Zeyu Zheng

My Homepage zeyuzheng19@fudan.edu.cn or zeyu.zheng@rutgers.edu

EDUCATION

Rutgers University, B.A. expected in 2023 New Brunswick, New Jersey, USA
Pure Math major, with a minor in Computer Science *May 2022 - Present*

Fudan University, B.S. expected in 2023 Shanghai, Mainland China
Computational Math, Buqing Su Top-notch Talent Program in Mathematics *Sep 2019 - Present*

Budapest Semesters in Mathematics Budapest, Hungary, EU
with Highest Honors (for top students, based on professor recommendations) *Jan 2022 - Aug 2022*

Selected coursework (including non-credit reading courses):
Fourier Analysis, Complex Analysis, Measure and Real Analysis, Galois Theory, Graduate Algebra, Commutative Algebra, Algebraic Topology, Advanced Combinatorics, Combinatorial Optimization, Graduate Graph Theory, Discrete Geometry, The Probabilistic Method, Additive Combinatorics

RESEARCH WORKS

1. Chaoliang Tang, Hehui Wu, Shengtong Zhang, and Zeyu Zheng, "On the Turán number of the linear 3−graph C_{13}", *The Electronic Journal of Combinatorics* Volume 29, Issue 3 (2022), P3.46. arXiv Journal version
2. Logan Post and Zeyu Zheng, "Common kings of a chain of cycles in a strong tournament", *under review.* arXiv
3. Ervin Győri, Xianzhi Wang and Zeyu Zheng, "Extremal planar graphs with no cycles of particular lengths", *under review.* arXiv
4. Robin Huang, Tibor Jordán, Henry Simmons, Kaylee Weatherspoon and Zeyu Zheng, "Four-regular graphs with extremal rigidity properties", *under review.* EGRES
5. Yaobin Chen, Hehui Wu and Zeyu Zheng, Progress on the small quasi-kernel conjecture, *in preparation.*
6. Bhargav Narayanan and Zeyu Zheng, Maximum number of independent sets in 3-graphs, *in preparation.*
7. Zeyu Zheng, Twins from common positions in random permutations, *in preparation.*

RESEARCH EXPERIENCE

Rutgers Discrete Mathematics Research Group Sep 2022 - present
Advisor: Bhargav Narayanan *Rutgers University - New Brunswick, New Jersey, USA*
- Use entropy method / occupancy fraction to study the number of independent sets in regular uniform hypergraphs.

Fudan SCMS Combinatorics Research Group Dec 2020 - Present
Advisor: Hehui Wu *Shanghai Center for Mathematical Sciences, Fudan University, Shanghai, China*
- Proved and strengthened a conjecture of András Gyárfás on the Turán number of a linear 3-graph by introducing an innovative double counting.
- Work on the small quasi-kernel conjecture. Generalized a result of Alexandr Kostochka.

BSM Undergraduate Research Opportunity Jan 2022 - Aug 2022
Advisor: Ervin Győri and Tibor Jordán *Budapest Semesters in Mathematics, Budapest, Hungary*
- With Professor Ervin Győri, worked on planar Turán number. Found a new and shorter proof to the planar Turán number of C_5, and determined some other planar Turán numbers.
- With Professor Tibor Jordán, studied graph rigidity properties and established some combinatorial characterizations of redundantly rigid graphs.

TEACHING EXPERIENCE

- Fall 2021: TA for Linear Algebra at FDU

HONORS AND AWARDS

- Program Highest Honor, Budapest Semesters in Mathematics — Summer 2022 & Summer 2022
- BME Mathematical Contest for university students (Hungary), second place — 2022
- Scholarship for Outstanding Students, Fudan University — 2020-2021 & 2019-2020
- East China Cup Mathematical Modeling Contest, outstanding winner — 2021
- The Chinese Mathematics Competition for college students, first prize — 2020
- National High School Mathematical Contest (China), first prize — 2018

TALKS

1. 11th Cross-strait Conference on Graph Theory and Combinatorics, Student Session — Aug 2021
2. Fudan SCMS Graduate Student Combinatorics Seminar — Sep 2022
3. Rutgers DIMACS Graduate Student Combinatorics Seminar — Nov 2022
4. (poster) Undergraduate Mathematics Symposium, University of Illinois at Chicago — Nov 2022
5. Joint Mathematics Meetings 2023, AMS-PME Student Contributed Paper Session — Jan 2023