
ALEJANDRO SANTACRUZ-HIDALGO, Western University

Down spaces over a measure space with an ordered core

We consider a measure space together with a totally ordered subset of its sigma algebra called an *ordered core*. Recently, this construction was used in the context of Hardy inequalities, giving a uniform treatment of many different types of Hardy operators.

We will begin by introducing a definition of monotone functions compatible with the ordered core. This allows us to extend the down space construction, a variant of the Köthe dual restricted to positive decreasing functions, to all measure spaces. We will look at their associate spaces and their relationship with a suitable version of the least decreasing majorant construction in this more general setting. We will discuss the interpolation structure of these spaces and find strong similarities to the real line case; the down spaces corresponding to L^1 and L^∞ form an exact Calderón-Mityagin couple and as a consequence we can describe all their exact interpolation spaces in terms of the K -functional. We will also show an analogous result for the dual couple.

This talk is based on joint work with Gord Sinnamon.