Sparse Universal Graphs

Date Tuesday, March 25

Time 4 pm

Location 622 Mathematics

Abstract: A graph G is called (k, n)-universal if it contains every graph H on n vertices and maximum degree at most k as a subgraph. What is the minimum possible number of edges of a (k, n)-universal graph G on n vertices? It is easy to see that this minimum is at least $c(k)n^{2-2/k}$, and I will sketch a proof showing that this is tight. This improves several earlier estimates. The proof is based on a certain graph decomposition result and on properties of non-backtracking walks in high-girth expanders.

Joint work with M. Capalbo