

CURRICULUM VITAE OF DAVID GALVIN, JANUARY 9, 2019

Department of Mathematics, University of Notre Dame
255 Hurley Hall, Notre Dame IN 46556
dgalvin1@nd.edu, <http://nd.edu/~dgalvin1/>

RESEARCH INTERESTS

- * Discrete probability, combinatorics and graph theory; in particular, the applications of combinatorial ideas to the study of phase transitions in statistical physics models, the efficiency of algorithms in theoretical computer science, and long-range correlations in discrete random structures

EDUCATION

- * Ph.D. in Mathematics, Rutgers, The State University of New Jersey, 10/2002
(advisor: Jeff Kahn)
- * Part III of Mathematical Tripos (M. Math.), Peterhouse, University of Cambridge, 06/1996
- * B.A. in Mathematics, Peterhouse, University of Cambridge, 06/1995

EMPLOYMENT

Regular positions.

- * Associate Professor, Department of Mathematics, University of Notre Dame, 07/2013–present
- * Assistant Professor, Department of Mathematics, University of Notre Dame, 07/2007–06/2013
- * Lecturer, Department of Mathematics, University of Pennsylvania, 07/2005–06/2007
(mentor: Robin Pemantle)
- * Member, School of Mathematics, IAS, Princeton, 09/2004–08/2005
(group leader: Avi Wigderson)
- * Postdoctoral Researcher, Theory Group, Microsoft Research, 07/2002–07/2004
(managers: Jennifer Chayes & Christian Borgs)

Visiting positions.

- * REGS (Research Experience for Graduate Students) official visitor,
Department of Mathematics, University of Illinois at Urbana-Champaign, 06/2011
- * Visiting Fellow, Isaac Newton Institute, University of Cambridge, 06/2008
- * Member, MSRI, Berkeley, 01–02/2005
- * Auxiliary Faculty, Department of Mathematics, University of Washington, 08–12/2003

RESEARCH PAPERS

In preparation.

- * Ordered partitions and the thinned exponential function (\bar{w} J. Engbers & C. Smyth)

Unless otherwise specified, all articles listed below are posted on the arXiv preprint server at
http://arxiv.org:443/find/math/1/au:+Galvin_D/0/1/0/all/0/1

2019.

- * Independent sets in the discrete hypercube (expository)
arXiv:1901.01991
- * Independent set and matching permutations (\bar{w} T. Ball, K. Hyry and K. Weingartner)
- * Phase Coexistence for the Hard-Core Model on \mathbb{Z}^2 (\bar{w} A. Blanca, Y. Chen, D. Randall & P. Tetali),
Combin. Probab. Comput., doi:10.1017/S0963548318000238
- * The game of plates and olives (\bar{w} T. Carroll)
Electron. J. Combin., to appear
- * Restricted Stirling and Lah number matrices and their inverses (\bar{w} J. Engbers & C. Smyth),
J. Combin. Theory Ser. A, vol 161 (2019), 271–298

2018.

- * Total non-negativity of generalized Stirling matrices (\bar{w} . A. Pacurar)
submitted 9/2018
- * Cutting lemma and Zarankiewicz's problem in distal structures (\bar{w} . A. Chernikov & S. Starchenko),
submitted 8/2018
- * The independent set sequence of some families of trees (\bar{w} . J. Hilyard),
Australas. J. Combin. vol 70 (2018), 236–252

2017.

- * Extremal H -colorings of trees and 2-connected graphs (\bar{w} . J. Engbers),
J. Combin. Theory Ser. B vol 122 (2017), 800–814

2016.

- * Guest editors' foreword (\bar{w} . D. Chakrabarty),
Theory Comput. vol 12 (2016), Article 8 (Special issue: **APPROX-RANDOM** 2014)
- * On the independence ratio of distance graphs (\bar{w} . J. Carragher, S. Hartke, J. Radcliffe & D. Stolee),
Discrete Math. vol 339 (2016), 3058–3072
- * Asymptotic normality of some graph sequences,
Graphs Combin. vol 32 (2016), 639–647

2015.

- * Phase coexistence and torpid mixing in the 3-coloring model on \mathbb{Z}^d (\bar{w} . J. Kahn, D. Randall & G. Sorkin),
SIAM J. Discrete Math. vol 29 (2015), 1223–1244
- * Counting colorings of a regular graph,
Graphs Combin. vol 31 (2015), 629–638
- * Combinatorially interpreting generalized Stirling numbers (\bar{w} . J. Engbers & J. Hilyard),
European J. Combin. vol 43 (2015), 32–54

2014.

- * Three tutorial lectures on entropy and counting,
arXiv:1406.7872
- * Counting independent sets of a fixed size in graphs with a given minimum degree (\bar{w} . J. Engbers),
J. Graph Theory vol 76 (2014), 149–168

2013.

