

Some results on Erdős-Ko-Rado Theorem

Huajun Zhang

In 1938, Erdős, Ko and Rado gave the following result known as EKR Theorem.

Theorem Suppose n and k be two positive integers with $n \geq 2k$. Let $[n] = \{1, 2, \dots, n\}$ and $\binom{[n]}{k} = \{A \subset [n] : |A| = k\}$. If \mathcal{A} is an intersecting family of $\binom{[n]}{k}$, i.e., $A \cap B \neq \emptyset$ for all $A, B \in \mathcal{A}$, then

$$|\mathcal{A}| \leq \binom{n-1}{k-1}.$$

Now, there are many generalizations of this theorem such as cross-intersecting and direct product. In this talk, we will survey some generalizations of EKR Theorem.