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Almost disjoint families in higher dimensions

A classical almost disjoint family is a family of subsets of the natural numbers such that any two non-identical elements of the family intersect finitely, that is, their intersection is in the ideal FIN. A "mad family" is, of course, a maximal almost disjoint family. Definability problems related to classical mad families have been studied intensively in the past few years. This talk is about extending and generalizing the classical notion of an almost disjoint family by replacing the ideal of finite sets FIN with other ideals, and in this talk, this specifically means replacing it with the iterated Frechet ideals FIN^2, FIN^3,... We call mad families with respect to the iterated Frechet ideals "higher dimensional" mad families. In this talk, I will try to give an overview of definability and undefinability results for higiher dimensional mad families. This is joint work with David Schrittesser.