- * Phase Coexistence and Slow Mixing for the Hard-Core Model on \mathbb{Z}^2 (\bar{w} . A. Blanca, D. Randall, P. Tetali),
Lecture Notes in Comput. Sci. vol 8096 (**Proc. APPROX/RANDOM 2013**) (2013), 379–394
- * Stirling numbers of forests and cycles (\bar{w} . Do Trong Thanh),
Electron. J. Combin. vol 20 (2013), #P73
- * Maximizing H -colorings of regular graphs,
J. Graph Theory vol 73 (2013), 66–84

2012.

- * H -coloring tori (\bar{w} . J. Engbers),
J. Combin. Theory Ser. B vol 102 (2012), 1110–1133
- * The independent set sequence of regular bipartite graphs,
Discrete Math. vol 312 (2012), 2881–2892
- * H -colouring bipartite graphs (\bar{w} . J. Engbers),
J. Combin. Theory Ser. B vol 102 (2012), 726–742
- * Reverse Mathematics and infinite traceable graphs (\bar{w} . P. Cholak and R. Solomon),
Math. Log. **Q.** vol 58 (2012), 18–28

2011.

- * Two problems on independent sets in graphs,
Discrete Math. vol 311 (2011), 2105–2112
- * The multi-state hard core model on a regular tree (\bar{w} . F. Martinelli, K. Ramanan and P. Tetali),
SIAM J. Discrete Math. vol 25 (2011), 894–916
- * The number of independent sets in a graph with small maximum degree (\bar{w} . Y. Zhao),
Graphs Combin. vol 27 (2011), 177–186
- * A threshold phenomenon for random independent sets in the discrete hypercube,
Combin. Probab. Comput. vol 20 (2011), 27–51

2002-2010.

- * An upper bound for the number of independent sets in regular graphs,
Discrete Math. vol 309 (2009), 6635–6640
- * Matchings and Independent Sets of a Fixed Size in Regular Graphs (\bar{w} . T. Carroll and P. Tetali),
J. Combin. Theory Ser. A vol 116 (2009), 1219–1227
- * Sampling independent sets on the discrete torus,
Random Structures Algorithms vol 33 (2008), 356–376
- * Sampling 3-colourings of regular bipartite graphs,
Electron. J. Probab. vol 12 (2007), 481–497
- * Torpid Mixing of Local Markov Chains on 3-Colorings of the Discrete Torus (\bar{w} . D. Randall),
Proc. ACM–SIAM SODA (2007), 376–384
- * Bounding the partition function of spin systems,
Electron. J. Combin. vol 13 (2006), #R72
- * Slow mixing of Glauber dynamics for the hard-core model on regular bipartite graphs (\bar{w} . P. Tetali),
Random Structures Algorithms vol 28 (2006), 427–443
- * Global connectivity from local geometric constraints for sensor networks with various wireless footprints (\bar{w} . R. D’Souza, C. Moore and D. Randall),
Proc. ACM–IEEE IPSN (2006), 19–26 (not on arXiv)
- * On weighted graph homomorphisms (\bar{w} . P. Tetali),
DIMACS Series in Discrete Mathematics and Theoretical Computer Science vol 63 (2004)
Graphs, Morphisms and Statistical Physics, 97–104
- * On phase transition in the hard-core model on \mathbb{Z}^d (\bar{w} . J. Kahn),
Combin. Probab. Comput. vol 13 (2004), 137–164
- * Slow mixing of Glauber dynamics for the hard-core model on the hypercube (\bar{w} . P. Tetali),
Proc. ACM–SIAM SODA (2004), 459–460 (not on arXiv)
- * Entropy and graph homomorphisms,
Oberwolfach Rep. vol 1 (2004), 30–32 (not on arXiv)
- * On homomorphisms from the Hamming cube to \mathbb{Z} ,
Israel J. Math. vol 138 (2003), 189–213
- * Two problems involving the notion of phase transition,
ProQuest Dissertations and Theses (2002) (not on arXiv)

GRANTS

Current.

- * Co-Principal investigator, NSF Conferences and Workshops in the Mathematical Sciences,
6h Lake Michigan Workshop on Combinatorics and Graph Theory,
01/01/2019–12/31/2019 \$11,600
- * Principal investigator, Simons Foundation Collaboration Grant for Mathematicians,

Exploring H-colorings of graphs,
09/01/2015–08/31/2020, \$7,000 per year

Pending.

- * Principal investigator, NSF standard grant in Combinatorics,
Enumerative questions in combinatorics,
09/01/2019–08/31/2022
- * Senior Personnel, NSF Focussed research grant
Collaborative Research: Computability-Theoretic Aspects of Combinatorics,
07/01/2019–06/30/2022

Previous.

