

Sogol Jahanbekam

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Research Interests

Extremal and Structural Graph Theory
Algebraic Methods in Graph Theory
Probabilistic Methods in Combinatorics

Education

Ph.D., Mathematics (August 2013)
University of Illinois at Urbana-Champaign
Advisor: Professor Douglas B. West
Dissertation: Extremal problems for labeling of graphs and distance in digraphs

M.S., Mathematics (August 2008)
Sharif University of Technology
Advisor: Professor Saieed Akbari
Dissertation: Signed edge domination number of graphs

B.S., Applied Mathematics (May 2006)
Shiraz University

Employment History

Fall 2018-Present: Assistant Professor, San Jose State University

Fall 2016-Summer 2018: Assistant Professor, Rochester Institute of Technology

Fall 2015-Summer 2016: Visiting Assistant Professor, University of Colorado Denver

Fall 2013-Summer 2015: Research Assistant Professor, University of Colorado Denver

Publications

Submitted

1. Caroline Accurso, Vitaliy Chernyshov, Leaha Hand, Sogol Jahanbekam, Paul Wenger, Weak Dynamic Coloring of Planar Graphs, submitted.

2. M. Ferrara, Z. Füredi, S. Jahanbekam, P. Wenger, List-distinguishing Cartesian Products of Cliques, submitted.
3. S. G. Hartke, S. Jahanbekam, and B. Thomas, The chromatic number of the square of subcubic planar graphs, submitted
4. A. Brandt, J. Diemunsch, and S. Jahanbekam, Bounds for the lucky choice number of planar graphs with specified girth, submitted.
5. Z. Berikkyzy, A. Brandt, S. Jahanbekam, V. Larsen, and D. Rorabaugh, Antimagic labeling of weighted and oriented graphs, submitted.
6. P. DeOrsey, J. Diemunsch, M. Ferrara, N. Graber, S. G. Hartke, S. Jahanbekam, B. Lidicky, L. Nelsen, D. Stolee and E. Sullivan, On the strong chromatic index of sparse graphs, submitted.

Published

7. S. Jahanbekam and D. B. West, Anti-Ramsey problems for t edge-disjoint rainbow spanning subgraphs: cycles, matchings, or trees, *Journal of Graph Theory*, y 82 (2016), 75–89.
8. S. Jahanbekam and D. B. West, Rainbow spanning subgraphs of small diameter in edge-colored complete graphs, *Graphs and Combinatorics*, 32 (2016), 707–712.
9. S. Jahanbekam, J. Kim, S. O, and D. B. West, On r -dynamic coloring of graphs, *Discrete Applied Mathematics*, Discrete Appl. Math. 206 (2016), 65–72.
10. J. Diemunsch, M. J. Ferrara, S. Jahanbekam, and J. Shook, Extremal theorems for degree sequence packing and the 2-color discrete tomography problem, *SIAM Journal of Discrete Mathematics*, 29 (2015), no. 4, 2088–2099.
11. D. B. Cranston, S. Jahanbekam, D. B. West, 1,2,3-Conjecture and 1,2-Conjecture for sparse graphs, *Discussiones Mathematicae Graph Theory*, 34 (2014), 769–799.
12. S. Akbari, M. Ghanbari, and S. Jahanbekam, On the dynamic coloring of strongly regular graphs, *Ars Combinatoria* 113, 205–210, (2014).
13. S. Akbari, M. Ghanbari, and S. Jahanbekam, On the dynamic coloring of Cartesian product graphs, *Ars Combinatoria* 114, 161–168, (2014).
14. C. Biró, Z. Füredi, and S. Jahanbekam, Large chromatic number and Ramsey graphs, *Graphs and Combinatorics*, Volume 29, Issue 5, 1183–1191 (2013).
15. S. Jahanbekam and D. B. West, New lower bounds for matching numbers of general and bipartite graphs, *Congressus Numerantium* 218, 57–59 (2013).
16. S. Akbari, M. Ghanbari, and S. Jahanbekam, On the dynamic chromatic number of graphs, *Combinatorics and graphs*, 11–18, Contemp. Math., Amer. Math. Soc., Providence, RI, (2010).
17. S. Akbari, A. Doni, M. Ghanbari, S. Jahanbekam, and A. Saito, List coloring of graphs with cycles of length divisible by a given integer, *Combinatorics and graphs*, 117–125, Contemp. Math., Amer. Math. Soc., Providence, RI, (2010).
18. S. Akbari, M. Ghanbari, S. Jahanbekam, On the List dynamic coloring of graphs, *Discrete Applied Mathematics*, 309, 613–614 (2009). ([ranked third in Science Direct TOP25 Hottest Articles July - September 2009](#))

