

Monotone expanders - constructions and applications

Date Tuesday, February 16

Time 3 pm

Location 303 Mudd

Abstract: A degree d monotone expander is a bipartite expander that is the union of d monotone matchings (in each matching the edges do not cross). Unlike regular expander graphs, the existence of constant degree monotone expanders does not follow from a probabilistic argument. The question of their existence came up implicitly in the study of 'dimension expanders' which are algebraic analogs of expander graphs [D. Shpilka 05].

In this talk I will show a recent construction [Joint work with A. Wigderson] of monotone expanders with degree $\log^*(n)$ using an iterative Zig Zag argument and discuss some of the applications of these graphs. I will also discuss a new construction of J. Bourgain that gives monotone expanders with constant degree.