1106-41-1229 **Mark A Spanier***, mark.spanier@ndsu.edu. *Extremal Signatures and Best $L^1(\mu)$-Approximations.* Preliminary report.

For a given Borel measure $\mu$ on $\mathbb{R}$, let $\mathcal{A}_1(\delta,\mu)$ be the space of entire functions of exponential type at most $\delta$ in $L^1(\mathbb{R},\mu)$. A function $\psi:\mathbb{R}\to\mathbb{C}$ such that $|\psi(x)|=1$ a.e. is called an extremal signature for $\mu$, if

$$\int_{-\infty}^{\infty}\psi(x)F(x)\,d\mu(x)=0$$

for all $F\in\mathcal{A}_1(\delta,\mu)$. Such functions are extremely important in the study of best approximations of prescribed exponential type (bandlimited functions) in $L^1(\mu)$-norm.

For a class of measures of the form $d\mu_E(x)=|E(x)|^{-2}\,dx$ where $E$ is a Hermite-Biehler function, we determine extremal signatures for $\mu_E$. Using these signatures and general interpolation results, we are able to construct best $L^1(\mu_E)$-approximations to large families of functions. This presentation is based on joint work with Friedrich Littmann. (Received September 11, 2014)