Alba Segurado (UCM)

Limiting logarithmic interpolation

Interpolation theory plays an important role in the study of function spaces, operator theory and other areas of mathematics. Many of these applications are based on the real method $(A_0, A_1)_{\theta,q}$ introduced by Lions and Peetre (see [1]), where $0 < \theta < 1$.

Logarithmic methods $(A_0, A_1)_{\theta,q,\mathbb{A}}$, defined by means of a broken logarithmic function $\ell^{\mathbb{A}}(t)$, are an important extension of the real method such that, under certain additional assumptions, θ can also take the values 0 and 1. In this talk we will be interested in the limiting cases where $\theta = 0$ or 1, since there were certain natural questions about these spaces that had not been studied before. In particular, we will show that the description of these spaces in terms of the J-functional depends on the relationship between q and $\mathbb{A}$, contrary to the case where $0 < \theta < 1$. As a consequence of these J-descriptions, we will be able to investigate the behaviour of compact and weakly compact operators under logarithmic interpolation methods. The contents of this talk are part of a joint work with Fernando Cobos ([2]).

Referencias

[1] Bergh, Jöran; Löfström, Jörgen; *Interpolation spaces. An introduction.* Grundlehren der Mathematischen Wissenschaften, No. 223. Springer-Verlag, Berlin-New York, 1976.

[2] Cobos, Fernando; Segurado, Alba; Description of logarithmic interpolation spaces by means of the J-functional and applications. J. Funct. Anal. 268 (2015), 2906–2945.