

Bernard Lidický

Curriculum Vitae

Department of Mathematics
Iowa State University
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Education

PhD. [Charles University in Prague](#), Czech Republic 10/2007–07/2011
Dissertation: *Graph coloring problems*, advisor J. Fiala

Master's degree (summa cum laude), [Charles University in Prague](#) 10/2002–09/2007
Thesis: *Variants of the coloring problem*, advisor J. Fiala

Appointments

Associate Professor 08/2018–to date
Iowa State University, USA

Assistant Professor 08/2014–07/2018
Iowa State University, USA

J. L. Doob Research Assistant Professor (postdoc) 08/2011–08/2014
University of Illinois at Urbana-Champaign, USA

Intern 11/2010–04/2011
Mitsubishi Electric Research Laboratories, USA

Junior researcher 10/2007–08/2011
Charles University in Prague, Czech Republic

Awarded External Funding

- PI on NSF grant [DMS-1855653](#) \$125,000 2019–2022
Title: Collaborative Research: Flag Algebra Methods
External research grant, to Lidický 100%.
Awarded together with a separate NSF grant [DMS-1855622](#) to PI F. Pfender
- PI on NSF REU Site grant [DMS-1950583](#) \$484,398 2020–2025
Title: REU SITE: Iowa State University Mathematics REU
co-PI S. Butler
Mainly supporting participants of REU, to Lidický 50%.

Updated March 13, 2020

- co-PI on NSF grant [DMS-1839918](#) \$1,500,000 2019–2024
Title: RTG: Combinatorics, Computation and Applications at Iowa State
PI L. Hogben, other co-PIs R. Martin, H. Schenck, M. Young
External research grant mainly to support graduate students and postdocs, to Lidický 20%.
- US PI on Slovenia-US collaboration grant € 3030 2019–2021
Title: From proper to strong edge-colorings
Slovenian PI B. Lužar
External research grant, to Lidický for local expenses in Slovenia € 1515
- PI on NSF grant [DMS-1600390](#) \$83,000 2016–2019
Title: Collaborative Research: Flag Algebra and Its Applications
External research grant, to Lidický 100%.
Awarded together with a separate NSF grant [DMS-1600483](#) to PI F. Pfender
- US PI on Slovenia-US collaboration grant € 3224 2017–2019
Title: Revealing chromatic properties of graphs
Slovenian PI R. Škrekovski
External research grant, to Lidický for local expenses in Slovenia € 1612
- co-PI on NSF grant [DMS-1603823](#) \$24,321 2016–2019
Title: Collaborative Research: Graduate Research Workshops in Combinatorics
PI L. Hogben, other co-PI's R. Martin, D. Stolee, M. Young
Organizing workshop, funds only for students participants, to Lidický 20%.
- co-PI on NSF grant [DMS-1266016](#) \$269,919 2013–2016
Title: Coloring-related problems for graphs and hypergraphs with degree restrictions
PI A. Kostochka
External research grant, \$ split 2 : 1 between PI and Lidický. \$24,165 subawarded to ISU
- IMA grant supporting the Excill II conference at UIUC, Mar 2013, (joint with J. Balogh, A. Kostochka, and D. West, \$4,000) 2013
Organizing conference, funds for participants only, to Lidický 20%.
- PI on AMS-Simons Travel Grant \$4,000 2012–2013
External research grant, to Lidický 100%

Internal Funding

- co-PI on John Deere grant \$2,000 2019–2020
 Title: Math Bridges: a Mathematics Postbaccalaureate program at Iowa State.
 PI M. Young
 Materials for [Postbaccalaureate program](#) students at ISU, to Lidický 50%
- Iowa State University - Foreign Travel Grant \$1,069 2015
 Internal grant, to Lidický 100%
- PI on Charles University student research grant, equiv. \$30,000 2010–2011
 Internal research grant

