Summer School 2026

Topics in Banach Space Theory

Finite-dimensional transportation cost spaces

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Day and time	Tuesday: 9:10–9:50 Wednesday: 10:00–10:40 Friday: 9:10–9:50

Abstract

Transportation cost spaces $\mathrm{TC}(X)$ and norms are known by many other names (Arens-Eells spaces, Earth Mover Distance, Kantorovich-Rubinstein norm, Lipschitz free Banach space, Wasserstein space, to name a few).

After introducing the main definitions, we shall analyze the relations between $\mathrm{TC}(X)$ and classical finite-dimensional Banach spaces. The most important are relations with ℓ_1^d. The spaces $\mathrm{TC}(X)$ contain large complemented ℓ_1^d and have a useful canonical representation as quotients of ℓ_1^d. Important for applications are low-distortion embeddings of $\mathrm{TC}(X)$ into ℓ_1^d.