

**Contact Information**

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**Research Interests**

Extremal Combinatorics, Graph Theory, Probabilistic Methods in Combinatorics, and their applications to theoretical Computer Science and Optimization

**Appointments**

12/2014– present: “Thousand Youth Talents Program” Professor,  
School of Mathematical Sciences, University of Science and Technology of China  
09/2013– 12/2014: Postdoctoral Associate,  
Department of Mathematical Sciences, Carnegie Mellon University  
07/2011– 09/2013: Hedrick Assistant Professor,  
Department of Mathematics, UCLA

**Education**

08/2007-08/2011: Ph.D. in Mathematics, Thesis Advisor: Prof. Xingxing Yu,  
School of Mathematics, Georgia Institute of Technology  
09/2003-07/2007: B.Sc. in Mathematics,  
Department of Mathematics, University of Science and Technology of China

**Publications**

1. Independent paths and  $K_5$ -subdivisions, J. Ma and X. Yu, *J. Comb. Theory, Ser. B* 100(6) (2010), 600-616
2. On several partitioning problems of Bollobás and Scott, J. Ma, P. Yan and X. Yu, *J. Comb. Theory, Ser. B* 100(6) (2010), 631-649
3. Bounds for pairs in partitions of graphs, J. Ma and X. Yu, *Discrete Mathematics* 310(15-16) (2010), 2069-2081
4. Circumference of 3-connected claw-free graphs and large Eulerian subgraphs of 3-edge-connected graphs, M. Bilinski, B. Jackson, J. Ma and X. Yu, *J. Comb. Theory, Ser. B* 101(4) (2011), 214-236
5. A note on Lovász removable path conjecture, *Journal of Combinatorics* 2(1) (2011), 103-109
6. Partitioning 3-uniform hypergraphs, J. Ma and X. Yu, *J. Comb. Theory, Ser. B* 102(1) (2012), 212-232
7. A problem of Erdős on the minimum number of  $k$ -cliques, S. Das, H. Huang, J. Ma, H. Naves and B. Sudakov, *J. Comb. Theory, Ser. B* 103(3) (2013), 344-373

8. Approximate min-max relations on plane graphs, J. Ma, X. Yu and W. Zang, *J. Combinatorial Optimization* 26(1) (2013), 127-134
9. Large feedback arc sets, high minimum degree subgraphs, and long cycles in Eulerian digraphs, H. Huang, J. Ma, A. Shapira, B. Sudakov and R. Yuster, *Combinatorics, Probability and Computing* 22(6) (2013), 859-873
10.  $K_5$ -subdivisions in graphs containing  $K_4$ -, J. Ma and X. Yu, *J. Comb. Theory, Ser. B* 103(6) (2013), 713-732
11. Longest common subsequences in sets of words, B. Bukh and J. Ma, *SIAM J. Discrete Math* 28(4) (2014), 2042–2049
12. Discrepancy of random graphs and hypergraphs, J. Ma, H. Naves and B. Sudakov, *Random Structure and Algorithms* 47(1) (2015), 147-162
13. Coloring digraphs with forbidden cycles, Z. Chen, J. Ma and W. Zang, *J. Combin. Theory, Ser. B* 115 (2015), 210-223
14. Maximizing proper colorings on graphs, J. Ma and H. Naves, *J. Combin. Theory, Ser. B* 115 (2015), 236-275
15.  $K_5$ -subdivisions in graphs containing  $K_{2,3}$ , K. Kawarabayashi, J. Ma and X. Yu, *J. Combin. Theory, Ser. B* 113 (2015), 18-67.
16. On Judicious bipartitions of graphs, J. Ma and X. Yu, *Combinatorica*, 36 (2016), 537-556.
17. Graphs containing topological  $H$ , J. Ma, Q. Xie and X. Yu, *J. Graph Theory* 82(2) (2016), 121-153.
18. Cycles with consecutive odd lengths, J. Ma, *European Journal of Combinatorics* 52 (2016), 74-78.
19. Diameter critical graphs, P. Loh and J. Ma, *J. Combin. Theory, Ser. B* 117 (2016), 34-58.
20. On edges not in monochromatic copies of a fixed bipartite graph, J. Ma, *J. Combin. Theory, Ser. B* 123 (2017), 240 – 248

