Operator Theory and Analytic Function Spaces

Solid hulls of weighted Banach spaces of entire functions

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Since it is often impossible to describe a non-Hilbert Banach space of analytic functions on the disc or the plane in terms of the Taylor coefficients, the next best thing is to find the solid hull of the given space. This means, rougly, finding the strongest growth condition that the coefficients of the functions in the given space have to satisfy. We characterize the solid hulls of a large class of Banach spaces of entire functions, which are endowed with weighted sup-norms $\|f\|_v = \sup v(z)|f(z)|$, where the weight $v(z)$ is radial, continuous, decreasing as $|z| \to \infty$. For example for $v(z) = \exp(-|z|)$, we show that the solid hull consists exactly on those sequences (b_m), for which

$$\sup_n \sum_{m=n^2+1}^{(n+1)^2} |b_m|^2 e^{-2n^2} n^{4m} < \infty$$

The solid hull of the corresponding spaces on the disc, with doubling weights, were found by Bennet, Stegena, Timoney in 1981, and we develop their methods in connection with some more recent techniques on weighted H^∞ spaces.
This is joint work with José Bonet.