Zeyu Zheng

EDUCATION

Rutgers University

B.S. in Mathematics with a minor in Computer Science

Budapest Semesters in Mathematics

with Highest Honors

Fudan University

B.S. in Mathematics, Buging Su Top-notch Talent Program in Mathematics

Alfréd Rényi Institute of Mathematics

Semester on Large Networks and their Limits

University of Illinois at Urbana-Champaign

Summer School on Flag Algebras (online)

May 2022 - present

New Brunswick, New Jersey, USA

Jan 2022 - present

Budapest, Hungary, EU

Sep 2019 - present

Shanghai, Mainland China

May 2022 - Jun 2022

Budapest, Hungary, EU

Jun 2021 - Jul 2021

Urbana, Illinois, USA

Core courses:

Combinatorial Optimization (A-), Graph Theory (A), Advanced Combinatorics (A), Calculus (A), Complex Analysis (A-) Real Analysis (A-), Fourier Analysis (A+), Linear Algebra (A), Abstract Algebra (B+), Galois Theory (A+), Analytic Geometry (A), Discrete and Convex Geometry (A+), Topology (A), Algebraic Topology (B+), Mathematical Modeling (A), Mathematical Modeling and Practice (A), Theory of Computing (A+), Research Opportunities (A+)

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 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

 \bullet Fall 2021: TA for Linear Algebra at FDU

HONORS AND AWARDS

• Hungarian BME Mathematical Contest for university students, second place

• Scholarship for Outstanding Students, FDU 2020-2021 & 2019-2020

• Eastern China Cup Mathematical Contest in Modeling, outstanding winner

• The Chinese Mathematics Competition for college students, first prize 2020

• National High School Mathematical Contest, first prize 2018

TALKS

2022

2021