## Preprints

21. Cycle lengths and minimum degree of graphs, C. Liu and J. Ma, Submitted
22. Coloring graphs with two odd cycle lengths, J. Ma and B. Ning, Submitted.
23. Cycles of given lengths in hypergraphs, T. Jiang and J. Ma, Submitted.
24. Cycles with two blocks in  $k$ -chromatic digraphs, R. Kim, S. Kim, J. Ma and B. Park, Submitted.
25. Some extremal results on complete degenerate hypergraphs, J. Ma, X. Yuan and W. Zhang, Submitted
26. On problems about judicious bipartitions of graphs, Y. Ji, J. Ma, J. Yan and X. Yu, Submitted.

## Grants and Awards

- NSFC Grant #11622110, The National Science Fund for Excellent Young Scholars, 2017.01-2019.12
- NSFC Grant #11501539, 2016.01-2018.12
- 2014 China's National "Thousand Youth Talents Program" (The fifth)
- AMS-Simons Travel Grants, 2012-2013.
- Festa Fellowship, June 2011, School of Mathematics, Georgia Institute of Technology.

- Winner of Student paper competition, April 2009, at the 33rd SIAM Southeastern-Atlantic Section Annual Meeting, University of South Carolina.

## Talks

- Some extremal results on complete degenerate hypergraphs, 26th Coast Combinatorics Conference, Kailua-Kona, HI, USA, February 13-16, 2017
- Cycles in hypergraphs, Korean Society for Industrial and Applied Mathematics 2016 Annual Meeting, Jeju, Korea, November 11-13, 2016
- Some problems on extremal graph theory: cycles and colorings, The 7th Combinatorics and Graph Theory National Conference, Shijiazhuang, China, 14-17 August, 2016
- Problems and Results on Bisections, SIAM DM minisymposium on Extremal Combinatorics, The 2016 SIAM Conference on Discrete Mathematics, Atlanta, GA, USA, June 6-10, 2016
- Cycles lengths in sparse graphs, Seminar talk at Miami University, Oxford, Ohio, USA, 31 May, 2016
- Extremal problems on diameter-critical graphs, 2016 International Workshop on Graph Theory and Combinatorics, Ewha Womans University, Seoul, Korea, February 18-20, 2016
- Discrepancy of random graphs and hypergraphs, The 12nd National Mathematics Conference, Beijing, China, 21-24 November, 2015
- Maximizing proper colorings on graphs, the 8th International Congress on Industrial and Applied Mathematics (ICIAM 2015), Beijing, China, 10-14 August, 2015
- Maximizing the chromatic polynomial, GTCA2015, Lanzhou, China, 17-20 July, 2015
- Extremal problems on diameter critical graphs, The 8<sup>th</sup> Cross-strait Conference on Graph Theory and Combinatorics, Zhongshan University, Gaoxiong, Taiwan, 26 June- 2 July, 2015
- Cycles with length condition and a conjecture of Thomassen, AMS 2015 Spring Western Sectional Meeting, University of Nevada at Las Vegas, Las Vegas, NV, USA, 18-19 April, 2015
- Coloring digraphs with forbidden cycles, 2015 Atlanta Lecture Series in Combinatorics and Graph Theory, Georgia Institute of Technology, Atlanta, GA, USA, 12 April, 2015
- Digraph colorings and forbidden cycles, November 21, 2014, Combinatorics Seminar at University of Mississippi, Oxford, Mississippi, US
- Maximizing proper colorings on graphs, November 10, 2014, the Sixth Combinatorics and Graph Theory National Conference, Guangzhou, Guangdong, China
- Coloring digraphs with forbidden cycles, October 16, 2014, Discrete Mathematics Seminar at Princeton University, Princeton, NJ, US
- Relations between digraph colorings and cycle class, October 2, 2014, ACO-Seminar at Carnegie Mellon University, Pittsburgh, PA, US
- Diameter-critical graphs, June 18, 2014, SIAM Minisymposium on Probabilistic and Extremal Combinatorics, at The 2014 SIAM Conference on Discrete Mathematics, Minneapolis, MN, US
- Extremal problems on diameter-k-critical graphs, June 11, 2014, Combinatorics Seminar at Jiangsu Normal University, Xuzhou, Jiangsu, China
- Extremal problems on diameter-2-critical graphs, June 10, 2014, Combinatorics Seminar at Anhui University, Hefei, Anhui, China

