Approximation by differences of convex functions, dentability of maps and a class of weakly compact convex sets

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A function defined on a subset of a Banach space is said d.c. if it is the difference of to convex continuous functions. That kind of functions has been used often, however being d.c. is a rather strong condition. Being approximated uniformly on bounded sets by d.c. is a more feasible condition, which can be characterized in terms of dentability. In order to do that, firstly we will discuss the properties of dentable maps, its relation to the d.c. maps introduced by Veselý and Zajíček. As a by product of the techniques, the class of super weakly compact convex sets shows up. We will review some properties of this sets, especially those that could be valuable in other areas as Variational Analysis. This talk is based in joint collaborations with L. García-Lirola and G. Lancien.

References

[1] L. García-Lirola, M. Raja, Maps with the Radon–Nikodým Property, Set-Valued Var. Anal. 24 (2017), no. 3, pp. 987–998.

[2] M. Raja, Super WCG Banach spaces, J. Math. Anal. Appl. 439 (2016), no. 1, pp. 183–196.