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The Erdős-Ko-Rado theorem for permutation groups

A set of permutations \mathcal{F} of a finite transitive group $G \leq \text{Sym}(\Omega)$ is *intersecting* if any two permutations in \mathcal{F} agree on an element of Ω . The *intersection density* of the intersecting set $\mathcal{F} \subset G$ is the rational number $\rho(\mathcal{F}) := \frac{|\mathcal{F}|}{|G_\omega|}$, where $\omega \in \Omega$. The intersection density of the group G is the number $\rho(G) := \max\{\rho(\mathcal{F}) : \mathcal{F} \subset G \text{ is intersecting}\}$. The permutation group G is said to have the *Erdős-Ko-Rado (EKR) property* if $\rho(G) = 1$.

I will talk about some recent progress on the construction of transitive groups that do not have the EKR property. I will also present some results on the intersection density of transitive groups of certain degrees.