- Maximizing the number of proper colorings in graphs, June 7, 2014, Combinatorics Seminar at the University of Science and Technology of China, Hefei, Anhui, China
- Extremal problems on diameter-2-critical graphs, June 2, 2014, The 2014 Combinatorics and Graph Theory Conference at The Hunan University, Changsha, Hunan, China
- The maximum number of proper colorings in graphs with fixed numbers of vertices and edges, April 16, 2014, Combinatorics Seminar at University of West Virginia, Morgantown, WV, US
- Graphs with the maximum number of proper  $q$ -colorings, March 7, 2014, Georgia Tech Combinatorics Seminar, Atlanta, GA, US
- Maximizing the number of proper colorings of graphs, January 16, 2014, AMS Special Session on Graph Theory: Structural and Extremal Problems, The 2014 Joint Mathematics Meetings, Baltimore, MD, US
- Graphs with maximum number of proper  $q$ -colorings and a conjecture of Lazebnik, September 19, 2013, ACO-Seminar at Carnegie Mellon University, Pittsburgh, PA, US
- The Maximum number of  $q$ -colorings, August 08, 2013, The 16th International conference on Random Structures and Algorithms, Poznan, Poland
- Discrepancy of graphs: a conjecture of Bollobas-Scott, July 22, 2013, in CUHK Computer Science and Engineering Seminar, The Chinese University of Hong Kong, Hong Kong, China
- Relative discrepancy between random graphs and hypergraphs, June 22, 2013, The 2013 Graph Theory and Combinatorics International Workshop at The Anhui University, Hefei, Anhui, China
- Discrepancy of random graphs and hypergraphs, January 26, 2013, Extremal and Probabilistic Combinatorics at UCLA, Los Angeles, CA, US
- On the minimum number of  $k$ -cliques, November 20, 2012, Georgia Tech Graph Theory Seminar, Atlanta, GA, US
- A problem of Erdős on the minimum number of  $k$ -cliques, August 23, 2012, BIRS Workshop: New Trends and Directions in Combinatorics, Banff, Canada
- Extremal Problems in Eulerian Digraphs, May 09, 2012, Graph Theory at Georgia Tech conference, Atlanta, GA, US
- Problems in Eulerian Digraphs, March 08, 2012, UCLA Combinatorics Seminar, Los Angeles, CA, US
- On the behavior of Judicious bipartitions, November 05, 2011, Atlanta Lecture Series in Combinatorics and Graph Theory, Georgia State University, Atlanta, GA, US
- Min-Max relations on graphs embedded in surfaces, June 15, 2011, IAPM Reunion Workshop, Lake Arrowhead, CA, US
- A characterization of 4-ordered cycle in planar graphs, April 29, 2011, Georgia Tech SIAM student Seminar, Atlanta, GA, US
- Judicious partitions of 3-uniform hypergraphs, March 26, 2011, SIAM-SEAS 2011 Annual meeting, University of North Carolina at Charlotte, Charlotte, NC, US
- Judicious partitions of 3-uniform hypergraphs, January 21, 2011, Georgia Tech Combinatorics Seminar, Atlanta, GA, US
- Judicious partition of graphs and hypergraphs, September 22, 2009, UCLA-IPAM Combinatorics Seminar, Los Angeles, CA, US

- TK5 in 5-connected non-planar graphs, April 23, 2009, Georgia Tech Graph Theory Seminar, Atlanta, GA, US
- Judicious Partitions of Hypergraphs, April 4, 2009, the 33rd SIAM Southeastern-Atlantic Section Annual Meeting, University of South Carolina, SC, US

