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Ryan Alvarado* (rjamt9@mail.missouri.edu) and **Marius Mitrea**. *Hardy Spaces and the Geometry of Sets*.

The primary focus of this talk is on how the geometric make-up of a given ambient can directly influence the amount of analysis that the underlying space can support. As an illustration of the interplay between these two branches of mathematics we will survey some recently obtained results pertaining to the theory of Hardy spaces (H^p spaces) in the setting of d -dimensional Ahlfors-regular quasi-metric spaces. In particular, we will provide examples of several environments which highlight how the nature of these H^p spaces is intimately linked with the geometry of the ambient. These examples include fractal sets such as the four-corner planar Cantor set. As an application of this theory we will present a new, general criterion guaranteeing boundedness in H^p of linear operators. The presented work is in collaboration with M. Mitrea. (Received August 28, 2014)