- * Co-Principal investigator, NSF Conferences and Workshops in the Mathematical Sciences,
5th Lake Michigan Workshop on Combinatorics and Graph Theory,
01/01/2018–12/31/2018, \$10,000
- * Co-Principal investigator, IMA Participating Institution Conferences,
5th Lake Michigan Workshop on Combinatorics and Graph Theory,
04/2018, \$5,000
- * Co-Principal investigator, NSF Conferences and Workshops in the Mathematical Sciences,
Lake Michigan Workshops on Combinatorics and Graph Theory,
01/01/2017–12/31/2018, \$10,000
(Collaborative grant with Western Michigan University; initially only 2017 workshop at Western Michigan was funded)
- * Co-Principal investigator, NSF Conferences and Workshops in the Mathematical Sciences,
3rd–5th Lake Michigan Workshop on Combinatorics and Graph Theory,
01/01/2016–12/31/2018, \$15,000
(Collaborative grant with Western Michigan University and Purdue University; initially only 2016 workshop at Purdue was funded)
- * Co-Principal investigator, NSF Conferences and Workshops in the Mathematical Sciences,
2nd Lake Michigan Workshop on Combinatorics and Graph Theory,
01/01/2015–12/31/2015, \$7,650
- * Principal investigator, NSA MSP (Young Investigators Grant),
Structural and enumerative aspects of graph homomorphisms,
05/07/2013–05/06/2015, \$39,398 total
- * Principal investigator, Simons Foundation Collaboration Grant for Mathematicians,
Structural and enumerative aspects of graph homomorphisms,
09/01/2012–08/31/2013, \$35,000 total
(five year grant terminated after one year due to receipt of NSA grant)
- * Principal investigator, NSA MSP (Young Investigators Grant),
Phase transitions for spin models on percolation clusters,
03/07/2010–03/06/2012, \$29,302 total

HONORS AND AWARDS

- * Rev. Edmund P. Joyce C.S.C. Award for Excellence in Undergraduate Teaching,
University of Notre Dame, 05/2017
- * Father James L. Shilts/Doris and Gene Leonard Teaching Award, College of Science,
University of Notre Dame, 05/2016
- * Good Teaching Award, Department of Mathematics, University of Pennsylvania, 12/2006
- * Graduate School Fellowship, Rutgers, The State University of NJ, 08/2001–07/2002
- * Scholar of Peterhouse, University of Cambridge, 09/1993–06/1995
- * Represented Ireland at International Mathematical Olympiad, 07/1990

TEACHING

University of Notre Dame. (* indicates course chair)

- * Math 30530 (Introduction to Probability), spring 2019, fall 2013, fall 2012, fall 2011*, fall 2009
- * Math 10860 (Honors Calculus II) spring 2019, spring 2018
- * Math 10850 (Honors Calculus I) fall 2018, fall 2017
- * Math 10120 (Finite Mathematics), spring 2018*, spring 2017*, spring 2016*, spring 2014*, spring 2013
- * Math 60610 (Discrete Mathematics, graduate class), spring 2017, spring 2015, spring 2009
- * Math 60850 (Probability, graduate class), spring 2016
- * Math 40210 (Basic Combinatorics), fall 2015, spring 2015, spring 2014, fall 2012, spring 2012
- * Math 43900 (Problem Solving in Math), fall 2015, fall 2014, fall 2013
- * Math 30210 (Introduction to Operations Research), fall 2014, fall 2007
- * Math 10550 (Calculus I), fall 2011
- * Math 30440 (Introduction to Probability and Statistics), spring 2010*, spring 2009*, spring 2008
- * Math 20340 (Probability and Statistics for Life Sciences), fall 2009, fall 2008
- * Math 10560 (Calculus II), spring 2008

University of Pennsylvania.

- * Math 581 (Probabilistic Methods in Combinatorics, graduate class), spring 2007
- * Math 114 (Calculus II), spring 2007, fall 2006, fall 2005
- * Math 313/CSE 313 (Computational Linear Algebra), spring 2006
- * Math 430 (Introduction to Probability), fall 2005

University of Washington.

- * Math 324 (Calculus III), fall 2003

Rutgers, The State University of New Jersey.

- * Math 356 (Number Theory), summer 2001
- * Math 134 (Calculus I), Head Teaching Assistant fall 2000–spring 2001
- * Math 152 (Calculus II), summer 2000
- * Recitation instructor (various courses), fall 1997–spring 2000
- * Math 250 (Linear Algebra), summer 1998
- * Grader (300- and 400-level courses), fall 1996–spring 1997

PRESENTATIONS

Plenary talks.

- * *58th Midwest Graph Theory Conference*, Allendale MI, 10/06/2017 & 10/07/2017 (2 lectures)
- * *1st Lake Michigan Workshop on Combinatorics and Graph Theory*, Kalamazoo MI, 03/2014, tutorial speaker (3 lectures)

Colloquia.

