Zixiang Xu

School of Mathematical Sciences, Capital Normal University
Beijing. China

Email: zxxu8023@qq.com
URL: https://drrichxu.github.io/Combinatorics/

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

Current position

Ph.D. student, School of Mathematical Sciences, Capital Normal University

Research interests

Additive Combinatorics, Coding Theory, Discrete Geometry, Extremal Combinatorics, Theoretical Computer Science

Education

2018–	PH.D School of Mathematical Sciences, Capital Normal University
2012–2016	B.SC School of Mathematical Sciences, Zhejiang University

Grants, honours & awards

2019	National Scholarship for Outstanding Doctor Student

Publications & talks

JOURNAL ARTICLES

1. Z. Xu and G. Ge. Erdos–Falconer distance problem under hamming metric in vector spaces over finite fields. *SIAM J. Discrete Math.*, to appear.

2. Z. Xu, T. Zhang, Y. Jing, and G. Ge. Color isomorphic even cycles and a related Ramsey problem. *SIAM J. Discrete Math.*, to appear.

3. 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.

4. 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.

Preprints

1. On color isomorphic subdivisions, with G.Ge, submitted

2. Hadwiger–Nelson type problems in binary Hamming space, with G.Ge, submitted

3. On the Turán number of 1-subdivision of $K_{3,t}$, with T. Zhang and G.Ge, submitted.

4. 3-uniform hypergraphs with few Berge paths of length three between any two vertices, with T. Zhang and G.Ge, submitted.

5. Some extremal results on hypergraph Turán problems, with T. Zhang and G.Ge, submitted.

6. On vertex-induced weighted Turán problems, with Y.Jing and G.Ge, submitted.

Talks

1. New theoretical bounds and constructions of permutation codes under block permutation metric. —-6-th International Conference of Coding, Cryptography and Combinatorics.

2. Some extremal results on hypergraph Turán problems. ——2019 Conference on Combinatorics and Graph Theory.

Service as Journal Referee

- **IEEE Transactions on Information Theory**

- **European Journal of Combinatorics**

- **Designs Codes and Cryptography**

Skills

All of the following skills have been used in my papers

- **Additive Combinatorics:**
  Szemerédi regularity lemma, slice rank method.

- **Coding Theory and TCS:**
  Estimate independence number in sparse graph, anti-code method

- **Discrete Geometry:**
  Lovász Local Lemma, dependent random choice.

- **Extremal Combinatorics:**
  Depdennt random choice, random algebraic method of Bukh, tensor power trick

Problems

I am interested in all of the following problems. If you are interested in any of these questions, you can contact me at any time and I will definitely get back to you in time.

- Rational Turán exponent conjecture

- Repeated patterns in proper colorings

- Design of coded-Caching scheme and construction of Ruzsa–Szemerédi graph

- Maximal Lovász theta function of H-free graphs

- Infinite $C_{2\ell}$-free graphs

- Cycle–complete Ramsey problems

- Elekes–Rónyai type problems

Last updated: September 1, 2020 •