

WILLIAM B. KINNERSLEY

CONTACT INFORMATION

Department of Mathematics
University of Rhode Island
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RESEARCH INTERESTS

Games on graphs, graph algorithms and complexity, extremal graph theory

POSITIONS HELD

Associate Professor,
University of Rhode Island, Kingston, RI, USA
2020-present

Assistant Professor,
University of Rhode Island, Kingston, RI, USA
2014-2020

Postdoctoral Fellow,
Ryerson University, Toronto, Canada,
2012-2014

EDUCATION

PhD in Mathematics,
University of Illinois at Urbana-Champaign, Urbana, IL, Aug. 2012
Thesis title: Degree Ramsey theory, Game and Roman Domination, and Game Saturation in Graphs
Thesis advisor: Douglas B. West

MCS in Computer Science,
University of Illinois at Urbana-Champaign, Urbana, IL, Dec. 2006

BS in Computer Science, magna cum laude,
Washington University in St. Louis, St. Louis, MO, May 2004
Additional majors: Mathematics, Classics

PEER-REVIEWED PUBLICATIONS

The hub number of a graph (with T. Grauman, S.G. Hartke, A. Jobson, D.B. West, L. Wigglesworth, P. Worah, and H. Wu) *Info. Proc. Lett.* 108 (2008) 226–228.

Extremal problems for Roman domination (with E.W. Chambers, N. Prince, and D.B. West), *SIAM J. Discrete Math.* 23 (2009), 1575–1586.

On-line Ramsey theory for bounded-degree graphs (with J. Butterfield, T. Grauman, K.G. Milans, C. Stocker, and D.B. West), *Electron. J. Combin.* 18 (2011), P136.

Degree Ramsey numbers of graphs (with K.G. Milans and D.B. West), *Combinatorics, Probability, and Computing* 21 (2012), 229–253.

Multicolor on-line degree Ramsey numbers of trees (with D.B. West), *J. Combinatorics* 3 (2012), 91–100.

PEER-REVIEWED
PUBLICATIONS
(CONT.)

- Chain-making games in grid-like posets (with D.W. Cranston, K.G. Milans, G.J. Puleo, and D.B. West), *J. Combinatorics* 3 (2012), 633–649.
- Game matching number of graphs (with D.W. Cranston, S. O, and D.B. West), *Discrete Applied Math.* 161 (2013), 1828–1836.
- New results in t -tone coloring of graphs (with D.W. Cranston and J. Kim), *Electron. J. Combin.* 20 (2013), Paper P17.
- The capture time of the hypercube (with A. Bonato, P. Gordinowicz, and P. Prałat), *Electon. J. Combin.* 20 (2013), Paper P24.
- The robber strikes back (with A. Bonato, S. Finbow, P. Gordinowicz, A. Haidar, D. Mitsche, P. Prałat, and L. Stacho), in *Proc. of ICC3*, 2013.
- A note on the acquaintance time of random graphs (with D. Mitsche and P. Prałat), *Electron. J. Combin.* 20 (2013), Paper P52.
- Extremal problems for game domination number (with D.B. West and R. Zamani), *SIAM J. Discrete Math.* 27 (2013), 2090–2017.
- Spanning paths in Fibonacci-sum graphs (with K. Fox, D. McDonald, N. Orlow, and G.J. Puleo), *Fibonacci Quarterly* 52 (2014), 46–49.
- Toppling numbers of complete and random graphs (with A. Bonato and P. Prałat), *Discrete Math. and Theoretical Computer Science* 16:3 (2014), 229–252.
- Cops and Robbers is EXPTIME-complete, *Journal of Combinatorial Theory, Series B* 111 (2015), 201–220.
- Lazy Cops and Robbers on hypercubes (with D. Bal, A. Bonato, and P. Prałat), *Combinatorics, Probability, and Computing*, 24 (2015), 829–837.
- To catch a falling robber (with P. Prałat and D.B. West), *Theoretical Computer Science* 627 (2016), 107–111.
- Game brush number (with P. Prałat), *Discrete Applied Math.* 207 (2016), 1–14.
- Domination game: a proof of the 3/5-Conjecture for graphs with minimum degree at least two (with M. A. Henning), *SIAM J. Discrete Math.* 31 (2016), 20–35.
- Lazy Cops and Robbers played on random graphs and graphs on surfaces (with D. Bal, A. Bonato, and P. Prałat), *J. Combinatorics* 7 (2016), 627–642.
- The game saturation number of graphs (with J.M. Carraher, B. Reiniger, and D.B. West), *J. Graph Theory* 85 (2017), no. 2, 481–495.
- Bounds on the length of a game of Cops and Robbers, *Discrete Math.* 341 (2018), 2508–2518.
- Fully-active cops and robbers (with I. Gromovikow and B. Seamone), *Australas. J. Combin.* 76 (2020), no. 2, 248–265.
- Bounds on the localization number (with A. Bonato), *J. Graph Theory* 94 (2020), no. 4, 579–596.
- Rainbow Spanning Trees in Abelian Groups (with R.E. Jamison), accepted to *J. Algebraic Combin.*
- Cops, robbers, and burning bridges (with E. Peterson), accepted to *J. Combin..*
- The game of weak directed cops and robbers (with E. Peterson), submitted.
- Catching a fast robber on a grid (with N. Townsend), submitted.

