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*Beurling-Selberg Extremal Problems in de Branges Spaces.*

The classical Beurling-Selberg extremal problem looks at finding optimal entire functions of a given exponential type that majorize or minorize a real valued function while minimizing the  $L^1(\mathbb{R})$ -norm of the difference.

For a Hermite-Biehler function  $E$ , we generalize the Beurling-Selberg extremal problem by replacing the  $L^1(\mathbb{R})$ -norm with the  $L^1(\mathbb{R}, |E(x)|^{-2}dx)$ -norm. The theory of de Branges spaces allows us to solve this problem for a class of even functions which includes the Poisson kernel. By specializing the de Branges space, we obtain a solution to the extremal problem for the signum function where the majorant and minorant vanish at a given point on the imaginary axis. This talk contains joint work with Friedrich Littmann. (Received September 16, 2013)