Lovász and Stein Share 1999 Wolf Prize in Mathematics

Photograph courtesy of the Wolf Foundation.

László Lovász

Photograph by Denise Applewhite, 1999, courtesy of Princeton University Communications Department.

Elias M. Stein

The 1999 Wolf Prize in Mathematics will be shared by LÁSZLÓ LOVÁSZ "for his outstanding contributions to combinatorics, theoretical computer science, and combinatorial optimization," and ELIAS M. STEIN "for his contributions to classical and Euclidean Fourier analysis and for his exceptional impact on a new generation of analysts through his eloquent teaching and writing."

The Wolf Prize was established in 1978 by the late German-born Ricardo Wolf. A resident of Cuba for many years, Wolf served as Fidel Castro's ambassador to Israel. Later Wolf moved to Israel and lived there until his death in 1981. The Israel-based Wolf Foundation administers the prizes, which are awarded to outstanding scientists and artists for achievement in the interest of mankind and friendly relations among peoples. The annual prizes of $100,000 in each area are given in four out of five scientific fields in rotation: agriculture, chemistry, mathematics, medicine, and physics. In the arts, the prize rotates among architecture, music, painting, and sculpture. The 1999 Wolf Prizes will be conferred by Ezer Weizmann, president of Israel, at a special ceremony in the Knesset, or parliament, on May 5, 1999.

László Lovász

László Lovász has obtained ground-breaking results in discrete mathematics that have had significant applications to other areas of pure and applied mathematics as well as to theoretical computer science. He solved several outstanding problems, including the perfect graph conjecture, Kneser's conjecture, and the determination of the Shannon capacity of the pentagon, by introducing deep mathematical methods relying on geometric polyhedral and topological techniques. His algorithmic ideas—including applications of the ellipsoid method in combinatorial optimization, the lattice basis reduction algorithm, the matroid parity algorithm, and the improved procedures for volume computation—all had profound influence on theoretical computer science. Lovász also contributed to the PCP characterization of NP and its connection to the hardness of approximation. His "Local Lemma" is one of the main early results in the development of the probabilistic method. His comprehensive books and fascinating lectures have stimulated mathematical research around the world.

László Lovász was born in 1948 in Budapest, Hungary. He received his Dr. Rer. Nat. degree from Eőtvős Loránd University in 1971 and his Dr. Math. Sci. degree from the Hungarian Academy of

Sciences in 1977. He was a professor at Jozsef Attila University (1978–82) and at Eőtvős Loránd University (1983–93) before assuming his present position as professor in the Department of Computer Science at Yale University. He received the George Pólya Prize of the Society for Industrial and Applied Mathematics (1979), the D. Ray Fulkerson Prize of the AMS (1982), the State Prize of Hungary (1985), the Brouwer Medal of the Dutch Mathematical Society (1993), and the National Order of Merit of Hungary (1998). Since 1979 he has been a corresponding member of the Hungarian Academy of Sciences.

Elias M. Stein

Elias M. Stein has made fundamental contributions in mathematical analysis understood in a very broad sense. He developed (jointly with G. Weiss and C. Fefferman) the theory of Hardy spaces in several real variables; in particular, this emphasized the role of duality between the Hardy spaces and the BMO spaces introduced earlier by F. John and L. Nirenberg. In the representation theory of Lie groups, Stein discovered, with R. Kunze, the so-called Kunze-Stein phenomenon, classical by now, regarding harmonic analysis and certain nonunitary representations of semisimple Lie groups. Stein also made a profound contribution to the $\bar{\partial}$-problem of several complex variables. He is one of the creators of multidimensional Euclidean Fourier analysis, having shaped classical analysis by recognizing the role of singular integrals, Radon transforms, and maximal operators obtained by integration on lower-dimensional manifolds in Euclidean spaces. The clarity of his expository monographs and the contributions of his numerous outstanding students have had a deep impact on the development of the field.

Elias M. Stein was born in 1931 in Belgium. He received his B.A. in 1951, his M.A. in 1953, and his Ph.D. in 1955, all from the University of Chicago. He held positions at the Massachusetts Institute of Technology and the University of Chicago before going to Princeton University in 1963, where he is currently a professor of mathematics. He was a member at the Institute for Advanced Study during 1962–63 and 1984–85. In 1974 Stein was elected to the National Academy of Sciences, and in 1982 he was elected to the American Academy of Arts and Sciences. He received honorary doctorates from Peking University (1988) and the University of Chicago (1992). In 1984 he received from the AMS the Steele Prize for Exposition, and in 1993 he received the Schock Prize of the Swedish Academy of Sciences.

—from Wolf Foundation announcement