

RADON-NIKODÝM INDEXES AND MEASURES OF WEAK NONCOMPACTNESS

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We introduce the index of representability of a vector measure and the index of dentability of subsets of Banach spaces. We study the relationship between them as well as with other well-known indexes such as those that give the measure of non weak-compactness of bounded sets. We establish a number of inequalities that summarize, sharpen and offer new ways to some aspects of the theory of Radon-Nikodým property in Banach spaces previously studied by many authors. We offer examples that prove that our inequalities are sharp. A tool for the above is the concept of ultrafilter and the existence of liftings in complete probability spaces: in the first part of the lecture we recall the concepts of filter and ultrafilter, a little bit of their history and we give references to some nice applications in algebra and analysis.

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