

JIAXI NIE

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Email: jnie47@gatech.edu

Research interests	My research interests lie mainly in extremal combinatorics and probabilistic combinatorics, but I keep my brain open for any interesting math problems.		
Positions	Visiting Assistant Professor, Supervisor: Xiaoyu He	Georgia Institute of Technology 2024 August – present	
	Postdoctoral Researcher, Supervisor: Hehui Wu	Shanghai Center for Mathematical Sciences 2022 September – 2024 July	
	Short-term postdoc, Supervisor: Raffaella Mulas	Max Planck Institute for Mathematics in the Sciences 2022 May-August	
Education	Ph.D. in Mathematics , University of California, San Diego Advisor: Jacques Verstraëte. <i>GPA: 4.00/4.00</i>		2016 – 2022
	Exchange Semester , University of California, Berkeley <i>GPA: 4.00/4.00</i>		2014 Fall
	B.S. in Mathematics , Nankai University <i>GPA: 90.41/100</i>		2012 – 2016
	High School , Shenzhen Middle School		2009 – 2012
Papers	27. New Sidorenko-type inequalities in tournaments (With X. He, N. Mani, N. Tung and F. Wei) <i>Submitted. arxiv.</i>		
	26. Decomposition of Cliques into k-Star-Forests (With Y. Ren and H. Wu) <i>Submitted. arxiv.</i>		
	25. Maximum in-general-position set in a random subset of \mathbb{F}_q^d (With Y. Chen, J. Yu and W. Zhang) <i>Submitted. arxiv.</i>		
	24. Off-Diagonal Ramsey Numbers for Linear Hypergraphs (With X. He, Y. Wigderson and H. Yu) <i>Submitted. arxiv.</i>		

- 23. Generalized Erdős-Rogers problems for hypergraphs (With X. He)**
Submitted. [arxiv](#).
- 22. Supersaturation of odd linear cycles (With L. Deng, J. Han and S. Spiro)**
Submitted. [arxiv](#).
- 21. Random Turán Problems for $K_{s,t}$ Expansions (With S. Spiro)**
Submitted. [arxiv](#).
- 20. Random Turán Problems for Hypergraph Expansions. (With S. Spiro)**
Submitted. [arxiv](#).
- 19. Evasive sets, twisted varieties, and container-clique trees (With J. Lim and J. Zeng)**
SODA 2026. [arxiv](#).
- 18. On the Matching Problem in Random Hypergraphs (With P. Frankl and J. Wang)**
To appear on Discrete Mathematics. [arxiv](#).
- 17. On tight tree-complete hypergraph Ramsey numbers**
To appear on Journal of Graph Theory. [arxiv](#).
- 16. On odd covers of cliques and disjoint unions. (with C. Buchanan, A. Clifton, E. Culver, P. Frankl, K. Ozeki, P. Rombach, and M. Yin)**
To appear on Journal of Graph Theory. [arxiv](#).
- 15. Random Turán theorem for expansions of spanning subgraphs of tight trees.**
To appear on SIAM Journal on Discrete Mathematics. [arxiv](#).
- 14. Sidorenko Hypergraphs and Random Turán Numbers. (With S. Spiro)**
To appear on Combinatorial Theory. [arxiv](#).
- 13. Random Turán and counting results for general position sets over finite fields. (with Y. Chen, X. Liu, and J. Zeng)**
SCIENCE CHINA Mathematics (2025). [arxiv](#).
- 12. The Number of Edge Colorings with Small Independence Number and No Monochromatic H. (with X. Hu and Q. Lin)**
The Electronic Journal of Combinatorics 32.1 (2025). [arxiv](#).

