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Metric spaces admitting low-distortion embeddings into all n -dimensional Banach spaces.

For a fixed $K \gg 1$ and $n \in \mathbb{N}$, $n \gg 1$, we study metric spaces which admit embeddings with distortion $\leq K$ into each n -dimensional Banach space. Classical examples include spaces embeddable into $\log n$ -dimensional Euclidean spaces, and equilateral spaces.

We prove that good embeddability properties are preserved under the operation of metric composition of metric spaces. In particular, we prove that n -point ultrametrics can be embedded with uniformly bounded distortions into arbitrary Banach spaces of dimension $\log n$.

The main result of the talk is a new example of a family of finite metric spaces which are not metric compositions of classical examples and which do embed with uniformly bounded distortion into any Banach space of dimension n . This partially answers a question of Gideon Schechtman. (Received August 13, 2015)