- * Mathematics Colloquium, University of Nebraska, 10/20/2017
- * Combinatorics Superseminar, University of South Carolina, 03/16/2017
- * Undergraduate Colloquium, Loyola University, 10/26/2015
- * Mathematics Colloquium, Iowa State University, 11/04/2014
- * Mathematics Colloquium, University of North Carolina–Greensboro, 01/11/2013
- * Mathematics Colloquium, University of Nebraska, 03/02/2012
- * Mathematics Colloquium, Western Michigan University, 04/14/2011
- * Applied Mathematics Colloquium, Illinois Institute of Technology, 04/11/2011
- * Applied Mathematics Colloquium, University of Notre Dame, 04/28/2008
- * Mathematics Colloquium, Lehigh University, 11/15/2006
- * Mathematics Colloquium, George Washington University, 11/14/2003

General audience talks.

- * Science Exploration series, University of Notre Dame, 11/10/2018
- * Math for Everyone, University of Notre Dame, 2/22/2017
- * A Moment of Science, San Antonio TX, 11/10/2016

Invited conference talks.

- * *International Conference on Advances in Interdisciplinary Statistics and Combinatorics*, Greensboro NC, 10/2018, Session on Recent Results in Combinatorics
- * *AMS Sectional Meeting*, Columbus OH, 03/2018, Special Session on Probabilistic and Extremal Graph Theory
- * *AMS-MAA Joint Mathematics Meetings*, San Diego CA, 01/2018, Special Session on Emergent Phenomena in Discrete Models
- * *AMS Sectional Meeting*, Minneapolis MN, 10/2016, Special Session on Probabilistic and Extremal Combinatorics
- * *BIRS Workshop in Analytic and Probabilistic Combinatorics*, Banff AB, 10/2016
- * *AMS Sectional Meeting*, Fargo ND, 04/2016, Special Session on Extremal Graph Theory (40 minute talk)
- * *AMS Sectional Meeting*, Fargo ND, 04/2016, Special Session on Extremal and Probabilistic Combinatorics
- * *AMS Sectional Meeting*, Memphis TN, 10/2015, Special Session on Probabilistic Combinatorics
- * *AMS Sectional Meeting*, Las Vegas NV, 04/2015, Special Session on Extremal and Structural Graph Theory (45 minute talk)
- * *AMS Sectional Meeting*, East Lansing MI, 03/2015, Special Session on Extremal Graph Theory: Hypergraphs, Directed Graphs, and Other Generalizations
- * *2013-14 Warwick EPSRC Symposium on Statistical Mechanics*, Coventry, 05/2014, Workshop on Phase transitions in discrete structures and computational problems
- * *AMS Sectional Meeting*, Louisville KY, 10/2013, Special Session on Extremal Graph Theory
- * *17th International Workshop on Randomization and Computation*, Berkeley CA, 08/2013
- * *4th Canadian Discrete and Algorithmic Mathematics Conference*, St. Johns NL, 06/2013, Minisymposium on Probabilistic Combinatorics
- * *AMS Sectional Meeting*, Ames IA, 04/2013, Special Session on Graphs, Hypergraphs and Counting
- * *AMS Sectional Meeting*, Boulder CO, 04/2013, Special Session on Extremal Graph Theory
- * *Extremal Combinatorics at Illinois*, Urbana IL, 03/2013
- * *SIAM Conference on Discrete Mathematics*, Halifax NS, 06/2012, Minisymposium on Graph Coloring
- * *Workshop on Computation and Phase Transitions*, Atlanta GA, 06/2012
- * *AMS Sectional Meeting*, Tampa FL, 03/2012, Special Session on Extremal Combinatorics
- * *AMS Sectional Meeting*, Lincoln NE, 10/2011, Special Session on Extremal and Probabilistic Combinatorics
- * *AMS Sectional Meeting*, Winston-Salem NC, 09/2011, Special Session on New Developments in Graph Theory
- * *AMS Sectional Meeting*, Iowa City IA, 03/2011, Special Session on Graph Theory
- * *AMS Sectional Meeting*, Syracuse NY, 10/2010, Special Session on Analytic Combinatorics
- * *AMS Sectional Meeting*, Boca Raton FL, 10/2009, Special Session on Graph Theory
- * *DIMACS Workshop on Discrete Mathematics and Statistical Mechanics*, Piscataway NJ, 12/2008
- * *AMS Sectional Meeting*, Bloomington IN, 04/2008,

