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Ryan Alvarado* (rjamt9@mail.missouri.edu) and **Marius Mitrea**. *Hardy Spaces in Ahlfors-Regular Quasi-Metric Spaces*.

This talk focuses on the how the geometry of a given ambient can directly affect the amount of analysis the underlying space can support. To illustrate 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. More specifically, in the above context we will introduce Hardy spaces defined via a grand maximal function and prove that a rich H^p theory exists for an optimal range of p 's, which depends on both the geometric and measure theoretic aspects of the ambient. The presented work is in collaboration with M. Mitrea. (Received January 21, 2014)