19. S. Akbari, M. Ghanbari, S. Jahanbekam, and M. Jamaali, List coloring of graphs having cycles of length divisible by a given number, *Discrete Mathematics*, Volume 309, Issue 3, 613–614 (2009).
20. S. Jahanbekam, Two classes of edge domination in graphs, *Discrete Applied Mathematics*, Vol. 157, Issue 2, 400–401 (2009) (counterexample to a paper by B. Xu in *Discrete Applied Mathematics*).

Conference Papers

21. P. K. Gopalakrishnan, H. Kein, S. Jahanbekam, S. Behdad, Graph Partitioning Technique to Identify Physically Integrated Design Concepts, *Proceedings of the ASME 2018 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference IDETC/CIE 2018* August 26–29, 2018, Quebec, Canada.

Teaching

Instructor (Full Course Responsibility)

San Jose State University

- Fall 2018 Discrete Mathematics (MATH 42-6)
- Fall 2018 Discrete Mathematics (MATH 42-7)
- Fall 2018 Discrete Mathematics (MATH 42-9)

Instructor (Full Course Responsibility)

Rochester Institute of Technology

- Spring 2018 Discrete Mathematics and Introduction to Proof Introduction to Proof (MATH 200)
- Fall 2017 Graduate Graph Theory (Math 645)
- Fall 2017 Discrete Math for Computing (MATH 190)
- Spring 2017 Combinatorics (MATH 361)
- Spring 2017 Discrete Math for Computing (MATH 190)
- Fall 2016 Discrete Math for Computing (MATH 190)

Instructor (Full Course Responsibility)

University of Colorado Denver

- Spring 2016 Linear Algebra (MATH 3191-1)
- Spring 2016 Linear Algebra (MATH 3191-3)
- Spring 2016 Precalculus (MATH 1130)
- Fall 2015 Calculus III (MATH 2421)
- Fall 2015 Precalculus (MATH 1130-8)
- Fall 2015 Precalculus (MATH 1130-9)
- Spring 2015 Linear Algebra Differential Equations (MATH 3195-2)
- Spring 2015 Linear Algebra Differential Equations (MATH 3195-3)
- Fall 2014 Topics in Discrete Math. (Probabilistic Methods) (MATH 7823)
- Fall 2014 Applied Linear Algebra (MATH 3191)
- Spring 2014 Discrete Mathematical Modeling (MATH 4793)
- Spring 2015 Applied Linear Algebra (MATH 3191)
- Fall 2013 Applied Linear Algebra (MATH 3191)
- Fall 2013 Applied Graph Theory (MATH 4408)

Teaching Assistant

University of Illinois at Urbana-Champaign

Spring 2011 Calculus I (MATH 220)
 Fall 2010 Calculus I (MATH 220)
 Fall 2010 Calculus I (MATH 220)

Invited Talks

Weak dynamic coloring of graphs, AMS Sectional Meeting, April 21, 2018, Northeastern University, Boston, Massachusetts.

Minimum number of edges in digraphs with specified diameter, AMS Sectional Meeting, October 30, 2016, University of St. Thomas (Minneapolis campus), Minneapolis, Minnesota.

Coloring squares of planar graphs, AMS Sectional Meeting, April 16, 2016, North Dakota State University, Fargo, North Dakota, USA.

Size of digraphs with specified diameter, AMS Western Sectional Meeting, April 9, 2016, Salt Lake City, Utah, USA.

On the strong chromatic index of sparse graphs, Joint Mathematics Meeting, January 7, 2016, Seattle, Washington.

The discharging method, Rocky Mountain-Great Plains Graduate Research Workshop in Combinatorics, June 9, 2015, Ames, Iowa, USA.

Antimagic-type labelings, Rocky Mountain-Great Plains Graduate Research Workshop in Combinatorics, July 30, 2014, Denver, Colorado, USA.

