Alvarado, Ryan (University of Pittsburgh)

Hardy spaces and the geometry of quasi-metric spaces

Abstract: One of the most fascinating facets of modern mathematics is studying how geometry and analysis influence one another. 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.

Many aspects of this theory will be discussed including sharp versions of several tools used in the area of analysis on quasi-metric spaces. In addition, 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.

References

[1] R. Alvarado and M. Mitrea, *Hardy spaces on Ahlfors-regular quasi-metric spaces. A sharp theory.* Lecture Notes in Mathematics, Vol. 2142. Springer, 2015.