

BILIPSCHITZ EMBEDDINGS OF METRIC SPACES INTO EUCLIDEAN SPACES

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Abstract

When does a metric space admit a bilipschitz embedding into some finite-dimensional Euclidean space? There does not seem to be a simple answer to this question. Results of Assouad [A1], [A2], [A3] do provide a simple answer if one permits some small (“snowflake”) deformations of the metric, but unfortunately these deformations immediately disrupt some basic aspects of geometry and analysis, like rectifiability, differentiability, and curves of finite length. Here we discuss a (somewhat technical) criterion which permits more modest deformations, based on small powers of an A_1 weight. For many purposes this type of deformation is quite innocuous, as in standard results in harmonic analysis about A_p weights [J], [Ga], [St2]. In particular, it cooperates well with “uniform rectifiability” [DS2], [DS4].

*Partially supported by the U.S. National Science Foundation. The author would also like to thank Kevin Rogovin for pointing out some oversights in a previous version of this paper. The author is grateful too to the referee for his or her comments and suggestions.