations of algebraic groups*, Nagoya Mathematical Journal, volume 22 (1963), pp. 33–56; *Regular elements of semi-simple algebraic groups*, Institut des Hautes Études Scientifiques, Publications Mathématiques, volume 25 (1965), pp. 49–80; and *Endomorphisms of linear algebraic groups*, Memoirs of the American Mathematical Society, volume 80 (1968).

August 1985: To Hassler Whitney for his fundamental work on geometric problems, particularly in the general theory of manifolds, in the study of differentiable functions on closed sets, in geometric integration theory, and in the geometry of the tangents to a singular analytic space.

January 1986: To Donald E. Knuth for his expository work, *The Art of Computer Programming*, 3 Volumes (1st Edition 1968, 2nd Edition 1973).

January 1986: To Rudolf E. Kalman for his two fundamental papers: *A new approach to linear filtering and prediction problems*, Journal of Basic Engineering, volume 82, (1960), pp. 35–45; and *Mathematical description of linear dynamical systems*, SIAM Journal on Control and Optimization, volume 1 (1963), pp. 152–192; and for his contribution to a third paper, (with R. S. Bucy) *New results in linear filtering and prediction theory*, Journal of Basic Engineering, volume 83D (1961), pp. 95–108.

January 1986: To Saunders MacLane for his many contributions to algebra and algebraic topology, and in particular for his pioneering work in homological and categorical algebra.

August 1987: To Martin Gardner for his many books and articles on mathematics and particularly for his column "Mathematical Games" in *Scientific American*.

August 1987: To Herbert Federer and Wendell Fleming for their pioneering paper, *Normal and integral currents*, Annals of Mathematics, volume 72 (1960), pp. 458–520.

August 1987: To Samuel Eilenberg for his fundamental contributions to topology and algebra, in particular for his classic papers on singular homology and his work on axiomatic homology theory which had a profound influence on the development of algebraic toplogy.

August 1988: To Sigurdur Helgason for his books *Differential Geometry and Symmetric Spaces* (Academic Press, 1962), *Differential Geometry, Lie Groups, and Symmetric Spaces* (Academic Press, 1978); and *Groups and Geometric Analysis* (Academic Press, 1984).

August 1988: To Gian-Carlo Rota for his paper *On the foundations of combinatorial theory, I. Theory of Möbius functions*, Zeitschrift für Wahrscheinlichkeitstheorie und Verwandte Gebiete, volume 2 (1964), pp. 340–368.

August 1988: To Deane Montgomery for his lasting impact on mathematics, particularly mathematics in America. He is one of the founders of the modern theory of

transformation groups and is particularly known for his contributions to the solution of Hilbert's fifth problem.

August 1989: To Daniel Gorenstein for his book *Finite Simple Groups, An Introduction to their Classification* (Plenum Press, 1982); and his two survey articles *The classification of finite simple groups* and *Classifying the finite simple groups*, Bulletin of the American Mathematical Society, volume 1 (1979) pp. 43–199, and volume 14 (1986) pp. 1–98, respectively.

August 1989: To Alberto P. Calderon for his paper *Uniqueness in the Cauchy problem for partial differential equations*, American Journal ofMathematics, volume 80 (1958), pp. 16–36.

August 1989: To Irving Kaplansky for his lasting impact on mathematics, particularly mathematics in America. By his energetic example, his enthusiastic exposition, and his overall generosity, he has made striking changes in mathematics and has inspired generations of younger mathematicians.

August 1990: To R. D. Richtmyer for his book *Difference Methods for Initial–Value Problems* (Interscience, 1st Edition 1957 and 2nd Edition, with K. Morton, 1967).

August 1990: To Bertram Kostant for his paper, *On the existence and irreducibility of certain series of representations*, Lie Groups and their Representations (1975), pp. 231–329.

August 1990: To Raoul Bott for having been instrumental in changing the face of geometry and topology, with his incisive contributions to characteristic classes, *K*–theory, index theory, and many other tools of modern mathematics.

August 1991: To Jean-François Treves for *Pseudodifferential and Fourier Integral Operators*, Volumes 1 and 2 (Plenum Press, 1980).