- Special Session on Probability and Spatial Systems
- * *1st Canadian Discrete and Algorithmic Mathematics Conference*, Banff AB, 05/2007,
Minisymposium on Problems at the interface of discrete mathematics and statistical physics
 - * *ACM-SIAM Symposium on Discrete Algorithms*, New Orleans LA, 01/2007
 - * *DIMACS-DIMATIA-Renyi Partnership Meeting*, Piscataway NJ, 11/2005,
Algebraic and Geometric Methods in Combinatorics
 - * *INFORMS Applied Probability Conference*, Ottawa ON, 07/2005,
Special Session on Spatial Dependence in Stochastic Networks
 - * *Canadian Mathematical Society Summer Meeting*, Waterloo ON, 06/2005,
Special Session on Random Graphs and their applications
 - * *MSRI Program on Probability, Algorithms and Statistical Physics*, 02/2005,
Workshop on Mixing of Markov Chains in Physics and Algorithms
 - * *ACM-SIAM Symposium on Discrete Algorithms*, New Orleans LA, 01/2004
 - * *Mathematisches Forschungsinstitut Oberwolfach*, 01/2004, Workshop in Combinatorics
 - * *BIRS Focused Research Group*, Banff AB, 07/2003, Problems in Discrete Probability
 - * *AMS Sectional Meeting*, Bloomington IN, 04/2003,
Special Session on Probability
 - * DIMACS-DIMATIA-Renyi Partnership Meeting (HOMONOLO 02), Prague, 12/2002,
Workshop on Graph Homomorphisms
 - * *Newton Institute programme on Computation, Combinatorics and Probability*, Cambridge, 08/2002,
Workshop on Combinatorial and Computational aspects of Statistical Physics

Seminars.

- * Combinatorics Seminar, Western Michigan University, 11/8/2018
- * Mathematical Computer Science Seminar, University of Illinois-Chicago, 10/29/2018
- * Math Club talk, University of Nebraska, 10/19/2017
- * Combinatorics Seminar, University of South Carolina, 03/17/2017
- * Combinatorics Seminar, Michigan State University, 11/22/2016
- * Graph Theory Seminar, Western Michigan University, 11/2/2016
- * Graph Theory Seminar, Western Michigan University, 12/4/2015
- * Mathematics Seminar, Grand Valley State University, 10/30/2014
- * Combinatorics seminar, Michigan State University, 04/22/2014
- * Combinatorics and Probability Seminar, The Ohio State University, 02/13/2014
- * Graph Theory Seminar, Western Michigan University, 02/6/2013
- * Probability Seminar, Purdue University, 09/25/2012
- * Analytic Combinatorics Seminar, Purdue University, 04/6/2012
- * Graph Theory Seminar, Western Michigan University, 11/29/2011
- * Graph Theory & Combinatorics Seminar, University of Illinois, Urbana-Champaign, 06/29/2011
- * Graph Theory & Combinatorics Seminar, University of Illinois, Urbana-Champaign, 06/27/2011
- * Graduate Student Seminar, Illinois Institute of Technology, 04/11/2011
- * Discrete Mathematics Seminar, University of Delaware, 03/2/2011
- * Combinatorics Seminar, Georgia Institute of Technology, 12/15/2010
- * Graph Theory & Combinatorics Seminar, University of Illinois, Urbana-Champaign, 04/27/2010
- * Felix Klein Seminar, University of Notre Dame, 02/18 & 25/2010
- * Combinatorics Seminar, University of Illinois at Chicago, 03/11/2009
- * Combinatorics, Optimization & Algorithms Seminar, Carnegie Mellon University, 12/4/2008
- * Mathematical Physics/Physical Mathematics Seminar, University of Notre Dame, 10/16/2008
- * Discrete Mathematics Seminar, Princeton University, 11/29/2006
- * Combinatorics Seminar, University of Delaware, 10/6/2006
- * Combinatorics Seminar, Georgia Institute of Technology, 03/10/2006
- * Combinatorics Seminar, Graduate Center, City University of New York, 03/9/2005
- * Combinatorics Seminar, University of Pennsylvania, 02/22/2005
- * Probability Seminar, University of California-Berkeley, 01/26/2005
- * Probability Seminar, Stanford University, 01/24/2005

- * Probability and Algorithms Seminar, University of Pennsylvania, 12/9/2004
- * Discrete Mathematics Seminar, Princeton University, 12/1/2004
- * Combinatorics, Optimization & Algorithms Seminar, Carnegie Mellon University, 02/12/2004
- * Probability Seminar, University of Washington, 02/2/2004
- * Nonlinear Systems Seminar, Stevens Institute of Technology, 12/16/2003
- * Combinatorics Seminar, Georgia Institute of Technology, 09/16/2003
- * Probability Seminar, University of Washington, 04/21/2003
- * Combinatorics Seminar, University of Washington, 01/29/2003
- * Combinatorics Seminar, Massachusetts Institute of Technology, 02/8/2002
- * Combinatorics Seminar, Georgia Institute of Technology, 01/18/2002
- * Discrete Mathematics Seminar, Institute for Advanced Study, Princeton, 10/24/2001

Other conference talks.

