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**Jiayi Nie\*** (jin019@ucsd.edu) and **Jacques Verstraete** (jacques@ucsd.edu). *Randomized greedy algorithm for independent sets in regular uniform hypergraphs with large girth.*

We consider a randomized greedy algorithm for independent sets in  $r$ -uniform  $d$ -regular hypergraphs  $G$  on  $n$  vertices with girth  $g$ . By analyzing the expected size of the independent sets generated by this algorithm, we show that the independence number  $\alpha(G) \geq (f(d, r) - \epsilon(g, d, r))n$ , where  $\epsilon(g, d, r)$  converges to 0 as  $g \rightarrow \infty$  for fixed  $d$  and  $r$ , and  $f(d, r)$  is determined by a differential equation. This extends earlier results of Gamarnik and Goldberg for graphs. (Received March 01, 2020)