中国科学院数学与系统科学研究院
Academy of Mathematics and Systems Science, CAS

图论组合与网络研究中心

Center for Graph Theory, Combinatorics and Networks

学术报告

题　　目： **Turán theorems for even cycles in random hypergraph**

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时　　间： 5 月 21 日（星期二） 15: 00 - 16: 00

地　　点： 数学院南楼 N620

摘　　要：

Let $\mathcal{F}$ be an r-uniform hypergraph. The random Turán number $\mathrm{ex}(G^r_{n,p},\mathcal{F})$ is the maximum number of edges in an $\mathcal{F}$-free subgraph of $G^r_{n,p}$, where $G^r_{n,p}$ is the Erdős-Rényi random r-graph with parameter p. Let C^r_ℓ denote the r-uniform linear cycle of length ℓ. For $p \geq n^{-r+2+o(1)}$, Mubayi and Yepremyan showed that $\mathrm{ex}(G^r_{n,p}, C^r_{2\ell}) \leq \max\{p^{\frac{1}{2\ell-1}} n^{1+\frac{r-1}{2\ell-1}+o(1)}, pn^{r-1+o(1)}\}$. This upper bound is not tight when $p \leq n^{-r+2+\frac{1}{2\ell-2}+o(1)}$. Recently, we close the gap for $r \geq 4$. More precisely, we show that $\mathrm{ex}(G^r_{n,p}, C^r_{2\ell}) = \Theta(pn^{r-1})$ when $p \geq n^{-r+2+\frac{1}{2\ell-1}+o(1)}$. Similar results have recently been obtained independently in a different way by Mubayi and Yepremyan. For $r = 3$, we significantly improve Mubayi and Yepremyan's upper bound.

报告人简介： 聂家熹，复旦大学上海数学中心博士后，导师为吴河辉教授。2022 年于加州大学圣地亚哥分校（University of California, San Diego）获得数学博士学位，导师为 Jacques Verstraëte 教授。2016 年本科毕业于南开大学数学伯苓班。主要研究兴趣为极值组合，包括 Ramsey 问题，Turán 问题，图分解问题等。目前已在 J. Combin. Theory Ser. B, Random Structures Algorithms, SIAM J. Discrete Math, J. Graph Theory, European J. Combin.等期刊发表多篇论文。