

# MIKHAIL LAVROV

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- Research interests** Probabilistic and extremal combinatorics, Ramsey theory, and random graphs.
- Affiliation** J.L. DOOB POSTDOC, University of Illinois at Urbana-Champaign.  
August 2017–present.
- Education** CARNEGIE MELLON UNIVERSITY, Pittsburgh, Pennsylvania.  
Ph.D., Mathematics, 2017.
- DUKE UNIVERSITY, Durham, North Carolina.  
Bachelor of Science, Mathematics, 2011.  
Bachelor of Arts, Computer Science, 2011.  
Graduated with High Distinction in Mathematics; GPA 3.821.
- Publications** *Making  $K_{r+1}$ -free graphs  $r$ -partite*  
(with J. Balogh, F. Clemen, B. Lidický, and F. Pfender) Submitted.
- Long monochromatic paths and cycles in 2-edge-colored graphs with large minimum degree*  
(with J. Balogh, A. Kostochka, and X. Liu) Submitted.
- Long monochromatic paths and cycles in 2-edge-colored multipartite graphs*  
(with J. Balogh, A. Kostochka, and X. Liu) Submitted.
- Monochromatic connected matchings in 2-edge-connected multipartite graphs*  
(with J. Balogh, A. Kostochka, and X. Liu) Submitted.
- Ordered size Ramsey number of paths*  
(with J. Balogh, F. Clemen, and E. Heath) Discrete Applied Mathematics, in press.
- Monochromatic Hilbert cubes and arithmetic progressions*  
(with J. Balogh, G. Shakan, and A. Wagner) Electron. J. Comb. **26** (2019).
- Distance-uniform graphs with large diameter*  
(with P. Loh and A. Messegué) SIAM J. Discrete Math **33** (2019), 994–1005.
- An upper bound for the Hales–Jewett number  $HJ(4, 2)$*   
(single author) SIAM J. Discrete Math **30** (2016), 1333–1342.
- Increasing Hamiltonian paths in random edge orderings*  
(with P. Loh), Rand. Struct. Algo. **48** (2016), 588–611.
- Improved upper and lower bounds on a geometric Ramsey problem*  
(with M. Lee and J. Mackey), European J. Combin. **42** (2014), 135–144.
- On the game chromatic number of sparse random graphs*  
(with A. Frieze and S. Haber), SIAM J. Discrete Math **27** (2013), 768–790.

*On the  $S^1 \times S^2$  HOMFLY-PT invariant and Legendrian links*  
(with D. Rutherford), J. Knot Theory Ramifications **22** (2013), 1350040.

*Generalized normal rulings and invariants of Legendrian solid torus links*  
(with D. Rutherford), Pacific J. Math. **258** (2012), 393–420.

## Awards

UIUC List of teachers ranked as excellent (Fall 2017 for Math 484; Spring 2018 for Math 412 and Math 484; Spring 2019 for Math 482 and Math 484.)

Honorable mention in the William L. Putnam Math Competition (2008, 2009); member of 6<sup>th</sup> place team (2009).

Karl Menger Award from Duke University (2010). Freshman Julia Dale Prize from Duke University (2008). Recipient of Duke University's NC Mathematics Contest Scholarship (full tuition, 2007–2011).

## Teaching Experience

Classes taught at the University of Illinois at Urbana-Champaign:

- Math 412: Introduction to Graph Theory (Spring 2018)
- Math 482: Linear Programming (Spring 2019, Fall 2019)
- Math 484: Nonlinear Programming (Fall 2017, Spring 2018, Fall 2018, Spring 2019)

ACADEMIC COORDINATOR (2016, 2019), MENTOR (2014, 2015, 2017), and FACULTY (2018) at Canada/USA Mathcamp.

HEAD COACH (2015–2017) and COACH (2011–2014) of the Western Pennsylvania ARML math team.

TEACHING ASSISTANT for the Carnegie Mellon Mathematics department:

- Discrete Mathematics (Spring 2013, Spring 2015, Fall 2016, Spring 2017)
- Matrix Theory (Fall 2015, Spring 2016)
- Models and Methods for Optimization (Spring 2014)
- Matrix Algebra (Spring 2012)
- Calculus (Fall 2011)

STUDENT INSTRUCTOR (2010) in mathematical problem solving at Duke University.

## Invited Talks

Combinatorics seminar, University of California San Diego. (November 2019)

AMS sectional meeting, Riverside, CA. (November 2019)

AMS sectional meeting, Gainesville, FL. (November 2019)

AMS sectional meeting, Madison, WI. (September 2019)

Graph theory and combinatorics seminar, University of Illinois Urbana-Champaign. (Spring 2017, Fall 2017, Fall 2018, Fall 2019)

Discrete mathematics seminar, Illinois State University. (2018, 2019)

Discrete seminar, Illinois Institute of Technology. (2018)

AMS sectional meeting, Columbus, OH. (2018)

Colloquium, Canada/USA Mathcamp. (2017, 2018)

Discrete mathematics seminar, Princeton University. (2017)

Undergraduate math club, Carnegie Mellon University. (2016)

Algorithms, combinatorics, and optimization seminar, Carnegie Mellon University. (2016)

Undergraduate math club, Carnegie Mellon University. (2015)

Graduate student seminar, Carnegie Mellon University. (2014)

SIAM conference on Discrete Mathematics, Minneapolis, MN. (2014)

Graduate student seminar, Carnegie Mellon University. (2013)

Conference on random structures and algorithms, Poznań, Poland. (2013)

Algorithms, combinatorics, and optimization seminar, Carnegie Mellon University. (2013)

Graduate student seminar, Carnegie Mellon University. (2012)