On Kneser Transversals

Jorge Ramírez Alfonsín (Univ. Montpellier)

Resumo/Abstract:
Let $k, d, \lambda \geq 1$ be integers with $d \geq \lambda$. Let $m(k, d, \lambda)$ be the maximum positive integer n such that every set X of n points (not necessarily in general position) in $\mathbb{R}^d$ has the property that the convex hulls of all k-sets have a common transversal $(d - \lambda)$-plane (called *Kneser Transversal*).

In this talk we show a connection of the function m with colorings of Kneser hypergraphs, in particular, we present a new proof of the well-known Kneser's conjecture, first proved by Lovász. We then discuss the relation of m and a discrete version of Rado's center point theorem.

If time allows, we introduce and present some results of a natural discrete version m.