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Metric Characterizations of Super Weakly Compact Operators.

We define the notion of factorization of a family of metric spaces through a bounded, linear operator between Banach spaces. This notion serves as the analogue of uniform bi-Lipschitz embeddings of this family of metric spaces into a given Banach space. We prove operator versions of well-known non-linear characterizations of superreflexivity due to Bourgain, Johnson and Schechtman, and Baudier. More precisely, we give a non-linear characterization of non-super weakly compact operators as those through which the binary tree, diamond, and Laakso graphs may be factored with uniform distortion. (Received March 08, 2017)