



Sparsity and non-Euclidean embeddings

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We present a relation between sparsity and non-Euclidean isomorphic embeddings. We introduce a general restricted isomorphism property and show how it enables to construct embeddings of ℓ_p^n , $p > 0$, into various type of Banach or quasi-Banach spaces. In particular, for $0 < r < p < 2$ with $r \leq 1$, we construct a family of operators that embed ℓ_p^n into $\ell_{r^{(1+\eta)n}}$, with optimal polynomial bounds in $\eta > 0$.

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