

Mumford Receives National Medal of Science

Elaine Kehoe

On October 15, 2010, President Barack Obama announced the recipients of the National Medal of Science. Among the ten recipients is DAVID MUMFORD, professor emeritus of applied mathematics at Brown University. Mumford was honored for “extraordinary contributions to the mathematical, engineering and neurobiological sciences.”

David Mumford is one of the most influential algebraic geometers of the second half of the twentieth century. A student of Oscar Zariski, he was from the beginning of his career well acquainted with the classical roots of the subject and with its important problems. Mumford was an early adopter and champion of Alexander Grothendieck’s approach to algebraic geometry and brought this approach to bear on many long-standing problems. He made seminal contributions to many different aspects of the subject, such as the theory of surfaces and more general questions of classification, the theory of singularities of algebraic varieties, and moduli problems. Mumford is the founder of geometric invariant theory, which provides a framework for treating moduli spaces in many different contexts. Some years ago he left algebraic geometry to pursue other interests and has contributed to such varied fields as brain science, computer vision, neurobiology, cognitive science, and the biology and psychology of perception. Nevertheless, his influence still pervades algebraic geometry, not just through his theorems but also through his books and through the activities of the algebraic geometers he trained as students, many of whom are now senior figures in the subject.

Mumford was born in 1937 in Sussex, England. He studied mathematics at Harvard University, receiving his bachelor’s degree in 1957 and his Ph.D. in 1961 under Oscar Zariski. He was a Putnam Fellow (1955–1956) and a Junior Fellow (1958–1961) while at Harvard. From 1961 to 1996 he held various positions at Harvard. He became University

Professor at Brown in 1996. He has been a member of the Institute for Advanced Study at Princeton and a visiting professor at the University of Tokyo, both in 1962–1963. He has held numerous other visiting positions, including at the Tata Institute for Fundamental Research, the Institut des Hautes Études Scientifiques, the Institut Henri Poincaré, and the Mathematical Sciences Research Institute in Berkeley. He has also been Nuffield Professor at the University of Warwick and Rothschild Professor at the Isaac Newton Institute of Cambridge University. He served as president of the International Mathematical Union from 1995 to 1998. Mumford was awarded the Fields Medal in 1974. He was co-winner of the Shaw Prize in Mathematical Sciences in 2006 and of the IEEE Longuet-Higgins Prize for fundamental contributions in computer vision in both 2005 and 2009. He received the AMS Steele Prize in 2007 and the Wolf Foundation Prize in Mathematics in 2008. He was a MacArthur Foundation Fellow from 1987 to 1992. He was elected to the U.S. National Academy of Sciences in 1975 and to the American Philosophical Society in 2000, and he is a foreign member of the Accademia Nazionale dei Lincei, Rome, and the Norwegian Academy of Science and Letters.

The National Medal of Science is the country’s highest distinction for contributions to scientific research. According to a news release from the Office of Science and Technology Policy, “the National Medal of Science honors individuals for pioneering scientific research in a range of fields, including physical, biological, mathematical, social, behavioral, and engineering sciences, that enhances our understanding of the world and leads to innovations and technologies that give the United States its global economic edge.” The National Science Foundation administers the award, which was established by Congress in 1959.



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Elaine Kehoe is contributing writer for the Notices. Her email address is elaine1kehoe@cox.net.