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Approximation schemes in function spaces

Let X be a Banach holomorphic function space on the unit disk. A linear polynomial approximation scheme for X is a sequence of bounded linear operators $T_n : X \rightarrow X$ with the property that, for each $f \in X$, the functions $T_n(f)$ are polynomials converging to f in the norm of the space. We completely characterize those spaces X that admit a linear polynomial approximation scheme. In particular, we show that it is not sufficient merely that polynomials be dense in X .

Joint work with T. Ransford.