- 11. Off-diagonal Ramsey number for slowly growing hypergraphs (with S. Mattheus, D. Mubayi and J. Verstraëte)**
Random Structures & Algorithms 66.1 (2025): e21284. [arxiv](#).
- 10. Turán theorems for even cycles in random hypergraph.**
Journal of Combinatorial Theory, Series B 167 (2024): 23-54. [arxiv](#).
- 9. On asymptotic local Turán problems. (with P. Frankl)**
The Moscow Journal of Combinatorics and Number Theory, 2023, 12(4): 273-286. [arxiv](#).
- 8. On asymptotic packing of convex geometric and ordered graphs. (with E. Surya, and J. Zeng)**
Journal of Graph Theory (2023), 1–15. [arxiv](#).
- 7. Odd Covers of Graphs. (with C. Buchanan, A. Clifton, E. Culver, J. O'Neill, P. Rombach, and M. Yin)**
Journal of Graph Theory (2023), 104: 420–439. [arxiv](#).
- 6. On Turán numbers for disconnected hypergraphs. (with R. Mulas)**
Acta Mathematica Hungarica 170, 168–182 (2023). [arxiv](#).
- 5. On Asymptotic Packing of Geometric Graphs. (with D. Cranston, J. Verstraëte, and A. Wesolek)**
Discrete Applied Mathematics 322 (2022): 142-152. [arxiv](#).
- 4. Maximal independent sets in clique-free graphs. (with X. He, and S. Spiro)**
European Journal of Combinatorics 106 (2022): 103575. [arxiv](#).
- 3. Ramsey Numbers for Non-trivial Berge Cycles. (with J. Verstraëte)**
SIAM Journal on Discrete Mathematics 36.1 (2022): 103-113. [arxiv](#).
- 2. Triangle-free Subgraphs of Hypergraphs. (with S. Spiro, and J. Verstraëte)**
Graphs and Combinatorics 37 (2021): 2555-2570. [arxiv](#).
- 1. Randomized greedy algorithm for independent sets in regular uniform hypergraphs with large girth. (with J. Verstraëte)**
Random Structures & Algorithms 59.1 (2021): 79-95. [arxiv](#).

Teaching

As Instructor

at Georgia Institute of Technology:

3406 - A second course on Linear Algebra	Fall 2025
4032 - Combinatorial Analysis	Spring 2025
3012 - Applied Combinatorics	Fall 2024
at Fudan University:	
Graph Theory	Fall 2023
at UCSD	
MATH 20C - Calculus&Analyt Geom/Sci&Engnr	Summer I 2021
As Teaching Assistant at UCSD	
MATH 154 - Discrete Math & Graph Theory	Winter 2022
MATH 154 - Discrete Math & Graph Theory	Winter 2021
MATH 154 - Discrete Math & Graph Theory	Fall 2020
MATH 20E - Vector Calculus	Summer II 2020
MATH 154 - Discrete Math & Graph Theory	Spring 2020
MATH 154 - Discrete Math & Graph Theory	Winter 2020
MATH 170A - Intro Numerical Analys/Linear	Fall 2019
MATH 220C - Complex Analysis	Spring 2019
MATH 18 - Linear Algebra	Spring 2019
MATH 170B - Intro/Numerical Analy/Approxim	Winter 2019
MATH 170A - Intro Numerical Analys/Linear	Fall 2018
MATH 142A - Introduction to Analysis I	Summer I 2018
MATH 184A - Combinatorics	Spring 2018
MATH 184A - Combinatorics	Winter 2018
MATH 184A - Combinatorics	Fall 2017
MATH 20B - Calculus/Science & Engineering	Winter 2017
MATH 20A - Calculus/Science & Engineering	Fall 2016

Service

Co-orgarnizing the [GaTech Combinatorics Seminar](#)

Co-orgarnizing the [SCMS Combinatorics Seminar](#)

Served as referee for the following journals:

- Journal of London Mathematical Society
- Forum of Mathematics Sigma
- Journal of Combinatorial Theory Series B
- Combinatorica
- Random Structures & Algorithms
- Combinatorics, Probability and Computing
- SIAM Journal of Discrete Mathematics
- Journal of Graph Theory
- European Journal of combinatorics
- Discrete Applied Mathematics
- Discrete Mathematics
- Graphs and Combinatorics
- Australasian Journal of Combinatorics
- Journal of Combinatorial Optimization