Summer School 2026

Topics in Banach Space Theory

Lipschitz quotients and the curve-flat index

Name	Andrés Quilis
University	Universitat Politècnica de València
Day and time	Tuesday: 16:05–16:30

Abstract

A Lipschitz map $f\colon (M, d_M) \to (N, d_N)$ between metric spaces is a *Lipschitz quotient* if there exists a constant C such that for every $x \in M$ and every $r > 0$ it holds that $B_N(f(x), r) \subset f(B_M(x, C{\cdot}r))$. This Lipschitz version of open mappings was studied by Johnson, Lindenstrauss, Preiss and Schechtman in the context of Banach spaces, who proved that ℓ_1 has every *geodesic* complete separable metric space as a 1-Lipschitz quotient. Together with J. K. Kaasik, we adapt Johnson et. al. ideas to construct a separable metric space which is universal for *all* separable metric spaces. Moreover, we use the recently introduced curve-flat index of a metric space, constructing compact spaces of arbitrarily high countable index; in order to prove the impossibility of universal spaces in the compact setting. Several open questions that appear naturally are also discussed.