August 1991: To Eugenio Calabi for his fundamental work on global differential geometry, especially complex differential geometry.

August 1991: To Armand Borel for his extensive contributions in geometry and topology, the theory of Lie groups, their lattices and representations and the theory of automorphic forms, the theory of algebraic groups and their representations and extensive organizational and educational efforts to develop and disseminate modern mathematics.

January 1993: To Jacques Dixmier for his books *von Neumann Algebras* (*Algèbres de von Neumann*), Gauthier-Villars, Paris (1957); *C*-Algebras* (*Les C*-Algèbres et leurs Representations*), Gauthier-Villars, Paris (1964); and *Enveloping Algebras* (*Algèbres Enveloppantes*), Gauthier-Villars, Paris (1974).

January 1993: To James Glimm for his paper, *Solution in the large for nonlinear hyperbolic systems of conservation laws*, Communications on Pure and Applied Mathematics, XVIII (1965), pp. 697–715.

January 1993: To Peter D. Lax for his numerous and fundamental contributions to the theory and applications of linear and nonlinear partial differential equations and functional analysis, for his leadership in the development of computational and applied mathematics, and for his extraordinary impact as a teacher.

August 1993 – Mathematical Exposition: To Walter Rudin for his books *Principles of Mathematical Analysis*, McGraw-Hill (1953, 1964, and 1976); and *Real and Complex Analysis*, McGraw-Hill (1966, 1974, and1976).

August 1993 – Seminal Contribution to Research: To George Daniel Mostow for his paper *Strong rigidity of locally symmetric spaces*, Annals of Mathematics Studies, number 78, Princeton University Press (1973).

August 1993 – Lifetime Achievement: To Eugene B. Dynkin for his foundational contributions to Lie algebras and probability theory over a long period and his production of outstanding research students in both Russia and the United States, countries to whose mathematical life he has contributed so richly.

August 1994 – Mathematical Exposition: To Ingrid Daubechies for her book, *Ten Lectures on Wavelets* (CBMS 61, SIAM, 1992, ISBN 0-8987-1274-2).

August 1994 – Seminal Contribution to Research: To Louis de Branges for his proof of the Bieberbach Conjecture.

August 1994 – Lifetime Achievement: To Louis Nirenberg for his numerous basic contributions to linear and nonlinear partial differential equations and their application to complex analysis and differential geometry.

August 1995 – Mathematical Exposition: To Jean–Pierre Serre for his 1970 book *Cours d'Arithmétique*, with its English translation, published in 1973 by Springer Verlag, *A Course in Arithmetic*.

August 1995 – Seminal Contribution to Research: To Edward Nelson for the following two papers in mathematical physics characterized by leaders of the field as extremely innovative: "A quartic interaction in two dimensions" in *Mathematical Theory of Elementary Particles*, MIT Press, 1966, pages 69–73; and "Construction of quantum fields from Markoff fields" in *Journal of Functional Analysis*, 12 (1973), 97–112. In these papers he showed for the first time how to use the powerful tools of probability theory to attack the hard analytic questions of constructive quantum field theory, controlling renormalizations with L^p estimates in the first paper, and in the second turning Euclidean quantum field theory into a subset of the theory of stochastic processes.

August 1995 – Lifetime Achievement: To John T. Tate for scientific accomplishments spanning four and a half decades. He has been deeply influential in many of the important developments in algebra, algebraic geometry, and number theory during this time.

August 1996 – Mathematical Exposition: To Bruce C. Berndt for the four volumes, *Ramanujan's Notebooks*, Parts I, II, III, and IV (Springer, 1985, 1989, 1991, and 1994).

August 1996 – Mathematical Exposition: To William Fulton for his book, *Intersection Theory*, Springer-Verlag, "Ergebnisse series," 1984.

August 1996 – Seminal Contribution to Research: To Daniel Stroock and S.R.S. Varadhan for their four papers: *Diffusion processes with continuous coefficients I and II*, Comm. Pure Appl. Math. 22 (1969), 345–400, 479–530; *On the support of diffusion processes with applications to the strong maximum principle*, Sixth Berkeley Sympos. Math. Statist. Probab., vol. III, 1970, pp. 333–360; *Diffusion*

processes with boundary conditions, Comm. Pure Appl. Math. 34 (1971), 147–225; *Multidimensional diffusion processes*, Springer-Verlag, 1979.

