BOUNDARY BEHAVIOR OF FUNCTIONS APPROXIMABLE BY POLYNOMIALS

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The talk concerns some basic problems in polynomial approximation with connections to operator theory.

I will give an overview of this circle of problems and focus on the boundary behavior of functions in irreducible analytic $P^2(\mu)$-spaces in the case when the measure of the boundary of the domain is positive.The main result is that the values of the boundary function equal the nontangential limits of its analytic part mu-a.e.. The result applies to the study of invariant subspaces of the shift operator on such spaces, the generic example of a cyclic subnormal operator. The theorem can be extended to an abstract operator-theoretic framework which goes beyond subnormal operators.