INVITED TALKS

- “Infinitely fast robbers on grids”
8th CanaDAM Conference, online, May 25, 2021
- “Cops and lawless robbers”
7th CanaDAM Conference, Simon Fraser University, Vancouver, May 29, 2019
- “Slow cops and fast robbers”
Plenary talk, GrasCAN Workshop 2018, University of Regina, August 7, 2018
- “The localization game on graphs”
2018 International Workshop on Graph Theory, Ewha Woman’s University, Seoul, January 5, 2018
- “Bounds on the capture time of graphs”
6th CanaDAM Conference, Ryerson University, Toronto, June 13, 2017
- “Saturation games on graphs”
AMS fall sectional meeting, Bowdoin University, September 24, 2016
- “Fully-active Cops and Robbers”
SIAM Conference on Discrete Math, June 8, 2016
- “How many cats does it take to catch a mouse?”
3rd Workshop on Graph Searching in Canada, U. de Montreal, May 28, 2015
Shortened version presented at 27th European Conference on Operational Research, U. of Strathclyde, Glasgow, July 15, 2015
- “The computational complexity of Cops and Robbers,”
Keynote talk, 6th Workshop on Graph Searching, Theory, and Applications, Institut d’Etudes Scientifiques of Cargèse, Corsica, March 31st, 2014
Shortened version presented at SIAM Conf. on Discrete Math, June 19, 2014
- “Degree Ramsey and on-line degree Ramsey numbers,”
U. Montana Comb. and Optimization seminar, March 19, 2013
- “The game of Cops and Robbers,”
U. Montana Math Dept. Colloquium, March 18, 2013
U. Memphis Math Dept. Colloquium, April 4, 2013
- “Degree Ramsey numbers of double-stars,”
AMS Fall Central Section Meeting, October 15, 2011
- “ t -tone coloring of graphs,”
AMS Fall Southeastern Section Meeting, September 24, 2011

CONTRIBUTED TALKS

Talks given at URI discrete math seminar:

- “Martingales and Random Graphs,” March 30, 2018
- “Bounds on the length of a game of Cops and Robbers,” Oct. 20, 2017
- “Two variants of Cops and Robbers,” Oct. 28, 2016
- “Random-player Maker-Breaker games,” Oct. 30, 2015
- “Degree Ramsey and on-line degree Ramsey numbers,” Sept. 19, 2014

“The computational complexity of Cops and Robbers,”
Graphs @ Ryerson seminar, October 28, 2013

CONTRIBUTED
TALKS (CONT.)

- “How long does it take to catch a robber?”
4th Canadian Discrete and Algorithmic Mathematics Conference, Memorial
University of Newfoundland, June 12, 2013
- “The capture time of the hypercube,”
GrasCAN Workshop 2013, Ryerson University, Toronto, April 27, 2013
- “Degree Ramsey and on-line degree Ramsey numbers,”
Clemson University algebra and discrete math seminar, May 31, 2012
Graphs @ Ryerson seminar, October 17, 2012
- “Rainbow spanning trees in Abelian groups,”
25th Cumberland Conf. on Comb., Graph Thy., and Comp., May 11, 2012
52nd Midwestern Graph Theory Conference, April 28, 2012
- “Chain games on posets,”
UIUC combinatorics seminar, October 25, 2011
- “Degree Ramsey numbers of trees,”
24th Cumberland Conf. on Comb., Graph Thy., and Comp., May 14, 2011
- “Extremal problems in game domination,”
7th Graduate Student Comb. Conf., Penn State University, April 9, 2011
51st Midwestern Graph Theory Conference, April 16, 2011
- “Degree Ramsey numbers of stars and double-stars,”
24th Midwestern Conf. on Comb., Crypt., and Comp., September 11, 2010
UIUC combinatorics seminar, August 31, 2010

