Title: Sparsity and Non-Euclidean Embeddings
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Abstract: 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 $r \le 1$, we construct a family of operators that embed ℓ_p^n into $\ell_r^{(1+\eta)n}$, with optimal polynomial bounds in $\eta >0$. (Joint work with Omer Friedland)