1092-05-327 **Tao Jiang*** (`jiangt@miamioh.edu`), Department of Mathematics, Miami University, Oxford, OH 45056. *Two results on the Turan problem of graphs and hypergraphs.* Preliminary report.

A hypergraph is *linear* if any two edges intersect in at most one vertex. Given n and a linear r-graph H, the linear Turan number $ex_L(n, H)$ is the largest number of edges in a linear r-graph on n vertices that does not contain H as a subgraph. We show that $ex_L(n, C_{2m}^r) = O(n^{1+\frac{1}{m}})$, where C_{2m}^r is the r-uniform linear cycle of length $2m$. This generalizes the Bondy-Simonovits theorem for 2-uniform cycles. We conjecture that a similar bound holds for odd cycles when $r \geq 3$. This is joint work with C. Collier-Cartaino.

Next, we consider the following question. For a positive integer t and a positive real d, let $\mathcal{F}_{d,t}$ denote the family of graphs with average degree at least d and number of vertices at most t. A simple random argument yields $ex(n, \mathcal{F}_{d,t}) = \Omega(n^{2-2/d+\epsilon_1(t)})$, where $\epsilon_1(t) \to 0$ as t grows. J. Verstraëte asked if a similar upper bound holds, namely $ex(n, \mathcal{F}_{d,t}) = O(n^{2-2/d+\epsilon_2(t)})$, where $\epsilon_2(t) \to 0$ as t grows. We answer the question affirmatively for all positive integers d and some rational numbers d. Along the way, we establish a Turan result on cube-like graphs. This is joint work with A. Newman. (Received August 13, 2013)