AN OVERVIEW ON THE HARDY SPACES

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Let f be a complex-valued analytic function on the open unit disk in the complex plane and let ζ be a point on the unit circle. The question on whether or not $f(z)$ has some type of limit (radial, sectorial, non-tangential, unrestricted) as $z \to \zeta$ is a major problem in complex function theory. We shall briefly discuss the classical theorems that led to the study of classes of functions called Hardy spaces whose elements possess radial (as well as non-tangential) limits on a subset of the circle of full measure. We will study the connection between the functions in the Hardy spaces and the corresponding boundary functions on the circle. This seminar will lay the groundwork for the the course Math 679 that will be offered in the Fall 2015.

REFERENCES

[1] P. Duren, *Theory of H^p spaces*, Pure and Applied Mathematics **38**, Academic Press, New York, 1970.
[2] K. Hoffman, *Banach Spaces of Analytic Functions*, Dover Pub. New York, 2007.