Zeyu Zheng

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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, 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}", *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
Rutgers University - New Brunswick *New Jersey, USA*
- We use entropy method/hard-core model to study the number of independent sets in 3-graphs.

Fudan SCMS Combinatorics Research Group Sep 2019 - Present
Shanghai Center for Mathematical Sciences, Fudan University *Shanghai, China*
- We introduced a new approach to hypergraph Turán-type problems. By this new approach, we proved and strengthened a conjecture of András Gyárfás on the Turán number of a linear 3-graph.
- We are now working on the small quasi-kernel conjecture. Currently we have generalized a result of Alexandr Kostochka.

BSM Undergraduate Research Opportunity Jan 2022 - Aug 2022
Budapest Semesters in Mathematics *Budapest, Hungary*
- With Professor Ervin Győri, we studied planar Turán number. We found a new proof to the planar Turán number of C_5, and determined some other planar Turán numbers.
- With Professor Tibor Jordán, we 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

- 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. Student Session, 11th Cross-strait Conference on Graph Theory and Combinatorics 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. AMS-PME Student Contributed Paper Session, 2023 Joint Mathematics Meetings Jan 2023