Mathematics, Statistics, and Computer Science   **@ UIC**

Logic Seminar

Parametrizing the Ramsey theory of vector spaces

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Abstract: In the late 90's, Gowers proved a Ramsey-theoretic dichotomy for subspaces of infinite-dimensional Banach spaces. The combinatorial essence of this result was later extracted by Rosendal in the setting of discrete vector spaces. Both dichotomies say, roughly, that given an analytic partition of the set of infinite block sequences of vectors, there is an infinite-dimensional subspace with a wealth of block sequences entirely contained in, or disjoint from, one piece of the partition. We will describe a new "parametrized" form of Rosendal's dichotomy: Given an analytic family of partitions indexed by the reals, there is a single subspace which witnesses Rosendal's dichotomy for uncountably many of the partitions, simultaneously. An integral part of our proof is the preservation of certain analogues of selective ultrafilters, by Sacks forcing. We will also discuss applications to families of linear transformations.

Tuesday, November 23 at 4:15 PM in 636 SEO