- * *43th Annual Mathematics Conference (Combinatorics and its Applications)*, Oxford OH, 09/2015
- * *AMS Sectional Meeting*, Greensboro NC, 11/2014,
Special Session on Recent Developments in Graph Theory and Hypergraph Theory
- * *56th Midwest Graph Theory Conference*, Fort Wayne IN, 10/2014
- * *54th Midwest Graph Theory Conference*, Miami OH, 04/2013
- * *53th Midwest Graph Theory Conference*, Ames IA, 09/2012
- * *52th Midwest Graph Theory Conference*, Terre Haute IN, 04/2012
- * *15th International Conference on Random Structures and Algorithms*, Atlanta GA, 05/2011
- * *24th Cumberland Conference on Graph Theory, Combinatorics and Computing*, Louisville KY, 05/2011
- * *SIAM Conference on Discrete Mathematics*, Austin TX, 06/2010,
Session on Probabilistic Combinatorics
- * *AMS Sectional Meeting*, Newark NJ, 05/2010,
Special Session on Graph Theory
- * *22nd Cumberland Conference on Graph Theory, Combinatorics & Computing*,
Bowling Green KY, 05/2009
- * *47th Midwest Graph Theory Conference*, Chicago IL, 11/2008

STUDENTS SUPERVISED

Undergraduate senior theses.

- * Camille Taltas, 05/2018–present, *Glauber dynamics*
- * Ethan Chen, 02/2015–05/2016, *Self-avoiding walks*
(resulted in paper: Phase Coexistence for the Hard-Core Model on \mathbb{Z}^2 ,
A. Blanca, Y. Chen, D. Galvin, D. Randall & P. Tetali, *Combin. Probab. Comput.*, doi:10.1017/S0963548318000238)
- * Monica Gorman, 01/2015–05/2016, *Epidemiology*
- * Luke Sernau, 01/2013–05/2014, *Graph homomorphisms*
(resulted in paper: Graph operations and upper bounds on graph homomorphism counts,
L. Sernau, *J. Graph Th.* **87** (2018), 149–163)
- * Sean Meehan, 02/2012–04/2013, *Ramsey Theory*
- * Nick Seewald, 02/2012–present, *Entropy and counting*
- * Bethany Herwaldt, 04/2009–04/2010, *Primality testing algorithms*
- * Andrew McConvey, 04/2009–04/2010, *The stable marriage problem*
- * Meagan Pitluck, 11/2007–04/2009,
An Introduction to Voting Systems: Flaws, Failures, and Potential Solutions

Other undergraduate supervision.

- * Katie Hyry and Kyle Weingartner, REU and independent research, 06/2018–12/2018,
Independent set and matching permutations
- * Jonathan Baker, Gregory Conti and Kevin Latimer, directed reading, 01/2018–05/2018,
Combinatorial optimization
- * Ariel Navotas, directed reading, 01/2017–05/2017, *Combinatorial optimization*

- * Mary Humphrey, directed reading, 08/2016–05/2017, *Stanley-Wilf conjecture*
- * James Miller, independent research, 10/2015–12/2015, *Secret santa schemes*
- * Pedro Soto (Florida International University), Summer research, 06/2015–08/2015, *Ramsey Theory*
- * Hannah Porter, Summer research project, 06/2014–12/2014, *Generalizing Stirling cycle numbers*
- * Do Trong Thanh, reading courses, 05/2013–01/2014, *Sampling colorings*
- * Do Trong Thanh, Glynn Family Honors Program Summer Research, summer 2011, *Graph Stirling numbers* (resulted in paper: Stirling numbers of forests and cycles, D. Galvin & D. T. Thanh, *Electron. J. Combin.* **20** (2013), #P73)

Graduates.

- * Adrian Pacurar, 04/2015–05/2018
- * Justin Hilyard, Ph.D., 04/2010–12/2014, *Various results on enumerations of graph homomorphisms* (went on to Epic Systems, Wisconsin)
- * John Engbers, Ph.D., 04/2009–05/2013, *Some problems involving H -colorings of graphs* (went on to tenure-track position in Department of Mathematics, Statistics and Computer Science, Marquette University)

SERVICE

Departmental service.