EXPOSITORY
TALKS

- “Cops vs. Robbers and the Probabilistic Method,”
U. Rhode Island Pi Mu Epsilon induction ceremony, April 29, 2015

TEACHING
EXPERIENCE

Assistant/Associate Professor, University of Rhode Island

- Math 141: “Calculus I” (Sp. ’19)
Math 142: “Calculus II” (Fall ’14, Fall ’16 - Fall ’21*)
Math 215: “Introduction to Linear Algebra” (Fall ’19)
Math 243: “Calculus III” (Sp. ’17, Fall ’20, Fall ’21)
Math 447: “Discrete Mathematical Structures” (Sp. ’15, Fall ’15, Fall ’16, Fall
’17 - Fall ’18, Sp. ’20)
Math 451: “Intro. to Probability and Statistics” (Fall ’14 - Sp. ’16, Sp. ’21)
Math 547: “Combinatorics” (Sp. ’16)
Math 590: “Special Topics: Game Theory” (Fall ’20)
(served as course coordinator during these semesters)*

Postdoctoral Fellow, Ryerson University

- Math 110: “Discrete Mathematics I” (Sp. ’14)
Math 131: “Modern Mathematics I” (Fall ’13, Sp. ’14)
Math 108: “Linear Algebra” (Fall ’13)
Math 141: “Linear Algebra” (Fall ’12)

TEACHING
EXPERIENCE
(CONT.)

Graduate Teaching Assistant, UIUC

Math 124: “Finite Mathematics” (Fall ’10*, Fall ’11*)

Math 231: “Calculus II” (Fall ’08, Sp. ’10, Sp. ’11*)

Math 181: “A Mathematical World” (Fall ’09*)

Math 234: “Calculus for Business I” (Sp. ’09)

Math 220: “Calculus” (Fall ’07)

Computer Science 225: “Data Structures” (Sp. ’05, Fall ’05, Sp. ’06, Su. ’06, Fall ’06, Sp. ’07)

Computer Science 232: “Computer Architecture II” (Fall ’04)

(* denotes a standalone teaching assignment)

TEACHING
WORKSHOPS
ATTENDED

ATL Hybrid Online Bootcamp, July 12-19, 2020

ATL Online Pedagogy, Feb. 10 - March 2, 2020

Rhode Island Teaching and Learning Network Course Design Institute, June 3-7, 2019

MAJOR COURSE
INITIATIVES

Transitioned Math 142 to WeBWorK open-source online homework system (Summer ’21)

Submitted successful proposal to offer Math 142 online (Fall ’20)

Developed comprehensive course site, videos, and assessments for online asynchronous offerings of Math 142 (Summer ’20)

PROFESSIONAL
SERVICE

Co-organizer, Discrete Math Days of the Northeast, September 29, 2018

Organizer, Minisymposium on Pursuit-Evasion Games on Graphs, 6th Canadian Discrete and Algorithmic Mathematics Conference, June 12-15, 2017

Co-organizer, 8th Graduate Student Combinatorics Conference, April 13-15, 2012

Editorial board, *Utilitas Mathematica*

Referee for over 70 papers across numerous journals and conferences, including *Combinatorica*, *Discrete Mathematics*, *Discrete Applied Mathematics*, *Graphs and Combinatorics*, *SIAM Journal on Discrete Mathematics*, *Algorithmica*, and *Theoretical Computer Science*

Reviewer for AMS Math Reviews and Zentralblatt MATH

AWARDS AND
HONORS

Named to “Incomplete List of Teachers Rated Excellent”, UIUC (Fall 2006, Fall 2008, Spring 2009, Fall 2009, Spring 2010, Spring 2011, Fall 2011)
Recognized for “outstanding ratings”, Fall 2008

Research Experiences for Graduate Students Fellowship, UIUC (Summer 2008, Summer 2009, Summer 2010, Summer 2011)