On EKR-type problem for hypergraph matchings

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This is joint work with Tao Feng, Xiaomiao Wang and Menglong Zhang.

Abstract

Given integers $1 \leq t \leq k$, a family of k-matchings in a complete r-partite r-uniform hypergraph is said to be t-intersecting if any two of its members share at least t common edges. This concept unifies several well-studied classes of intersecting families, including classical intersecting families, intersecting families of permutations, partial permutations, and generalized permutations, as well as intersecting families of injections. In this talk, we will introduce the method of t-covers to determine the maximum size of t-intersecting families of k-matchings and to characterize the extremal families that attain this bound. Our results extend a number of existing theorems in the literature.