August 1996 – Lifetime Achievement: To Goro Shimura for his important and extensive work on arithmetical geometry and automorphic forms; concepts introduced by him were often seminal, and fertile ground for new developments, as witnessed by the many notations in number theory that carry his name and that have long been familiar to workers in the field.

January 1997 – Mathematical Exposition: To Anthony W. Knapp for his book, *Representation Theory of Semisimple Groups (An overview based on examples)*, Princeton University Press, 1986, a beautifully written book which starts from scratch but takes the reader far into a highly developed subject.

January 1997 – Seminal Contribution to Research: To Mikhael Gromov for his paper, *Pseudo-holomorphic curves in symplectic manifolds*, Inventiones Math. **82** (1985), 307–347, which revolutionized the subject of symplectic geometry and topology and is central to much current research activity, including quantum cohomology and mirror symmetry.

January 1997 – Lifetime Achievement: To Ralph S. Phillips for being one of the outstanding analysts of our time. His early work was in functional analysis: his beautiful theorem on the relation between the spectrum of a semigroup and its infinitesimal generator is striking as well as very useful in the study of PDEs. His extension theory for dissipative linear operators predated the interpolation approach to operator theory and robust control. He made major contributions to acoustical scattering theory in his joint work with Peter Lax, proving remarkable results on local energy decay and the connections between poles of the scattering matrix and the analytic properties of the resolvent. He later extended this work to a spectral theory for the automorphic Laplace operator, relying on the Radon transform on horospheres to avoid Eisenstein series. In the last fifteen years, Ralph Phillips has done brilliant work, in collaboration with others, on spectral theory for the Laplacian on symmetric spaces, on the existence and stability of cusp forms for general noncompact quotients of the hyperbolic plane, on the explicit construction of sparse optimal expander graphs, and on the structure of families of isospectral sets in two dimensions (the collection of drums that sound the same).

January 1998 – Lifetime Achievement: To Nathan Jacobson for his many contributions to research, teaching, exposition, and the mathematical profession. Few mathematicians have been as productive over such a long career or have had as much influence on the profession as has Professor Jacobson.

January 1998 – Seminal Contribution to Research: To Herbert Wilf and Doron Zeilberger for their joint paper, "Rational functions certify combinatorial identities," *Journal of the American Mathematical Society*, **3** (1990), 147–158.

January 1998 – Mathematical Exposition: To Joseph Silverman for his books, *The Arithmetic of Elliptic Curves*, Graduate Texts in Mathematics 106, Springer-Verlag, New York-Berlin, 1986; and *Advanced Topics in the Arithmetic of Elliptic Curves*, Graduate Texts in Mathematics 151, Springer-Verlag, New York, 1994.

January 1999 – Lifetime Achievement: To Richard V. Kadison. For almost half a century, Professor Kadison has been one of the world leaders in the subject of operator algebras, and the tremendous flourishing of this subject in the last thirty years is largely due to his efforts.

January 1999 – Seminal Contribution to Research: To Michael G. Crandall for two seminal papers: "Viscosity solutions of Hamilton-Jacobi equations" (joint with P.-L. Lions),*Trans. Amer. Math. Soc.* **277** (1983), 1–42; and "Generation of semi-groups of nonlinear transformations on general Banach spaces" (joint with T. M. Liggett), *Amer. J. Math.* **93** (1971), 265–298.

January 1999 – Seminal Contribution to Research: To John F. Nash for his remarkable paper "The embedding problem for Riemannian manifolds," *Ann. of Math.* (2) **63** (1956), 20–63

January 1999 – Mathematical Exposition: To Serge Lang for his many books. Among Lang's most famous texts are *Algebra* [Addison-Wesley, Reading, MA, 1965; Second edition, 1984; Third edition, 1993, ISBN 0-201-55540-9] and *Algebraic Number Theory* [Addison-Wesley, Reading, MA, 1970; Second edition, Graduate Texts in Mathematics 110, Springer-Verlag, New York, 1994, ISBN 0-387-94225-4].