Professional Service

- Member of editorial board of SIAM Journal on Discrete Mathematics 2020–to date
- Organizer of AIM Workshop “Postbaccalaureate and bridge programs in mathematics” 2020
 (with M. Young and E. Zaslow)
- Organizer of invited minisymposium at SIAM DM 2020, Portland, Oregon 2020
 (with F. Pfender)
- Organizer of special session at AMS meeting #1150, Wisconsin-Madison 2019
 (with J. Balogh)
- Main organizer of [4th annual Mostly Manitoba, Michigan and Minnesota Combinatorics Graduate Students Workshop](#), Ames, IA 2018
- Organizer of a contributed minisymposium at SIAM conference on Discrete Math, Denver, Co (with S. Butler) 2018
- Organizer of annual Graduate Research Workshop in Combinatorics, Ames, IA; Laramie, WY; Denver, CO; Ames, IA 2015–to date
 (lead organizer M. Ferrara, <http://combinatoricsworkshop.org>)
- Organizer of special session at AMS meeting #1124, Raleigh, NC 2016
 (with S. Hartke)
- Organizer of a contributed minisymposium at SIAM conference on Discrete Math, Atlanta, GA (with M. Young) 2016
- Organizer of special session at AMS meeting #1110, Las Vegas, NV 2015
 (with D. Stolee)
- Organizer of conference Extremal Combinatorics at Illinois 2, Urbana, IL 2013
 (with J. Balogh, A. Kostochka, D. West)
- Organizer of Midsummer Combinatorial Workshop XVII, Prague 2011
 (with J. Kratochvíl, J. Nešetřil)
- Organizer of Spring School of Combinatorics, Czech Republic 2006, 2007
 (with J. Hladký, M. Krčál)

Institutional Service

- Associate Chair for research and faculty development at the Department of mathematics ISU 2020–to date
- Undergraduate committee at Math department, ISU 2018–2021
- LAS Faculty Development Committee, ISU 2019–2022
- Executive committee at Math department, ISU 2019–to date
- Untenured faculty review committee, ISU 2019–2021
- Organizer of Discrete Math seminar, ISU 2016–to date
- Post-bac program (director M. Young), ISU 2018–to date
- Graduate Qualifying exam committee at Math department, ISU 2018–to date
- Faculty search committee at Math department, ISU 2018–2019
- Lecturer review committee at Math department, ISU 2018–2019
- 3rd year review committee at Math department, ISU 2018–2019
- Member of sixteen doctoral committees, ISU 2015–to date
- Administrator of teaching material repository at Math department, ISU 2015–to date
- External member of two doctoral committees, CU Denver 2016–to date
- Advisory committee at Math department, ISU 2016–2017
- Awards committee at Math department, ISU 2015–2016
- Organizer of Graph Theory seminar, UIUC 2012–2014
- Member of six thesis defense committees, UIUC 2012–2014
- Member of nine prelim exam committees, UIUC 2011–2014
- Graduate coordinator for Research Experience for Undergraduates, Rutgers University, USA 2010

Patents

- US patent 8,938,348 *Method for Optimizing Run Curve of Vehicles*, (joint with D. Nikovski) [\[pdf\]](#) 2015

Publications

In mathematics, authors are traditionally listed in alphabetical order. See [AMS Culture Statement](#) for more explanation. [\[doi\]](#), [\[pdf\]](#), and [\[arXiv\]](#) are clickable.

Papers in refereed journals and conferences

1. M. Dairyko, M. Ferrara, B. Lidický, R. R. Martin, F. Pfender, A. Uzzell: *Ore and Choátal-type Degree Conditions for Bootstrap Percolation from Small Sets* Accepted to Journal of Graph Theory. [\[arXiv\]](#) [\[doi\]](#)

