



DEPARTAMENTO  
DE ANÁLISIS  
MATEMÁTICO Y  
MATEMÁTICA  
APLICADA



## SEMINARIO DE ANÁLISIS MATEMÁTICO Y MATEMÁTICA APLICADA

**Bernardo González**  
**Universidad de Murcia**

### **Taller de Espacios de Banach: From convex geometry to polynomial optimization via Helly**

In this talk, we will briefly discuss the intimate connection existing between two problems: first, the problem from convexity on the optimal relation between the radii of the sum of convex bodies and the sum of their radii independently; second, the problem from discrete geometry and polynomial optimization on the largest norm of a signed subset sum of vectors from random unitary vectors in  $n$ -dimensional space. In order to illustrate it, we will explain the various techniques which can be exploited to solve particular instances of these questions: from standard vectorial optimization to high dimensional phenomena, all of them under the umbrella of Helly/Carathéodory theorems. This is partly joint work with G. Ambrus, M. Brugger, M. Fiedler, María A. Hernández Cifre, and A. Kirschbaum, J. Lasserre, V. Magron (however not all at once, but very scattered).

**Organizado por el Departamento de Análisis Matemático y Matemática Aplicada y el Instituto de Matemática Interdisciplinar (IMI)**

**Fecha: Jueves 13 de abril de 2023**  
**a las 13:00 horas**  
**Lugar: Aula Alberto Dou (209)**  
**Facultad de CC Matemáticas, UCM**