1143-05-353 **Tao Jiang*** (jiangt@miamioh.edu), Department of Mathematics, Miami University, Oxford, OH 45056, and **Jie Ma** (jiema@ustc.edu.cn) and **Liana Yepremyan** (liana.yepremyan@maths.ox.ac.uk). *On Turán exponents of bipartite graphs.*

Given a family $\mathcal{F}$ of graphs, the Turan number $ex(n, \mathcal{F})$ is the maximum number of edges in an n-vertex graph that does not contain any member of $\mathcal{F}$ as a subgraph. Verifying an old conjecture of Erdos and Simonovits (and reiterated by Frankl and Furedi and Simonovits), Bukh and Conlon showed that for each rational number r with $1 < r < 2$ there exists a family $\mathcal{F}$ of bipartite graphs such that $ex(n, \mathcal{F}) = \Theta(n^r)$.

A related conjecture of Erdős and Simonovits asks if for each rational number r with $1 < r < 2$ there exists a single bipartite graph H such that $ex(n, H) = \Theta(n^r)$. This conjecture is still wide open. Until recently the conjecture was only verified for $r = 1 + 1/k$ and $r = 2 - 1/k$ where k is an integer at least 2, achieved by so-called theta graphs and complete bipartite graphs, respectively. In this talk, we show that the answer to the Erdős-Simonovits question is affirmative for all rational numbers r of the form $4k/(2k + 1)$, where k is a positive integer, and for $r = 7/5$. Our first theorem also answers a question of Pinchasi and Sharir on graphs related to the cubes. This provides infinitely many new bipartite graphs H for which the order of magnitude of $ex(n, H)$ is determined. (Received August 18, 2018)