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Nageswari Shanmugalingam*, Department of Mathematical Sciences, P.O.Box 210025, University of Cincinnati, Cincinnati, OH 45221-0025, **Estibalitz Durand**, Universidad Complutense de Madrid, Department of Mathematics, Madrid, Spain, and **Jesus Jaramillo**, Universidad Complutense de Madrid, Department of Mathematics, Madrid, Spain. *Geometric characterizations of infinity-Poincaré inequality.*

Much of the recent development of analysis in metric measure spaces focused on the so-called $(1, p)$ -Poincaré inequality for $1 \leq p < \infty$. For certain values of p it is known that these inequalities are geometric in nature ($p = 1$, and in the event that the measure on the space is Ahlfors Q -regular, then $p = Q$). In this talk we will focus on the other extreme value of $p = \infty$, and describe the geometry lying behind this inequality. Surprisingly, unlike in the $p = 1$ and $p = Q$ case, the geometric characterization of ∞ -Poincaré inequality is not quantitative. (Received June 22, 2010)