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"Complementability of isometric copies of ℓ_1 in transportation cost spaces"

The main result : a transportation cost space on a metric space M contains a 1-complemented isometric copy of ℓ_1 if it contains an isometric copy of ℓ_1 (joint work with Sofiya Ostrovska).

An analog of this result is known to be false for general Banach spaces. Also, an isometric copy of ℓ_1 in a transportation cost space does not have to be complemented.

The proof uses two ingredients. The first can be called an *Edmonds biorthogonal system of 1-Lipschitz functions for minimum-weight matching.* Such systems were introduced in the paper Khan-Mim-Ostrovskii (2020) (following the classical work of Edmonds (1965) on polynomial-time algorithms for minimum weight matchings) to prove that a transportation cost space on a metric space with $2n$ points contains a 1-complemented isometric copy of ℓ_1^n.

The second ingredient is a characterization of transportation cost spaces containing isometric copies of ℓ_1 (Ostrovska-Ostrovskii, 2020). Time permitting, I shall describe the ingredients and the proof.