

Jornada IMAC en espacios de Banach

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INSTITUT UNIVERSITARI DE MATEMÀTIQUES I APLICACIONS
UNIVERSITAT JAUME I DE CATELLÓ

ABSTRACTS

Gonzalo Martínez Cervantes

(Universidad de Alicante)

Some open problems on the space of bounded linear operators

In this talk I will focus on the following two problems:

Problem 1. Characterize those pairs of Banach spaces X and Y for which every operator in $\mathcal{L}(X, Y)$ attains its norm.

Problem 2. Characterize those pairs of Banach spaces X and Y for which $\mathcal{L}(X, Y)$ is reflexive.

These problems will take us to Holub's Conjecture and a question of M. Ostrovskii which are still open. We will discuss these questions and provide new results obtained in a recent joint work with Sheldon Dantas and Mingu Jung.

Mingu Jung

(Korea Institute for Advanced Study)

Quasi-ACK structure on Banach spaces

In this talk, we introduce a generalized concept of ACK structure on Banach spaces, which we call by quasi-ACK structure. Using this property, we present (up to our knowledge new) examples satisfying Lindenstrauss property B^k . Some results on the stability of quasi-ACK structure will be also discussed.

Mario P. Maletzki
(Universitat Jaume I)

Interpolating sequences in the Bloch space on the unit ball of a Banach space

The classical Bloch space of analytic functions in the unit disc may be generalized in several different ways to the unit ball of a complex Banach space. We study the radial Bloch space and introduce the concept of interpolating sequences in that space, looking into similar properties to the interpolating sequences in the classical Bloch space.

Abraham Rueda Zoca
(Universidad de Murcia)

Isomorphic copies of c_0 in the set of strongly norm-attaining mappings

Let M be a complete metric space and let $0 \in M$ be a distinguished point. We denote by $\text{Lip}_0(M)$ the set of those Lipschitz functions from M to \mathbb{R} which vanish at 0. It is a Banach space when endowed with the following norm:

$$\|f\| := \sup_{x \neq y} \frac{|f(x) - f(y)|}{d(x, y)}.$$

We say that $f \in \text{Lip}_0(M)$ strongly attains its norm if the previous supremum is actually a maximum, that is, if $\|f\| = \frac{|f(x_0) - f(y_0)|}{d(x_0, y_0)}$ holds for some pair $x_0 \neq y_0$. We denote by $\text{SNA}(M)$ to the set of all the strongly norm-attaining Lipschitz functions.

In the recent preprint [2] it is addressed the question of when $\text{SNA}(M)$ contains linear subspaces, where it is proved that this is always the case. As a consequence of their work, the authors posed in [2, Question 2] the natural question whether $\text{SNA}(M)$ contains an isomorphic copy of c_0 if M is infinite.

In this talk we aim to prove, based on the work [1], that the answer of the previous question is affirmative.

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Referencias

- [1] A. Avilés, G. Martínez-Cervantes, A. Rueda Zoca and P. Tradacete, *Infinite dimensional spaces in the set of strongly norm-attaining Lipschitz maps*, preprint. Available at ArXiv.org with reference [arXiv:2204.12529](https://arxiv.org/abs/2204.12529).
- [2] V. Kadets and Ó. Roldán, *Closed linear spaces consisting of strongly norm attaining Lipschitz mappings*, preprint. Available at ArXiv.org with reference [arXiv:2202.06855](https://arxiv.org/abs/2202.06855).

HORARIO

Time	Speaker	Title of the talk
10.00 - 10.45	Gonzalo Martínez Cervantes (Universidad de Alicante)	<i>Some open problems on the space of bounded linear operators</i>
10.55 - 11.40	Mingu Jung (Korea Institute of Advanced Study)	<i>Quasi-ACK structure on Banach spaces</i>
11.45 - 12.20	Coffee break	
12.20 - 13.05	Mario P. Maletzki (Universitat Jaume I)	<i>Interpolating sequences in the Bloch space on the unit ball of a Banach space</i>
13.15 - 14.00	Abraham Rueda Zoca (Universidad de Murcia)	<i>Isomorphic copies of c_0 in the set of strongly norm-attaining mappings</i>
14.00	Lunch	