The Oswald Veblen Prize in Geometry

This prize was established in 1961 in memory of Professor Oswald Veblen through a fund contributed by former students and colleagues. The fund was later doubled by the widow of Professor Veblen, bringing the fund to $2,000. The first two awards of the prize were made in 1964 and the next in 1966; thereafter, an award will ordinarily be made every five years for research in geometry or topology under conditions similar to those for the Bôcher Prize.

First award, 1964: To C. D. Papakyriakopoulos for his papers, *On solid tori*, Annals of Mathematics, Series 2, volume 66 (1957), pp. 1-26, and *On Dehn's lemma and the asphericity of knots*, Proceedings of the National Academy of Sciences, volume 43 (1957), pp. 169-172.

Second award, 1964: To Raoul Bott for his papers, *The space of loops on a Lie group*, Michigan Mathematical Journal, volume 5 (1958), pp. 35-61, and *The stable homotopy of the classical groups*, Annals of Mathematics, Series 2, volume 70 (1959), pp. 313-337.

Third award, 1966: To Steven Smale for his contributions to various aspects of differential topology.

Fourth award, 1966: To Morton Brown and Barry Mazur for their work on the generalized Schoenflies theorem.

Fifth award, 1971: To Robion C. Kirby for his paper, *Stable homeomorphisms and the annulus conjecture*, Annals of Mathematics, Series 2, volume 89 (1969), pp.575-582.

Sixth award, 1971: To To Dennis P. Sullivan for his work on the Hauptvermutung summarized in the paper,*On the Hauptvermutung for manifolds*, Bulletin of the American Mathematical Society, volume 73 (1967), pp. 598-600.

Seventh award, 1976: To William P. Thurston for his work on foliations.

Eighth award, 1976: To James Simons for his work on minimal varieties and characteristic forms.

Ninth award, 1981: To Mikhael Gromov for his work relating topological and geometric properties of Riemannian manifolds.

Tenth award, 1981: To Shing-Tung Yau for his work in nonlinear partial differential equations, his contributions to the topology of differentiable manifolds, and for his work on the complex Monge-Ampère equation on compact complex manifolds.

Eleventh award, 1986: To Michael H. Freedman for his work in differential geometry and, in particular, the solution of the four-dimensional Poincaré conjecture.

Twelfth award, 1991: To Andrew J. Casson for his work on the topology of low-dimensional manifolds, and to Clifford H. Taubes for his foundational work in Yang-Mills theory.

Thirteenth award, 1996: To Richard Hamilton for his continuing study of the Ricci flow and related parabolic equations for a Riemannian metric, and to Gang Tian for his contributions to geometric analysis.

The Norbert Wiener Prize
in Applied Mathematics

This prize was established in 1967 in honor of Professor Norbert Wiener and was endowed by a fund amounting to $2,000 from the Department of Mathematics of the Massachusetts Institute of Technology. The prize is normally awarded every five years, beginning in 1970, for an outstanding contribution to "applied mathematics in the highest and broadest sense." The award is made jointly by the American Mathematical Society and the Society for Industrial and Applied Mathematics. The recipient must be a member of one of these societies and a resident of the United States, Canada, or Mexico.

First award, 1970: To Richard E. Bellman for his pioneering work in the area of dynamic programming, and for his related work on control, stability, and differential–delay equations.

Second award, 1975: To Peter D. Lax for his broad contributions to applied mathematics, in particular, for his work on numerical and theoretical aspects of partial differential equations and on scattering theory.

Third award, 1980: To Tosio Kato for his distinguished work in the perturbation theory of quantum mechanics.

Fourth award, 1980: To Gerald B. Whitham for his broad contributions to the understanding of fluid dynamical phenomena and his innovative contributions to the methodology through which that understanding can be constructed.

Fifth award, 1985: To Clifford S. Gardner for his contributions to applied mathematics in the areas of supersonic aerodynamics, plasma physics and hydromagnetics, and especially for his contributions to the truly remarkable development of inverse scattering theory for the solution of nonlinear partial differential equations.

