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Alexei B. Aleksandrov

A Class of Interpolating Blaschke Products and Best Approximation in L^p for $p < 1$

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Abstract. We describe the inner functions Θ such that

$$\|1 + \Theta f\|_{H^p}^p \geq 1 - |\Theta(0)|^2$$

for all $p > 0$ and $f \in H^p$. We prove that each such inner function Θ satisfying $\Theta(0) \neq 0$ is an interpolating Blaschke product. Moreover, we study the inner functions such that $\|1 + \Theta f\|_{H^p}^p \geq 1 - |\Theta(0)|^2$ for all $p > 0$ and for all $f \in H^p$ for which $1 + \Theta f$ does not vanish in the unit disk.

Keywords. Hardy spaces, Blaschke products, best approximation.

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