

5005-A1-29

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77843-3368. *Non linear factorization of linear operators.*

I will address the following recurring problem: Suppose a linear operator $T : X \rightarrow Y$ has a Lipschitz factorization through a Banach space Z . What additional conditions guarantee that T has a linear factorization through Z ? Enough new information is given to solve a 1982 problem of S. Heinrich and P. Mankiewicz—for each $1 \leq p \leq \infty$, the class of \mathcal{L}_p spaces is closed under Lipschitz, uniform, and even coarse equivalences.

I'll also discuss the notion of Lipschitz p -summing operators and show that for a linear operator, the Lipschitz p -summing norm equals the usual p -summing norm. Lipschitz p -summing operators have appeared (without being named) in the context of the geometry of discrete metric spaces; in fact, what Bourgain really proved when he showed that every n -point metric space embeds with distortion at most $\log n$ into a Hilbert space is that the Lipschitz 1-summing norm of the identity on an n -point metric space is at most $\log n$.

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