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Analytic functions in Smirnov classes with real boundary values.

Analytic functions in Hardy spaces H^p, $p \geq 1$ with real boundary values a.e., are constants, since those functions are representable by Poisson integrals of their boundary values. In domains whose rectifiable Jordan boundaries have corners or cusps, functions representable by Cauchy integrals of their boundary values, where these boundary values belong to Lebesgue spaces $L^p(ds)$, $1 \leq p < 2$, where ds is the arclength, are called Smirnov E^p functions. E^p- functions with real boundary values need not be constants . In a recent joint work with Lisa De Castro, we have characterized the existence of non-constant functions in Smirnov classes E^p, $1 \leq p < 2$, with real boundary values in terms of the geometry of the boundary. We have also given the precise relationships between the exponents p for which nontrivial E^p functions exist and the sizes of the corners and cusps on the boundary of the domain.