Jinye He

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Education

University of Science and Technology of Science **Sept. 2018 – June 2022**
Bachelor of Science in Mathematics and Applied Mathematics

University of Oxford **Oct. 2022 – Sept. 2023**
Master of Science in Mathematics and Foundation of Computer Science

Publication

A non-uniform extension of Baranyai's Theorem Jinye He, Hao Huang and Jie Ma

Research Experience

An Extension Baranyai's Theorem **Mar. 2021–June 2022**
Undergraduate Research *Prof. Hao Huang & Prof. Jie Ma*

- Baranyai's Theorem states that a complete k-uniform hypergraph on n vertices is 1-factorable if and only if $k \mid n$. This project try to extend this theorem into non-uniform settings. We finally determined all n, k, such that the family $K_n^{\leq k}$ consisting of subsets of $[n]$ of size up to k is 1-factorable, and thus extend Baranyai's Theorem to the non-uniform setting.

A survey of Kahn-Kalai Conjecture **May 2023 – Aug. 2023**
Dissertation for Master's Degree *Prof. Paul Balister*

- Park and Pham successfully proved the renowned Kahn-Kalai conjecture, offering an elegant upper bound for thresholds which is a core problem in random discrete structures. This survey focuses on the Kahn-Kalai conjecture, offering many examples to make the conjecture more motivated and various applications to vividly illustrate the profound significance of this conjecture.

Research in Cryptography **Sept. 2023 – present**
Prof. Jiaheng Zhang

Awards

ICCM (International Congress of Chinese Mathematicians) Creative Undergraduate Thesis Award
2022 Nanjing, China

Teaching Assistant

Linear Algebra B1 **Spring 2021**
USTC *Yihuang Shen*

Combinatorics **Autumn 2021**
USTC *Jie Ma & Xiande Zhang*