- * Committee work
 - [Reading graduate applicant files, spring 2019]
 - Special Opportunities committee, fall 2018
 - Aumann Prize coordinator, spring 2018
 - Taliaferro Prize committee, fall 2017
 - Hiring committee, fall 2016–present; fall 2014–spring 2015
 - Undergraduate committee, fall 2016–present; fall 2012–spring 2015; fall 2009–spring 2010
 - Faculty-library liaison, fall 2015–present
 - Post-doc mentor (with Sergei Starchenko) (Abdul Basit), fall 2017–present
 - Classroom observation (Steve Heilman), spring 2018
 - Probability search committee, fall 2016; fall 2015
 - CAP, fall 2015–spring 2017
 - Teaching mentor (Claudiu Raicu), fall 2014–spring 2017
 - Departmental faculty senate representative, fall 2014–spring 2017
 - Postdoctoral search committee, fall 2011
- * Work with and for students
 - Ph.D. oral candidacy examiner [(Daniel Soskin), 01/2019], (Li Ling Ko), 02/16/2018; (Justin Miller), 01/26/2018; (Derric Chien), 11/01/2016; (Nyima Kao), 04/04/2013
 - Graduate Student Seminar speaker, 10/1/2018; 03/6/2017; 09/1/2008
 - Undergraduate advising, 04/2017–present, 04/2013–05/2016; 04/2009–05/2012
 - REU organizer & mentor, Notre Dame, 06/2018–07/2018
 - Senior thesis reader (Patrick Leblanc), 05/2018; (Mike McCaffrey), 05/2017; (Eun Seuk Choi), 05/2016; (Katherine Ritchey), 05/2013; (Logan Zoellner), 05/2009
 - Panel discussion for visiting REU students, 07/11/2017; 07/7/2015; 06/22/2012
 - Classroom observation (Cunlu Zhu), spring 2017; (Timothy Ferdinands), fall 2013
 - Ph.D. defense examiner (Nyima Kao), 05/2017; (Stephen Flood), 05/11/2012
 - Video for online Calculus III course, 03/10/2017
 - First year advisor (Adele Zhou), fall 2016–spring 2017; (José Pastrana), fall 2015–spring 2016; (Juan Lebrón-Vázquez), fall 2014–spring 2015; (Phillip Jedlovec), fall 2013–spring 2014; (Hank Ditton), fall 2011–spring 2012; (Justin Hilyard), fall 2009–spring 2010
 - Research talk for incoming graduate students, 08/19/2016
 - Mathematical Research at Notre Dame talk, 02/19/2016; 04/4/2014; 10/5/2012; 10/8/2010; 09/28/2008

- Mathematics Teaching Seminar, 02/9/2016
- Majors night, 2016; 2015; 2014
- Putnam Competition coordinator, fall 2015; fall 2014; fall 2013
- Graduate School recruitment day for Morehouse & Spelman undergraduates, 03/13/2013
- Admitted graduate students open day, 03/24/2012
- Panel member, Professional Development Seminar on postdoctoral experience, 02/21/2012
- Panel member, Mathematics Teaching Seminar on job search experience, 05/3/2011; 04/29/2010
- Undergraduate Admissions Admitted Student Open House, 04/7/2011; 04/16/2009
- Research talk for admitted Graduate School applicants, 04/4/2009

* Other service

- Discrete Mathematics seminar organizer, fall 2017–spring 2018; fall 2012–spring 2013
- Combinatorics and Logic seminar co-organizer (with P. Cholak), fall 2009–spring 2012

College and university service.

* Committee work

- Mentor for the Building Bridges Mentoring Program, fall 2018–present; fall 2014–spring 2016
- Shilts-Leonard award selection committee, spring 2018, spring 2017
- Faculty Senate Bookstore Advisory Committee representative, fall 2016–spring 2018
- University Committee on Admissions, Scholarships, and Financial Aid, fall 2015–spring 2018
- Faculty Senate election committee, spring 2017; spring 2015
- College of Science Dean search committee, fall 2014–spring 2015
- Faculty Senate, fall 2014–spring 2017
- Campus Life Council, fall 2014; fall 2015–spring 2016
- Network physics position search committee, fall 2013
- Committee on an ethics requirement for Science majors, spring 2011

* Work with and for students

- Junior Parents Weekend presentation, University of Notre Dame, [02/16/2019], 02/17/2018, 02/11/2017
- Ph.D. defense examiner (Hyunju Kim, Department of Physics), 05/19/2011; (Radha Krishna Ganti, Department of Electrical Engineering), 10/8/2009
- Ph.D. defense Outside Chair (Ge Liu, Department of Sociology), 04/5/2011; (Thomas Apker, Department of Aerospace and Mechanical Engineering), 12/11/2009; (ShaoPing Shen, Department of Physics), 04/2/2009
- Ph.D. oral candidacy Outside Chair (Kan Wang, Department of Aerospace and Mechanical Engineering), 08/17/2010
- Ph.D. oral candidacy examiner (Hyunju Kim, Department of Physics), 03/17/2009
- Ph.D. written candidacy examiner (Hyunju Kim, Department of Physics), 10/8/2008

Service at other institutions.

