

Combinatorics Seminar

Degree versions of the Erdos-Ko-Rado and Hilton-Milner theorems

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Abstract: A family of sets is intersecting if any two members have a nonempty intersection. We call an intersecting family trivial if all of its members have a nonempty intersection. Let X be a set of n elements. The celebrated Erdos-Ko-Rado theorem (EKR) says that whenever $n \geq 2k$, the maximum size of an intersecting family of k -subsets of X is attained by trivial intersecting families. The Hilton-Milner theorem says that the maximum size of a nontrivial intersecting family of k -subsets of X is attained by the family HM , which consists a fixed k -set S and all k -subsets of X that contains a fixed element $x \in X - S$ and at least one element from S . We prove a minimum degree version of the EKR, which implies the EKR as a corollary. We also prove a degree version of the Hilton-Milner theorem for $n > 30k^2$.

These are joint works with Jie Han and Hao Huang.

Monday, March 13 at 2:00 PM in SEO 612
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