

Oscar S. Rothaus

October 21, 1927 — May 24, 2003

Oscar S. Rothaus, Professor of Mathematics, died on Saturday, May 24, 2003, at the Cayuga Medical Center. Oscar was born in Baltimore, Maryland on October 21, 1927. He received his Bachelor's and Master's degrees from Princeton in 1948 and 1950 respectively. He served in the U.S. Signal Corp from 1951-53, during the Korean War. He was a staff mathematician at the National Security Agency (NSA) from 1953-60. He received his Ph.D. degree in Mathematics from Princeton in 1958. In 1960, he moved to Princeton to the new Communications Research Division (CRD) of the Institute for Defense Analyses at the invitation of its founding director, Professor J. Barkeley Rosser, of Cornell. Oscar was its Associate Director from 1963-66. A tragedy that affected Oscar and his family grievously was the loss of his two young sons, who fell through the ice and drowned in Lake Carnegie in Princeton. After that, Oscar left Princeton and CRD, where he had previously been very happy. He was a Visiting Professor at Yale in 1965. He joined the Cornell faculty as Professor in 1966, where he spent the rest of his career. Oscar visited Hebrew University in Jerusalem in 1972-73, the Institute for Advanced Study in 1979-80, the University of Strasbourg in the fall of 1986, and Kings College, London, in 1986-87. He was a consultant to classified projects as well throughout his career. He served as Chair of the Mathematics Department from 1973-76, and as Acting Chair in the fall of 1995.

Oscar had two careers. The first was in cryptanalytic research at the National Security Agency (NSA) and CRD, and its successor agencies. Most of his research from that career is still classified. But this work led to several papers in the open literature, one on "bent functions" and contributed to the formation of the theory of the Hidden Markov model. He inspired the authors of a seminal (classified) paper on the "E-M" or "Baum-Welch" or "forward-backward" algorithm. Lee Neuwith and Anil Nerode, who worked with him at CRD, describe him as a renowned mentor in cryptanalytic research. He had the ability to see the mathematics behind cryptanalytic problems, and to explain it to both mathematicians and cryptanalysts, often with surprising results.

His second career was as a Professor of Mathematics, teaching and publishing research in the open literature. His primary unclassified research interests were the theory of functions of several complex variables, combinatorics and coding theory, Lie and Jordan Algebras, and Sobolev and Log-Sobolev Inequalities. He was the author of about forty research papers.

He is remembered above all as gentleman and scholar who treated each person he met with kindness and respect. His wife, Tobe Barban; his daughters, Carla of Brookline, Massachusetts, Ruth Caston of Davis, California, and Tamar of Buffalo; and five grandchildren survive him.

Marshall Cohen, Harry Kesten, Anil Nerode