Sixth award, 1990: To Michael Aizenman for his outstanding contribution of original and nonperturbative mathematical methods in statistical mechanics by means of which he was able to solve several long open important problems concerning critical phenomena, phase transitions, and quantum field theory; and to Jerrold E. Marsden for his outstanding contributions to the study of differential equations in mechanics: he proved the existence of chaos in specific classical differential equations; his work on the momentum map, from abstract foundations to detailed applications, has had great impact.

Seventh award, 1995: To Hermann Flaschka for deep and original contributions to our understanding of completely integrable systems; and to Ciprian Foias, for basic contributions to operator theory, analysis, and dynamics and their applications.

Funds

AMS Centennial Fellowship Fund

This fund was established by the Society in 1973 and provides one-year Research Fellowships awarded each year in March. In 1988 the Fellowship was named to honor the AMS Centennial. The number of fellowships granted each year depends on the contributions the Society receives, matched by a contribution from the Society of not more than $50,000. Over the years the fund has been targeted at different groups. In 1995 the Council of the AMS voted to direct the fellowships toward applicants who are citizens or permanent residents of a country in North America, who will have held their doctoral degrees for at least two years at the time of the award, who do not have permanent tenure, and who will have held less than two years of research support at the time of the award.

First award, 1974-1975: Fred G. Abramson, James Li-Ming Wang.

Second award, 1975-1976: Terence J. Gaffney, Paul Nèvai, George M. Reed.

Third award, 1976-1977: Fredric D. Ancel, Joseph A. Sgro.

Fourth award, 1977-1978: Steven Kalikow, Charles Patton, Duong-Hong Phong, David Vogan.

Fifth award, 1978-1979: Alan Dankner, David Harbater, Howard Hiller, Steven P. Kerckhoff, Robert C. McOwen.

Sixth award, 1979-1980: Scott W. Brown, Jeffrey E. Hoffstein, Jeffry N. Kahn, James E. McClure, Rick L. Smith, Mark Steinberger.

Seventh award, 1980-1981: Robert K. Lazarsfeld, Thomas H. Parker, Robert Sachs.

Eighth award, 1981-1982: Lawrence Man-Hou Ein, Mark Williams.

Ninth award, 1982-1983: Nicholas J. Kuhn.

Tenth award, 1983-1984: Russell David Lyons.

Eleventh award, 1984-1985: Richard Timothy Durrett.

Twelfth award, 1985-1986: R. Michael Beals.

Thirteenth award, 1986-1987: Dinakar Ramakrishnan.

Fourteenth award, 1987-1988: Richard Hain, Bill Jacob.

Fifteenth award, 1988-1989: Steven R. Bell, Don M. Blasius, David Gabai.

Sixteenth award, 1989-1990: Isaac Y. Efrat, John M. Lee, Ralf J. Spatzier.

Seventeenth award, 1990-1991: Michael Anderson, Carolyn Gordon, Steven Mitchell.

Eighteenth award, 1991-1992: Daniel Blump, Kari Vilonen.

Nineteenth award, 1992-1993: Krzysztof Kurdzy, William Menasco, David Morrison.

Twentieth award, 1993-1994: Jacques Hurtubise, Andre Scedrov, David Webb.

Twenty-first award, 1994-1995: Patricia E. Bauman, David E. Marker.

Twenty-second award, 1995–1996: Rafael de la Llave, William Gordon McCallum, Kent Edward Orr.

Twenty-third award, 1996–1997: Yi Hu, Robert McCann, Alexander Voronov, Jiaping Wang.

Twenty-fourth award, 1997-1998: Ovidiu Costin, Fred Diamond, Gang Liu, Zhongwei Shen, Stephanie Singer.

Twenty-fifth award, 1998–1999: Mark Andrea A. de Cataldo, Stavros Garoufalidis, Sándor Kovács, Yanguang Li.

Twenty-sixth award, 1999-2000: Charles W. Rezk, Bin Wang, Changyou Wang, Tonghai Yang.

The Levi L. Conant Fund

Levi L. Conant bequeathed a sum of $9,500 which the Trustees incorporated with the permanent endowments for prize funds.

