Princeton University

Honors Faculty Members
Receiving Emeritus Status

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The biographical sketches were written by
colleagues in the departments of those honored.

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Faculty Members Receiving Emeritus Status

Elias M. Stein

Elias Stein was born in Belgium in 1931. His family immigrated to the United States, and he attended the University of Chicago, where he earned his Ph.D. under Antoni Zygmund. Eli held positions at the Massachusetts Institute of Technology and the University of Chicago, then came to Princeton as a full professor of mathematics in 1963. He has been a professor here ever since. He served twice as chair of the mathematics department, and has served also on the editorial boards of the mathematics journal Annals of Mathematics, Princeton's Annals of Mathematics book series and other publications. His honors include the National Medal of Science and the Wolf Prize. He has been a leading member of the Princeton mathematics department for half a century.

Mathematics may be divided into analysis, geometry and algebra. Eli is a towering figure in analysis. He brought Littlewood-Paley theory from an obscure topic to a powerful new way to view functions. Together with Ray Kunze, he discovered a basic difference between the Euclidean and semisimple Fourier transforms. Twice, (with co-authors) he completely transformed our understanding of Hp spaces. He proved the first restriction theorem for the Fourier transform, opening up a subject that has occupied leading analysts for decades. He discovered a fundamental mistake in the celebrated, supposedly complete enumeration of the irreducible representations of classical Lie groups; and he exhibited new representations. Perhaps most strikingly, he perceived the profound interconnections linking analysis on nilpotent Lie groups to partial differential equations and several complex variables. The list of Eli's major discoveries could be continued at length.

Eli was the teacher of generations of leading analysts. His lectures are characterized by perfect clarity, concentration on essentials and im-

peccable taste. In his interaction with students and co-workers he has managed to convey the strong sense of optimism that is essential for mathematical discovery. He has been a major influence on many lives.

His books, including "Fourier Analysis on Euclidean Spaces" (with Guido Weiss), "Singular Integrals" and "Harmonic Analysis," are classics. These books have made it possible for mathematicians in isolated conditions, who have had no opportunity to work directly with Eli, to learn analysis at a high level, and go on to do significant research.

In recent years, Eli has devoted great energy to creating a sequence of advanced undergraduate mathematics courses at Princeton, and writing (together with Rami Shakarchi) a four-volume set of accompanying textbooks, the "Princeton Lectures on Analysis." The consensus of the students who took those courses, and of all who have read the "Princeton Lectures," is that they set a new standard.

Eli's combined influence as a researcher, collaborator, teacher and expositor is unmatched.