Some problems in anti-Ramsey theory, Emory University Combinatorics Seminar, November 1, 2013, Atlanta, Georgia, USA.

Minimum number of edges in digraphs with specified weak diameter, Graduate Student Combinatorics Conference, April 21, 2013, University of Minnesota, Twin Cities, USA.

r -dynamic coloring of graphs, Alfréd Rényi Institute of Mathematics, May 9, 2012, Budapest, Hungary.

On large regular subgraphs for the prime case, Alfréd Rényi Institute of Mathematics, April 4, 2012, Budapest, Hungary.

Large chromatic number and ramsey graphs, Graphs and Algorithms Conference, June 2, 2011, IPM, Tehran, Iran.

Contributed Talks

Minimum number of edges in digraphs with specified weak diameter, Joint Mathematics Meeting, January 9, 2015, San Antonio, Texas, USA.

Rainbow spanning subgraphs in edge-colored complete graphs, MIGHTY LIV Conference, April 6, 2013, Miami University, Oxford, Ohio, USA.

1,2,3-Conjecture and 1,2-Conjecture for sparse graphs, Midwestern Graph Theory (MIGHTY) LIII Conference, September 22, 2012, Iowa State University, Ames, USA.

Selected Local Seminars

Some Applications of the Combinatorial Nullstellensatz and the Discharging Method, November 8, 2016, CACM Seminar, RIT, Rochester, New York.

Anti-Ramsey numbers of four families of graphs, UCD Combinatorics Seminar, September 15, 2013, Denver, Colorado, USA.

Rainbow spanning subgraphs in edge-colored complete graphs, UIUC Combinatorics Seminar, Feb 19, 2013, Urbana, Illinois, USA.

$1,2,3$ -Conjecture and $1,2$ -Conjecture for sparse graphs, Women in Math seminars, September 20, 2012, University of Illinois, Urbana-Champaign, USA.

Application of Combinatorial Nullstellensatz to graph factors and the $1,2$ -Conjecture, Women in Math seminars, February 7, 2012, University of Illinois, Urbana-Champaign, USA.

Honors

Dissertation Completion Fellowship from Graduate College, University of Illinois at Urbana-Champaign for academic year 2012-2013.

3rd Abel Conference Travel Grant, November 2012.

Graduate Student Combinatorics Conference Grant, Minneapolis, Minnesota, April 2013.

Invited to visit Alfréd Rényi Institute of Mathematics (March 8 - May 17, 2012).

Elected to "Brilliant Talents", Sharif University of Technology, 2008.

Placed 9th among around 10000 participants in M.S nationwide entrance exam, 2006, Iran.

Elected to "Brilliant Talents" Shiraz University, 2006.

Service

Masters Committee Member, Anna Raleigh, Rochester Institute of Technology.

Co-Organizer, Fall Eastern Sectional Meeting, September 16-17, 2017, Buffalo, USA.

Masters Committee Member, Tyler Hayes, Rochester Institute of Technology.

Tutoring, Bates Center, RIT, Fall 2016, Spring 2017,

Judge, Julia Robinson Math Festival Math Wrangle, September 11, 2015, Denver, USA.

Co-Organizer, Rocky Mountain-Great Plains Graduate Research Workshop in Combinatorics, July 27-August 9, 2014, Denver, USA.

Co-Organizer, Graph Theory Seminar, University of Colorado Denver.

PhD Committee Member, Axel Brandt, University of Colorado Denver.

Masters Committee Member, Kapil Nepal, University of Colorado Denver.

Referee, refereeing for Discrete Mathematics, Discrete Applied Mathematics, Ars Combinatoria, Discussiones Mathematicae Graph Theory, and Graphs and Combinatorics.

Awarded Grants

External Grants

Sogol Jahanbekam, PI, NSF, Collaborative Research: Computationally Efficient Graph Coloring Techniques for Generating Physically Integrated Design Concepts: Implications for Additive Manufacturing, 9/2017-9/2020, \$167,578. **(awarded)**

Internal Grants

Sogol Jahanbekam, PI, Research Seed Funding, Applications of three Techniques in Graph Theory: The Discharging Method, The Combinatorial Nullstellensatz, and Computational Techniques, Summer 2017, \$5000. **(awarded)**

Last updated: September 4, 2018