

MEMORIAL RESOLUTION
STEFAN BERGMAN
(1895 – 1977)

Stefan Bergman was born on May 5, 1895 in Czestochowa, Russia (now Poland), as son of Bronislaw and Tekla Bergmann. He received his primary and high school education in his home town and completed the local "Gymnasium" in 1913. He entered the School of Engineering in Breslau (Germany, now Poland) but in 1915 he changed to the School of Engineering in Vienna (Austria) which he left in 1921 with an Engineering degree. Even during these years of more practical studies he was strongly attracted to problems in pure and applied mathematics. Therefore, he entered in 1921 the Institute for Applied Mathematics which had just been established at the University of Berlin by Richard von Mises. Von Mises was one of the leading theoreticians in aerodynamics and probability theory. His ideas had an enormous impact on Bergman's scientific outlook and he was in close connection with his teacher till the death of von Mises. Another outstanding mathematician at Berlin who had great influence on Bergman's scientific development was Erhard Schmidt, a pioneer in the theory of integral equations and functional analysis. In 1922 Bergman obtained his Ph.D. at Berlin University. His thesis dealt with the development of all analytic functions in a given domain in terms of a fixed set of orthogonal functions. Its results were applied, on the one hand, to fluid dynamics, conformal mapping and potential theory and led, on the other hand, to the "Bergman kernel function" which is one of his major achievements in pure mathematics. In order to exploit the concept of his kernel function to the fullest, he entered the field of analytic functions of several complex variables. This subject was still quite undeveloped in the Twenties and he may be considered as one of the founders of this mathematical subject which stands today at the center of attention in analysis. The most impressive achievement in this field is probably the concept of the "distinguished boundary" of a domain. He discovered that for a large class of domains an analytic function of several complex variables is already completely determined by its values on a part of the boundary. This part is now usually called the "Bergman-Shilov boundary" of such a domain. This phenomenon is not met in the theory of one complex variable and leads to various important consequences. For example, Bergman gave an integral formula for expressing the values of a function at interior points of the domain in terms of its values on the distinguished boundary.

He was appointed in 1930 as a "Privat Docent" both at the Institute for Mathematics and the Institute for Applied Mathematics, a very rare distinction at that time. He devoted his time mostly to research, but he also influenced many advanced students and attracted them to his field of interest. However, in 1933 he had to leave Berlin in consequence of the Nazi take-over of Germany. For several years he found refuge in Russia where he taught at the universities of Tbilissi (Georgia) and Tomsk (Siberia). The success of his stay in the Soviet Union is best shown by the fact that some of his students became leading mathematicians in their own right, such as Vekua, Fuchs, Kufarev, etc. In 1937 came the Stalin purges of foreign scientists and his position became precarious. From 1937 to 1939 he worked in Paris under the most difficult conditions; but with irrepressible energy he wrote a two-volume monograph on the kernel function and its applications, which is still useful and appreciated today. With the outbreak of World War II he had to flee again and reached the United States. He taught at M.I.T., Yeshiva College, and Brown University. In 1945 he joined his teacher and friend von Mises at Harvard

and worked with him until the death of the latter in 1951. The conditions of wartime renewed his interest in fluid mechanics and aerodynamics and he worked for the National Advisory Council for Aeronautics, and the Office of Naval Research. In connection with this work he extended the concept of the kernel function to spaces of solutions of linear partial differential equations and devised his operator method to transform analytic functions into solutions of linear partial differential equations. He revived, simplified and extended the hodograph method in the theory of flow of compressible media. In 1952, he joined the Mathematics Department at Stanford University and spent here the most secure and peaceful time of his life. He continued up to his last years in an intensive research activity. He published a large number of reports, papers and books, and he influenced and stimulated *many* young colleagues and graduate students. His presence at our department was very valuable and will have a continuing effect. We feel deeply the loss of such an outstanding and loveable colleague.

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