

1077-05-2399

Patrick Bennett and **Tom Bohman*** (tbohman@math.cmu.edu). *A natural barrier for random greedy hypergraph matching.*

Let r be a fixed constant and let \mathcal{H} be an r -uniform, D -regular hypergraph on N vertices. Assume further that $D \rightarrow \infty$ as $N \rightarrow \infty$ and that co-degrees of pairs of vertices in \mathcal{H} are at most L where $L = o(D/\log^5 N)$. We consider the random greedy algorithm for forming a matching in \mathcal{H} . We choose a matching at random by iteratively choosing edges uniformly at random to be in the matching and deleting all edges that share at least one vertex with a chosen edge before moving on to the next choice. This process terminates when there are no edges remaining in the graph. We show that with high probability the proportion of vertices of \mathcal{H} that are not saturated by the final matching is at most $(L/D)^{\frac{1}{2(r-1)}+o(1)}$. This point is a natural barrier in the analysis of the random greedy hypergraph matching process. (Received September 22, 2011)