- * University of Pennsylvania, fall 2005–spring 2007
 - Probability and Combinatorics Seminar Coordinator
 - Preliminary Exam Committee
 - Class of 1880 Prize Exam Committee
 - Masters thesis examiner
 - Oral qualifying examiner

* Rutgers, The State University of New Jersey, fall 1999–spring 2000

- Graduate Student Seminar Coordinator, Department of Mathematics

Editorial service.

- * Editor, *Indian J. of Discrete Mathematics*, 2018–present
- * Guest editor, special issue of *Theory of Computing* (Volume 12, 2016)

Other service to the profession.

- * Thesis defense committee, Laars Helenius (Western Michigan University), 03/01/2018
- * Thesis proposal committee, Laars Helenius (Western Michigan University), 11/2/2016
- * Panel member for evaluation of domestic governmental grants, fall 2015–spring 2016; fall 2012–spring 2013
- * External reviewer of domestic & foreign governmental grant proposals, 2010–present
- * Program committee member, 18th International Workshop on Randomization and Computation (RANDOM’2014)
- * Reviewer, Mathematical Reviews, 2006–present
- * Refereeing, 1999–present, numerous journals including *Algorithmica*, *Discrete Mathematics*, *Random Structures & Algorithms*, *SIAM Journal on Discrete Mathematics*, *Electronic Journal of Probability*, *Journal of Physics A*, *Proceedings of the AMS*, *Electronic Journal of Combinatorics*, *Journal of Graph Theory*, *Annals of Probability*, *Order*, *Combinatorica*, *Symposium on the Theory of Computing*, *Annales de l’Institut Henri Poincaré* *Journal of Combinatorial Theory Series A and B*, *Australasian Journal of Combinatorics*

CONFERENCE ORGANIZATION

- * 6th Lake Michigan Workshop on Combinatorics and Graph Theory (two day workshop), Kalamazoo MI, 04/2019 (with P. Bennett and A. Dudek)
- * AMS 2018 Fall Central Section Meeting, Ann Arbor MI, 10/2018, Special Session co-organizer (with P. Bennett and A. Dudek), *Probabilistic Methods in Combinatorics*
- * 5th Lake Michigan Workshop on Combinatorics and Graph Theory (two day workshop), Notre Dame IN, 04/2018 (with P. Bennett and A. Dudek)
- * 4th Lake Michigan Workshop on Combinatorics and Graph Theory (two day workshop), Kalamazoo MI, 04/2017 (with P. Bennett and A. Dudek)
- * AMS 2017 Spring Central Section Meeting, Bloomington IN, 04/2017, Special Session co-organizer (with J. Engbers), *Extremal, probabilistic and structural graph theory*
- * AMS 2016 Fall Southeastern Section Meeting, Raleigh NC, 11/2016, Special Session co-organizer (with C. Smyth), *Graph Theory, Hypergraphs and Set Systems*
- * ALGECOM 13 (one day workshop), Notre Dame IN, 04/2016 (with A. Diaz, S. Evens and M. Gekhtman)
- * Triangle Lectures in Combinatorics (one day workshop), Greensboro NC, 02/2016 (with C. Smyth)
- * AMS 2015 Fall Central Section Meeting, Chicago IL, 10/2015, Special Session co-organizer (with J. Engbers), *Graph Theory, Hypergraphs and Set Systems*
- * 2nd Lake Michigan Workshop on Combinatorics and Graph Theory (two day workshop), Notre Dame IN, 03/2015 (with A. Dudek)
- * AMS 2014 Fall Southeastern Section Meeting, Greensboro NC, 11/2014, Special Session co-organizer (with C. Smyth), *Recent Developments in Graph Theory and Hypergraph Theory*
- * AMS 2010 Fall Central Section Meeting, Notre Dame IN, 11/2010, Special Session co-organizer (with H. Kaul), *Graphs and hypergraphs*
- * 1st Canadian Discrete and Algorithmic Mathematics Conference, Banff AB, 05/2007, Invited Minisymposium Organizer, *Problems at the interface of discrete mathematics and statistical physics*

OUTREACH ACTIVITIES

- * Science Exploration series public lecture, University of Notre Dame, 11/10/2018
- * Judge, The Siemens Competition in Math, Science & Technology, Regional final, 11/4/17; 11/15/2015; 11/17/2013; 11/19/2011; 11/20/2010; 11/14/2009
- * College of Science alumni tailgate presentations, Notre Dame, 11/19/2016
- * CAST 2016 (Science Teachers Association of Texas 2016 Conference for the Advancement of Science Teaching) presentation, San Antonio TX, 11/10/2016
- * A Moment of Science presentation, San Antonio TX, 11/10/2016
- * ND-Navy Research Forum presentation, 10/28/2011
- * Judge, Northern Indiana Regional Science Fair, 03/22/2014; 03/21/2009