Endowment Fund

In 1923 an Endowment Fund was collected to meet the greater demands on the publication program of the Society, demands caused by the ever-increasing number of important mathematical memoirs. Of this fund, which amounted to approximately $94,000 in 1960, a considerable proportion was contributed by members of the Society. In 1961, upon the death of the last legatees under the will of the late Robert Henderson—for many years a Trustee of the Society—the entire principal of the estate was received by the Society, thereby bringing the Endowment Fund to approximately $648,000.

Friends of Mathematics Fund

A Friends of Mathematics Fund has been created to incorporate monetary gifts to the Society of a general nature. The principal of this fund is now $123,572. The proceeds of the fund are a part of the invested assets of the Society. The following gifts are components of this fund: $1,000 from the estate of Professor Ernest William Brown; $1,000 from the estate of Genevra B. Hutchinson; $3,000 from Solomon A. Joffe; $650 from the estate of Professor Helen A. Merrill; $23,600 from the estate of Dean Marion Reilly; $1,000 from the estate of James K. Whittemore; and $2,700 from an anonymous donor.

The Karl Menger Fund

The family of the late Karl Menger were the major contributors to a fund established at Duke University totalling $40,000. The majority of the income from this fund is to be used by the Society for annual awards at the International Science and Engineering Fair.

First award, 1990: Daniel K. Dugger, Joshua Erlich, Joshua B. Fischman, Min-Horng Chen, Matthew Baker, Michael L. Harrison, Virginia A. DiDomizio.

Second award, 1991: Monwhea Jeng, Hans Christian Gromoll, Jesse L. Tseng, Andrew Olstrom Dittmer, Matthew A. Neimark, Rageshree Ramachandran, Jeb E. Willenbring.

Third award, 1992: Mahesh Kalyana Mahanthappa, Harrison Kwei Tsai, Andrew Olstrom Dittmer, Jonobie Dale Baker, Joshua Brody, Yen-Hsiang Li, Robert Jordon Pollack.

Fourth award, 1993: Mahesh Kalyana Mahanthappa, Steve Shaw-Tang Chien, Andrew Olstrom Dittmer, Moon Duchin, Robert Michael Kirby II, Sarah Ann Lord, Anna Ruth Terry.

Fifth award, 1994: Davesh Maulik, Eric Matthew Dennis, Sarah Ann Lord, Timothy Stephen Eller, Rahul Manu Kohli, Fam-ye Lin, Benedek Valko, Mary Kathleen Clavenna, Vinay Kumak Goyal-Singhal, Jan Kristian Haugland, Wes Andres Watters, Ian George Zacharia.

Sixth award, 1995: Davesh Maulik, Benjamin Michael Goetz, Jacob Lurie, Daniel Kalman Biss, Samit Dasgupta, Yueh-Hsing Lin, Claus Mazanti Soerensen, Theodore Haw-Yun Hwa, Samuel Jacob Klein Jr., Katherine Anne Paur, Bridget Helen Penny, Scott Nicholas Sanders.

Seventh award, 1996: Davesh Maulik, Nicholas Karl Eriksson, Logan Joseph Kleinwaks, Eric Jon Landquist, Vanesa Miranda-Diaz, Jason Charles Stone, Lauren Kiyomi Williams, Ryan Thomas Hebert, Kendrick Norris Kay, Scott Nicholas Sanders, Claus Mazanti Sorensen, Yvette Karen Wood.

Eighth award, 1997: Davesh Maulik, Nicholas Eriksson, Jeremy Rahe, Jennifer Pelka, Yen-Jen Chen, Sylvain Halle, Melanie Schechter, Matthew Seligman, Thomas Mack, Susannah Rutherglen, Jy-Ying Janet Chen, Chun-Hsiang Fu, Daniel Ying-Jeh Little.

Ninth award, 1998: Jonathan Adam Kelner, Michael Yanchee Lee, Daniel Yamins, Alexey Evgenjevitch Eroshin, Sarah Flannery, Jeremy Ryan Rahe, Jennifer Rose Walk, Richard Lee Barnes, Matthew Christopher Ong, David Carl Rennard, Anna Welling Salamon, Hui Yu.