## **Academic Activities**

- Co-organizer of the workshop “Recent Advances in Extremal Combinatorics”, at the Tsinghua Sanya International Mathematics Forum, 22-26 May 2017, Sanya, Hainan, China
- Plenary talk, at The Seventh Combinatorics and Graph Theory National Conference, Shijiazhuang, China, 14-17 August, 2016
- The 2016 SIAM Conference on Discrete Mathematics, Atlanta, GA, USA, June 6-10, 2016
- Co-organizer of the minisymposium “Extremal Combinatorics, Probabilistic Combinatorics, and their applications”, at the 8th International Congress on Industrial and Applied Mathematics (ICIAM), August 2015, Beijing, China
- The 8<sup>th</sup> Cross-strait Conference on Graph Theory and Combinatorics, Zhongshan University, Gaoxiong, Taiwan, 26 June- 2 July, 2015
- Co-organizer of the “2015 International Workshop on Graphs and Combinatorics”, at USTC-Anhui University, May 2015, Hefei, Anhui, China
- 2015 Atlanta Lecture Series in Combinatorics and Graph Theory, Georgia Institute of Technology, Atlanta, GA, USA, 12 April, 2015
- Co-organizer of Special Session on “Topics in Graph Theory: Structural and Extremal Problems”, at the 2015 Spring Western Sectional Meeting of the American Mathematical Society, April 2015, Las Vegas, Nevada, US
- The Sixth Combinatorics and Graph Theory National Conference, November, 2014, Guangzhou, Guangdong, China
- IMA Workshop: Extremal and Probabilistic Combinatorics, September 2014, Minneapolis, MN, US
- The 2014 SIAM Conference on Discrete Mathematics, June 2014, Minneapolis, MN, US
- The 2014 Combinatorics and Graph Theory Conference at The Hunan University, June 2014, Changsha, Hunan, China
- The 2014 Joint Mathematics Meetings, January 2014, Baltimore, MD, US
- The 16th International conference on Random Structures and Algorithms, August 2013, Poznan, Poland
- Visiting Scholar, July 2013, Department of Mathematics in the Univeristy of Hone Kong, Hong Kong
- The 2013 Graph Theory and Combinatorics International Workshop, June 2013, Anhui University, Anhui, China
- EXCILL2: Extremal Combinatorics at Illinois, March 2013, UIUC, IL, US
- Extremal and Probabilistic Combinatorics, January 2013, UCLA, CA, US
- BIRS Workshop: New Trends and Directions in Combinatorics, August 2012, BIRS, Banff, Canada.
- Graph Theory at Georgia Tech conference, May 2012, Georgia Institute of Technology, GA, US

- Atlanta Lecture Series in Combinatorics and Graph Theory IV, November 2011, Georgia State University, US
- IPAM Reunion Workshop, June 2011, Lake Arrowhead, CA, US
- 15th International Conference on Random Structures and Algorithms, May 2011, Emory University, GA, US
- Atlanta Lecture Series in Combinatorics and Graph Theory III, April 2011, Georgia Institute of Technology, GA, US
- 2011 SIAM-SEAS, March 2011, University of North Carolina at Charlotte, NC, US
- Atlanta Lecture Series in Combinatorics and Graph Theory II, February 2011, Georgia State University, GA, US
- Visiting Scholar, December 2010- January 2011, National Institute for Informatics, Tokyo, Japan
- Atlanta Lecture Series in Combinatorics and Graph Theory I, November 2010, Emory University, GA, US
- Visiting Scholar, June-July 2010, Department of Mathematics in the University of Hong Kong, Hong Kong, China
- Combinatorics: Methods and Applications in Mathematics and Computer Science (workshop), September- December 2009, Institute for Pure and Applied Mathematics (IPAM), UCLA, CA, US
- DIMACS Workshop on Graph Colouring and Structure, May 2009, Princeton University, NJ, US
- 33rd SIAM Southeastern-Atlantic Section Annual Meeting, April 2009, University of South Carolina, SC, US

## Service

- Board member of the Chinese Society of Combinatorics and Graph Theory (since 2014.11)
- Reviewer for the Mathematical Sciences Program of the National Security Agency (NSA), US
- Referee for the following journals:
  - Combinatorica
  - Discrete Mathematics
  - European Journal of Combinatorics
  - Graphs and Combinatorics
  - Journal of Combinatorial Optimization
  - Journal of Combinatorial Theory Series A
  - Journal of Combinatorial Theory Series B
  - Journal of Combinatorics
  - Journal of Graph Theory
  - SIAM Journal on Discrete Mathematics