The 1970 Summer Symposium on

# REPRODUCING KERNELS IN ANALYSIS AND PROBABILITY

The Summer Symposium on Reproducing Kernels in Analysis and Probability, conducted by the Rocky Mountain Mathematics Consortium with the generous, and greatly appreciated, support of the National Science Foundation, was held at the College of Santa Fe, Santa Fe, New Mexico, during the six-week period June 22–July 31, 1970.

The beginnings of the theory of reproducing kernels may be pinpointed rather precisely in the early 1920's, which witnessed the pioneering researches of S. Bergman, S. Bochner, and G. Szegö. In the half-century that has elapsed since then the scope of the theory has widened immensely — much more, one may venture to say, than the founders of the theory could have expected, or even dared to hope. Now, at the beginning of the 1970's, the theory of reproducing kernels is a significant, powerful, and highly flexible tool in many fields of mathematical investigation. There can be no doubt that this theory constitutes an eminently suitable topic for a summer symposium.

Without in any way minimizing the contributions made to the effectiveness of the symposium by the other lecturers, we feel justified in declaring that in a very real, if unofficial, sense the symposium constituted a tribute to one of the lecturers, Stefan Bergman, whose contributions to the theory span the entire period since its birth.

The nine Seminar lecturers and their lecture series titles were:

I. *Introduction to General Theory of Reproducing Kernels* by Professor Einar Hille, Department of Mathematics and Statistics, University of New Mexico.

II. *Kahler Varieties, Harmonic Mappings, Holomorphic Mappings* by Professor Andre Lichnerowicz, Department of Mathematics, College de France.

III. *Gaussian Measure in Hilbert Spaces and Applications in Numerical Analysis* by Professor F. M. Larkin, Computing Centre, Queen's University.

IV. *Recent Developments in the Theory of Functions of Several Complex Variables* by Professor Stefan Bergman, Department of Mathematics, Stanford University.

V. *Kernel Functions, Orthogonal Functions, and Numerical Analysis* by Professor Philip J. Davis, Applied Mathematics Division, Brown University.

VI. *On Holomorphic Correspondences* by Professor Karl Stein, Department of Mathematics, University of Munich.

VII. *The Role of Reproducing Kernel Hilbert Spaces in Time Series Analysis* by Professor Emanuel Parzen, Statistics Department, State University of New York at Buffalo.

VIII. *Reproducing Kernels in Variational Problems of Conformal Mapping* by Professor G. Springer, Department of Mathematics, Indiana University.

IX. *Reproducing Kernels for Pairings and Applications* by Professor Nachman Aronszajn, Department of Mathematics, University of Kansas.

The first five papers of this issue of the Rocky Mountain Journal of Mathematics constitute condensed versions of several of the lecture series which were presented at the Symposium; in addition, the Bergman and Hahn paper represents a significant contribution to the theory of functions of several complex variables, while the Kuelbs-Larkin-Williamson paper constitutes a most welcome contribution, for it came into being as a result of a collaboration between the authors which began when they met at the Symposium. A condensation of the lectures given by Andre Lichnerowicz will appear in a later issue.

I undoubtedly speak for all my colleagues in the Consortium and the editorial staff of the journal in expressing the hope that the following papers will be welcomed, and found useful, by the mathematical community.

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Bernard Epstein
University of New Mexico
May 31, 1971

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