Zeyu Zheng

My Homepage

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EDUCATION

Budapest Semesters in Mathematics (BSM) Jan 2022 - present
Budapest, Hungary, EU

B.S. in Mathematics Sep 2019 - present
Buqing Su Top-notch Talent Program in Mathematics *Fudan University (FDU), Shanghai, China*

Semester on Large Networks and their Limits May 2022 - Jun 2022
Erdős Center, Alfréd Rényi Institute of Mathematics, Budapest, Hungary, EU

Summer School on Flag Algebras (online) Jun 2021 - Jul 2021
University of Illinois at Urbana-Champaign (UIUC), Urbana, IL, USA

Core Courses
Combinatorial Optimization (A-), Graph Theory (A), Calculus (A), Complex Analysis (A-), Real Analysis (A-), Linear Algebra (A), Abstract Algebra (B+), Analytic Geometry (A), Topology (A), Algebraic Topology (B+), Mathematical Modeling (A), Mathematical Modeling and Practice (A)

RESEARCH INTERESTS

Combinatorics/ (Hyper)Graph Theory/ Combinatorial Optimization

RESEARCH PAPERS

1. Chaoliang Tang, Hehui Wu, Shengtong Zhang, and Zeyu Zheng, "Note on the Turán number of the linear 3−graph C_{13}", *submitted*, arXiv:2109.10520v3, 5 pages (2021).

RESEARCH EXPERIENCE

Turán Number of Linear 3-Graphs Dec 2020 - Oct 2021
Advisor: Hehui Wu *Shanghai Center for Mathematical Sciences, Fudan University*
• We introduced a new approach to this kind of problems. By this new method, we proved and strengthened a conjecture of András Gyárfás about the Turán number of a linear 3-graph. (arXiv:2109.10520v3)

Shannon Capacity of Graphs Oct 2021 - present
Advisor: Hehui Wu *Shanghai Center for Mathematical Sciences, Fudan University*
• We are currently working on the Shannon Capacity of odd cycles. Our approach is to find a bound of the independence number of ${C_{2n+1}}^k$, which is the strong product of k $(2n+1)$-cycles.

Planar Turán Number Jan 2022 - present
Advisor: Ervin Győri *Alfréd Rényi Institute of Mathematics & Budapest Semesters in Mathematics*
• We have found a new approach to find the planar Turán number of C_5, i.e. to partition the graph into triangular blocks and do local calculations. We've also found a better extremal construction.
• We are currently working on the maximum number of edges in a C_6/C_8-free planar bipartite/triangle-free planar graph with some restrictions of small degree vertices.

Rigidity Properties of Graphs Jan 2022 - present
Advisor: Tibor Jordán *Eötvös Loránd University & Budapest Semesters in Mathematics*
• We have already characterized some frameworks with different redundant rigidity properties using the properties of their underlying graphs. We are trying to establish more such connections.

TEACHING EXPERIENCE

- Fall 2021: TA for Linear Algebra at FDU

HONORS AND AWARDS

- Scholarship for Outstanding Students, FDU 2020-2021 & 2019-2020
- Eastern China Cup Mathematical Contest in Modeling, outstanding winner 2021
- The Chinese Mathematics Competition for college students, first prize 2020
- National High School Mathematical Contest, first prize 2018

TALKS

1. 11th Cross-strait Conference on Graph Theory and Combinatorics Aug 2021