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Title: Metric Ramsey-Type Phenomena

Abstract: In this talk we will discuss the problem of finding lower bounds for the distortion required to embed certain metric spaces in Hilbert space. We will show that these problems are intimately connected to certain Poincare type inequalities on graph metrics, and we will discuss recent developments which are based on the analysis of the behavior of Markov chains in metric spaces. These new methods allow us to strengthen known results by showing that large subsets of certain natural graphs must be significantly distorted if one wishes to embed them in Hilbert space.