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Catherine Beneteau* (beneteca@shu.edu), **Dov Aharonov**, **Dmitry Khavinson** and **Harold S. Shapiro**. *A survey of extremal problems for non-vanishing analytic functions.*

In this talk, I will give a brief survey of duality techniques introduced by S. Ya. Khavinson in 1949 and independently by Rogosinski and Shapiro in 1953. I will discuss how these techniques were then applied to general extremal problems for non-vanishing functions in analytic function spaces in the 50's and 60's. I will also examine the Bergman space context, where such techniques seem to fail. However, in a wide class of such problems, solutions exist and are unique, and we are able to obtain some regularity results with surprising twists. In particular, if we consider the specific problem of minimizing the norm of non-vanishing Bergman functions whose first two Taylor coefficients are given, the conjectured form of the extremal is not continuous in the closed disk! This most recent result is joint work with D. Aharonov, D. Khavinson, and H. Shapiro. (Received December 18, 2005)