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WEIGHTED SUBSPACES OF HARDY SPACES AND TAYLOR COEFFICIENTS

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We consider the subspace H_ϕ^p of those H^p functions in the unit disc for which $f(z)=O(\phi(|z|))$ for some positive continuous decreasing function $\phi(z)$. Our results include theorems on space imbeddings, on fractional integrations, and on Taylor coefficients, some of which can be reduced to the results of Hardy and Littlewood if we set $\phi(z)=(1-|z|)^{1/p}$. A converse of Ahern's theorem (that $H_\gamma^p \subset A^{\gamma(q-p)-1}$) is included.

Also, Taylor coefficients of H^p functions on the polydisc are compared with those of $A^{p,q,\alpha}$ and members of $l(s,t)$. Using the comparision with the coefficient multipliers technique, we can reformulate the Hausdorff-Young theorem as well as Taylor coefficient theorems on H^p functions improving the corresponding results of Hardy-Littlewood and Holland-Twomey.

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