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 graph with some restrictions of small degree vertices.

Rigidity and Tensegrity Properties of Graphs Jan 2022 - present
Advisor: Tibor Jordán *Eötvös Loránd University & Budapest Semesters in Mathematics*
• We are trying to establish some connections between the framework rigidity and the property of the underlying graph. Specifically, we are trying to characterize some redundantly rigid properties by graph theoretical methods.

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