

Cathleen Morawetz Receives National Medal of Science



Cathleen S. Morawetz

Cathleen S. Morawetz, professor emerita at the Courant Institute of Mathematical Sciences of New York University, has received a 1998 National Medal of Science “for pioneering advances in partial differential equations and wave propagation resulting in applications to aerodynamics, acoustics and optics.”

A press release from the National Science Foundation provided the following description of her work: “In a series of three significant papers in the 1950s, Morawetz used ingenious new estimates for the solution of mixed nonlinear partial differential equations that ultimately led to advanced studies of wing design in aviation. In the early 1960s, she obtained important results in geometrical optics in connection with sonar and radar. It was known then that geometrical optics could be used to determine approximately the acoustic and electromagnetic fields scattered by objects. It was believed that this approximation became more accurate as the wavelength approached zero. Morawetz showed that this is the case and obtained an estimate of the error. Her result placed geometrical optics on a firmer foundation and led to further practical use of this approach.”

Cathleen Syngé Morawetz was born on May 5, 1923, in Toronto, Canada. After receiving a bachelor’s degree from the University of Toronto and a master’s degree from the Massachusetts Institute of Technology, she received her doctorate from

New York University in 1951. She was a Guggenheim Fellow during 1966–67 and 1978–79. In 1993 she was named Outstanding Woman Scientist by the Association of Women in Science. She delivered the AMS Gibbs Lecture (1981), an Invited Address of the Society for Industrial and Applied Mathematics (1982), and the Emmy Noether Lecture of the Association for Women in Mathematics (1983). She is a member of the National Academy of Sciences. During 1995–96, Morawetz served as president of the AMS (the September 1993 issue of the *Notices*, pages 816–817, carried an account of her scientific work for her presidential candidacy).

The National Medal of Science, established by Congress in 1959, is the nation’s highest scientific honor. The first National Medal of Science was awarded to Theodore van Karman in 1962. Since then, 362 individuals, including the 1998 medalists, have received the honor. In the past five years the National Medal of Science has been awarded to four who work in the mathematical sciences: S.-T. Yau (1997), Richard Karp (1996), Stephen Smale (1996), and Martin Kruskal (1994). A distinguished, independent twelve-member committee is appointed by the president to review nominations for the medal. The 1998 committee consisted of Kenneth Arrow, Alfred Y. Cho, Elsa Garmire, Susan L. Graham, George S. Hammond, Arthur L. Jaffe, Eric S. Lander, Marcia K. McNutt, Mario J. Molina, Vera C. Rubin (chair), Robert Schrieffer, and Joan A. Steitz. Bruce Alberts, president of the National Academy of Sciences, served ex-officio on the committee, and Karl Erb of the National Science Foundation was the committee’s executive secretary.

—*Allyn Jackson*