# MEMORIAL RESOLUTION

## GABOR SZEGÖ
## (1895 – 1985)

Gabor Szegö, Emeritus Professor of Mathematics, died August 7, 1985 in Palo Alto at the age of 90, after a long illness. He was one of the leading analysts of his generation.

Gabor was born on January 20, 1895 in Kunhagyes, Hungary; his school studies eventually brought him to attend the humanistic Gymnasium in Szolnak, which he left with the Abitur degree in 1912. In September 1912 he entered the Budapest University as a student of mathematics and physics. In October of the very same year he took part in a competition of the Mathematical Society and won first prize. The following year he participated in a similar competition of the Philosophical Faculty of the University on the theme: "On the approximation of continuous functions by polynomials." Again Gabor won first prize, and the topic of his research determined a large part of his future scientific work. Indeed, he became one of the pioneers in "constructive function theory;" that is the study of general analytic functions by a careful investigation of the only class of such functions which are completely accessible, the polynomials.

Gabor spent the summer semesters of 1913 and 1914 at the Universities of Berlin and Göttingen, respectively. In Berlin he attended the lectures of Frobenius, Schwarz and Knopp and participated in a seminar of Schottky. In Göttingen he took courses by Hilbert, Landau and Haar. When the First World War broke out, he returned immediately to Hungary. There he continued his studies until May 15, 1915, when he was called up for service in the army. This lasted until the armistice on November 11, 1918; during that period he served successively in the infantry, artillery and the air corps. Aviation in those days was not very well developed, but the Austro-Hungarian Air Force had two outstanding theoreticians who deeply affected the development of modern aerodynamics. They were Theodor von Karman and Richard von Mises; both became life-long friends of Gabor.

His teachers in Budapest in the years 1912-1915 were principally Fejer, Beke, Kürschak and Bauer. During that period he became acquainted with George Polya and Mihael Fekete, with whom he collaborated for many years. While in service and stationed in Vienna, he obtained the degree of Doctor at the University. His examiners were Wirtinger and Furtwängler in mathematics, Exner in Physics, Stöhr and Höfler in Philosophy. His dissertation dealt with Toeplitz determinants and laid again the foundation of another research topic throughout his life. This became the first publication of Gabor and appeared in 1915 in the Mathematische Annalen.

In May 1919 he married Anna Elisabeth Nemenyi, who had a Ph.D. in Chemistry from the Budapest University. The Szegös were to have two children, Peter and Veronika.

During 1919-1920, Gabor held a position at the Technical University of Budapest as assistant to Kürschak. Then he moved to Berlin where he came in close and cordial contact with Schur and worked also with Lichtenstein, von Mises and Schmidt. He habilitated in May 1921 as "Privat-Dozent" at the Berlin University with a fundamental paper on the development of arbitrary functions in orthogonal polynomials. Publication of that work appeared in the Mathematische Zeitschrift in 1921. It is remarkable that independently and at the same time

Bergman and Bochner also developed theories of orthogonal function systems which each in its own way covered different aspects of the field.

For some time Gabor served as assistant to Lichtenstein in publishing the "Jahrbuch für die Fortschritte der Mathematik." In 1924 he was appointed temporary extraordinary Professor at the Mathematics Department in Berlin. Finally, he was called as the successor of Knopp to the University of Königsberg, where he served as full Professor from 1926-1936.

In 1936, Gabor was glad to accept an offer from the Washington University in St. Louis, Missouri since the scientific life in Germany became intolerable under the Hitler dictatorship. He worked successfully in St. Louis as teacher and researcher until 1938 when he finally moved to Stanford to become Department Chairman. Gabor held that position from 1938-1953, after which he worked until August 1966, when he retired as Emeritus Professor.

His work at Stanford was interrupted in 1945/46 when he served in the U.S. Army as Professor in a military university in Biarritz, France. His teaching there must have been outstanding; two G.I.s followed him, after the war, to Stanford, where they received their Ph.D. degrees and now are both well-known professors of mathematics.

One of Gabor's great achievements is the development of the Mathematics Department at Stanford University. His outstanding reputation in the mathematical community and his wise judgment of the significance of mathematical work enabled him to collect an outstanding staff of teachers, to attract highly gifted graduate students, and to lay the foundation of the research and teaching level of our present department.

Gabor published about 130 research papers in various languages; his collected papers have been revised by Richard Askey and published by Birkhduser in 1982. He wrote four books (several in collaboration with others), each of which has become a classic in its field. These are: 1) "Problems and Theorems in Analysis" (1925), with George Polya, in German; translated into English in 1972; 2) "Orthogonal Polynomials" (1939); 3) "Isoperimetric Problems in Mathematical Physics" (1951), with George Polya; 4) "Toeplitz Forms and Their Applications" (1958), with Ulf Grenander. The book on orthogonal polynomials has had a profound influence in many areas of applied mathematics, including theoretical physics, stochastic processes and numerical analysis.

Gabor Szegö received many honors during his lifetime; among them are the Julius König Prize of the Hungarian Mathematical Society in 1928, membership in the Königsberger Gelehrten Gesellschaft in 1928, corresponding member of the Viennese Academy of Sciences in 1960, and honorary member of the Hungarian Academy of Sciences in 1965.

He was an outstanding human being. His leadership at our department created a spirit of relaxed but very active cooperation and stimulating exchange of ideas. At the same time his hospitality created a warm social atmosphere and his cultured personality produced in all of us a feeling of respect and admiration. His work remains and will not be forgotten.

Menahem Schiffer, Chair
Harold Bacon
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