The Eliakim Hastings Moore Fund

This fund was donated in 1922 in honor of Professor Eliakim Hastings Moore on the occasion of the twenty-fifth anniversary of the Chicago (Western) section of the Society. The fund is $2,575 and the income from the fund is to be used at the discretion of the Council for the publication of important mathematical books and memoirs and for the award of prizes.

The C. V. Newsom Fund

In 1990 the Society received a bequest of $100,000 from the estate of Carroll V. Newsom. The bequest was made to memorialize John von Neumann and his accomplishments. The income from this fund is to be used to support a quadrennial symposium, called the von Neumann Symposium, that will focus on fundamental concepts in the forefront of mathematics.

The Program Development Fund

In 1993 the Executive Committee and Board of Trustees (ECBT) established the Program Development Fund

(formerly referred to as the General Fund). Gifts to the Program Development Fund are directed toward initiatives which address immediate needs of the mathematics community, enabling the AMS to act decisively and quickly. Contributions are matched dollar-for-dollar to a maximum of $50,000. Programs supported are approved by the ECBT.

The Joseph Fels Ritt Memorial Fund

From the estate of Estelle F. Ritt, the income from a fund of $22,500 is available for the publication of works in the field of mathematics as shall be determined by the governing bodies of the Society.

The Waldemar J. Trjitzinsky Memorial Fund

The Society received a bequest from the estate of Waldemar J., Barbara G., and Juliet Trjitzinsky, the income from which is used to assist students who have declared a major in mathematics at a college or university that is an institutional member of the AMS. These funds help support students who lack adequate financial resources and who may be in danger of not completing the degree program in mathematics for financial reasons. Each year the Society selects four geographically distributed schools who in turn make one-time awards of roughly $2,500 each to beginning mathematical students to assist them in pursuit of careers in mathematics.

First award, 1992: Duke University, University of Scranton, Montana State University, Howard Payne University.

Second award, 1993: Allegheny College, Memphis State University, University of California at Irvine, University of Puerto Rico.

Third award, 1994: University of California at Los Angeles, State University of New York at Geneseo, Eastern New Mexico University, University of Virginia.

Fourth award, 1995: Boise State University, Illinois Institute of Technology, Temple University, University of Maryland at College Park.

Fifth award, 1996: Murray State University, Stanford University, Union College, Western Illinois University.

Sixth award, 1997: Georgetown University, Loyola Marymount University, New York University, Southern Illinois University at Carbondale.

AMS E-mail Support for Frequently Asked Questions

A number of non-user-specific electronic addresses have been established for contacting the AMS staff. The following is an updated list of those addresses together with a description of the types of inquiries that should be made through each address. This list is also available on the AMS's Web site, e-MATH, at `http://www.ams.org/ams/email.html`.

abs-info@ams.org
for questions regarding a particular abstract.

abs-submit@ams.org
for information on how to submit abstracts for AMS meetings and MAA sessions at January Joint Mathematics meetings. Type HELP as the subject line.

acquisitions@ams.org
to send correspondence to the AMS Acquisitions Department.

ams@ams.org
to contact the headquarters office in Providence, Rhode Island.

amsdc@ams.org
to contact the Society's office in Washington, DC.

amsmem@ams.org
to request information about membership in the AMS, or about dues payments, or to ask any general membership questions; may also be used to submit address changes.

bookstore@ams.org
for inquiries related to the online AMS bookstore.

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to submit classified advertising for the *Notices*.

cust-serv@ams.org
for general information about AMS products (including electronic products); to send address changes, place credit card orders for AMS products, or conduct any general correspondence with the Society's Customer Services Department.

eims-info@ams.org
to request general information about deadlines and rates for *Employment Information in the Mathematical Sciences*.

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to submit a manuscript to the AMS for *Representation Theory* and *Conformal Geometry and Dynamics*, electronic journals of the AMS. Each submission must be accompanied by the journal template. A copy of the template is available by sending e-mail to `ejour-submit@ams.org`. Put the word `template` in the subject field of the e-mail message. To get additional help, put the word `help` in the subject field in a separate mail message.

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for authors to submit research announcements to the electronic RA journal.

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to request general information about Society meetings and conferences.

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