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*An algebraic approach to Erdős–Ko–Rado-type theorems*

The Erdős–Ko–Rado theorem is a major result in extremal set theory. This theorem describes the exact size and structure of the largest system of sets (with a fixed size) that has the property that any two sets in the system have non-trivial intersection. This theorem is particularly appealing since, with modest constraints, the largest such system is simply the collection of all sets (with a fixed size) that contain a fixed element.

Variations of this theorem hold for objects other than sets, for example, there is a version of the Erdős–Ko–Rado theorem for permutations, integer sequences, matchings and subspaces of a vector space. In each of these cases, the size of the largest intersecting system of these objects can be proven using algebraic graph theory. In this talk, I will explain this approach to Erdős–Ko–Rado-type theorems and show similarities between these problems.