

Taller de espacios de Banach

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Lipschitz p -convex and q -concave maps

The notions of p -convexity and q -concavity are mostly known because of their importance as a tool in the study of isomorphic properties of Banach lattices, but they also play a role in several results involving linear maps between Banach spaces and Banach lattices. In this talk we introduce Lipschitz versions of these concepts, dealing with maps between metric spaces and Banach lattices, and start by proving nonlinear versions of two well-known factorization theorems through L_p spaces due to Maurey/Nikishin and Krivine. We also show that a Lipschitz map from a metric space into a Banach lattice is Lipschitz p -convex if and only if its canonical linearization is p -convex. Furthermore, we elucidate why there is such a close relationship between the linear and nonlinear concepts by proving characterizations of Lipschitz p -convex and Lipschitz q -concave maps in terms of factorizations through p -convex and q -concave Banach lattices, respectively, in the spirit of the work of Raynaud and Tradacete.

Martes 4 de noviembre de 2014

16:00, seminario 222

Departamento de Análisis Matemático

UCM

Organizado por el ICMAT y el grupo de investigación
Operadores, Retículos y Estructura de Espacios de Banach (MTM2012-31286)