Zixiang Xu

Extremal Combinatorics and Probability Group, Institute for Basic Science
Daejeon, South Korea. Email: zxxu8023@qq.com

Born: 1993, Zhu Ji, Zhejiang Province, China.
Nationality: Chinese.

Education

2016– Ph.D School of Mathematical Sciences, Capital Normal University
Advisor: Gennian Ge
Successive postgraduate and doctoral programs of study

2012–2016 B.Sc School of Mathematical Sciences, Zhejiang University

Research interests

Extremal combinatorics, probabilistic and algebraic methods in combinatorics and coding theory

Grants, honours & awards

2019, 2021 National Scholarship for Outstanding Doctoral Students

2018, 2020 First-class Scholarship for Doctoral Students

Publications

Journal articles

1. Z. Xu and G. Ge. A note on multicolor Ramsey number of small odd cycles versus a large clique. *Discrete Math.*, 345, no. 6, Paper No. 112823, 4 pp, 2022.

2. Z. Xu and G. Ge. On color isomorphic subdivisions. *Discrete Math.*, 345, no. 5, Paper No. 112805, 6 pp, 2022.

3. Z. Xu, T. Zhang, and G. Ge. Some extremal results on hypergraph Turán problems. *Sci China Math.*, to appear

4. Z. Xu, Y. Jing, and G. Ge. On vertex-induced weighted Turán problems *Discrete Math.*, 345, no. 1, Paper No. 112628, 8 pp, 2022.

5. Z. Xu and G. Ge. Erdős-Falconer distance problem under Hamming metric in vector spaces over finite fields. *SIAM J. Discrete Math.*, 34(4):2208–2220, 2020.

6. G. Ge, Y. Jing, Z. Xu, and T. Zhang. Color isomorphic even cycles and a related Ramsey problem. *SIAM J. Discrete Math.*, 34(3):1999–2008, 2020.

7. Z. Xu, T. Zhang, and G. Ge. Some tight lower bounds for Turán problems via constructions of multi-hypergraphs. *European J. Combin.*, 89:103161, 11, 2020.

8. Z. Xu, Y. Zhang, and G. Ge. New theoretical bounds and constructions of permutation codes under block permutation metric. *Des. Codes Cryptogr.*, 87(11):2625–2637, 2019.

Submitted articles

1. A polynomial resultant approach to algebraic construction of extremal graphs, with T. Zhang and G.Ge, submitted.

2. Embedding bipartite distance graphs under Hamming metric in finite fields, with W. Yu and G. Ge, submitted.

3. Intersective sets over abelian groups, with C. Yip, submitted.

4. Local rainbow colorings for various graphs, with X. Cheng, submitted.

Talks

1. New theoretical bounds and constructions of permutation codes under block permutation metric. 6-th International Conference of Coding, Cryptography and Combinatorics, Wuhan. 25 mins, May, 2019.

2. Some extremal results on hypergraph Turán problems. 1-st Young Scholars Forum on Combinatorics and Graph Theory, Fuzhou. 15 mins, June, 2019.

3. On color isomorphic patterns in proper colorings. Invited talk in Taiyuan University of Technology, online. 60 mins. Oct, 2020.

4. A brief introduction to the random algebraic method. Invited talk in Shandong University, online. 90 mins, Oct, 2020.

5. On color isomorphic patterns in proper colorings. Talk in Tingshua University. 25 mins, April, 2021.

6. Erdős-Falconer distance problem under Hamming metric in vector spaces over finite fields. The 10-th International Symposium on Finite Fields and Their Applications, Luoyang. 25 mins, May, 2021.

7. Erdős-Falconer distance problem under Hamming metric. Talk in Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Beijing. 35 mins, June, 2021.

8. On color isomorphic patterns in proper colorings. Invited talk in Miniworkshop on polynomial codes, Shandong University, Qingdao. 60 mins, July, 2021.

9. On color isomorphic patterns in proper colorings. Invited talk in the 1-st Workshop on Developments in Combinatorics, Shandong University, online. 35 mins, Oct, 2021.

10. A brief introduction to Ruzsa-Szemerédi graph and its applications. Invited talk in Shandong University, online. 90 mins, Nov, 2021

Teaching

Experience as a Teaching Assistant:

1. Spring, 2021: Advanced mathematics–B

Experience as the an instructor

1. 2021 Fall: Extremal combinatorics (Co-instructor: Prof Gennian Ge and Zuo Ye)

2. 2021 Spring: Combinatorial designs (Co-instructor: Prof Gennian Ge)

3. 2020 Fall: Extremal combinatorics (Co-instructor: Prof Gennian Ge and Chengfei Xie)

4. 2020 Spring: Combinatorial designs (Co-instructor: Prof Gennian Ge)

5. 2019 Fall: Extremal combinatorics (Co-instructor: Prof Gennian Ge and Chengfei Xie)

Referee for the following journals

Journal of Graph Theory

Skills

The second level athlete in China, Table tennis.