2. P. Bennett, A. Dudek, B. Lidický, O. Pikhurko: *Minimizing the number of 5-cycles in graphs with given edge-density* *Combinatorics, Probability and Computing* **29**, (2020) 44–67. [[arXiv](#)] [[doi](#)]
3. B. Lidický, K. Messerschmidt, R. Škrekovski: *Facial unique-maximum colorings of plane graphs with restriction on big vertices* *Discrete Math.* **342** (2019) 2612–2617. [[arXiv](#)] [[doi](#)]
4. J. Balogh, B. Lidický, G. Salazar: *Closing on Hill's Conjecture* *SIAM J. Discrete Math.* **33** (2019) 1261–1276. [[arXiv](#)] [[doi](#)]
5. M. Bucic, B. Lidický, J. Long, A. Zsolt Wagner: *Partition problems in high dimensional boxes* *Journal of Comb. Theory A.* **166** (2019) 315–336. [[arXiv](#)] [[doi](#)]
6. M. Axenovich, J. Goldwasser, B. Lidický, R. R. Martin, D. Offner, J. Talbot, M. Young: *Polychromatic Colorings on the Integers* *Integers: The Electronic Journal of Combinatorial Number Theory.* **19** (2019) A18 [[arXiv](#)]
7. D. Král', B. Lidický, T. L. Martins, Y. Pehova: *Decomposing graphs into edges and triangles* *Combinatorics, Probability and Computing.* **28** (2019), 465–472. [[arXiv](#)] [[doi](#)]
8. J. Goldwasser, B. Lidický, R. Martin, D. Offner, J. Talbot, M. Young: *Polychromatic Colorings on the Hypercube.* *Journal of Combinatorics* **9** (2018) 631–657. [[arXiv](#)]
9. P. DeOrsey J. Diemunsch, M. Ferrara, N. Graber, S. G. Hartke, S. Jahanbekam, B. Lidický, L. Nelsen, D. Stolee, E. Sullivan: *On the Strong Chromatic Index of Sparse Graphs* *Electronic Journal of Combinatorics* **25-3** (2018) P18 [[arXiv](#)] [[pdf](#)]
10. Z. Dvořák, B. Lidický: *Fine structure of 4-critical triangle-free graphs I. Planar graphs with two triangles and 3-colorability of chains.* *SIAM J. Discrete Math.* **32** (2018), 1775–1805. [[arXiv](#)] [[doi](#)]
11. B. Lidický, F. Pfender: *Pentagons in triangle-free graphs.* *European J. of Combinatorics.* **74** (2018), 85–89. [[arXiv](#)] [[doi](#)]
12. M. Kim, B. Lidický, T. Masařík, F. Pfender: *Notes on complexity of packing coloring* *Information Processing Letters.* **137** (2018), 6–10. [[arXiv](#)] [[doi](#)]
13. B. Lidický, K. Messerschmidt, R. Škrekovski: *A counterexample to a conjecture on facial 2 unique-maximal colorings* (2018). *Discrete Applied Math.* **237** (2018), 123–125. [[arXiv](#)] [[doi](#)]
14. V. Andova, B. Lidický, B. Lužar, R. Škrekovski: *On facial unique-maximum (edge-)coloring.* *Discrete Applied Math.* **237** (2018), 26–32. [[arXiv](#)] [[pdf](#)] [[doi](#)]
15. Z. Dvořák, B. Lidický: *Fine structure of 4-critical triangle-free graphs III. General surfaces.* *SIAM Journal on Discrete Mathematics* **32** (2018), 94–105. [[arXiv](#)] [[doi](#)]

16. M. Axenovich, J. Goldwasser, R. Hansen, B. Lidický, R. R. Martin, D. Offner, J. Talbot, M. Young: *Polychromatic colorings of complete graphs with respect to 1-2-factors and Hamiltonian cycles*. Journal of Graph Theory, **87** (2018), 660–671. [[arXiv](#)] [[doi](#)]
17. I. Choi, J. Ekstein, P. Holub, B. Lidický: *3-coloring triangle-free planar graphs with a precolored 9-cycle*. European J. of Combinatorics. **68** (2018), 38–65. [[doi](#)] [[pdf](#)]
 - Also at IWOCA 2014 (*International Workshop on Combinatorial Algorithms*). Lecture Notes in Computer Science **8986** (2015), 98–109. [[doi](#)] [[pdf](#)]
18. J. Kynčl, B. Lidický, T. Vyskočil: *Irreversible 2-conversion set in graphs of bounded degree*. Discrete Math. and Theoretical Comp. Sci. **19** (2017) [[arXiv](#)] [[journal](#)]
19. J. Balogh, P. Hu, B. Lidický, F. Pfender, J. Volec, M. Young: *Rainbow triangles in three-colored graphs*, Journal of Comb. Theory B. **126** (2017), 83–113. [[doi](#)] [[pdf](#)]
20. Z. Dvořák, B. Lidický: *Fine structure of 4-critical triangle-free graphs II. Planar triangle-free graphs with two precolored 4-cycles*, SIAM J. Discrete Math. **31** (2017), 865–874. [[doi](#)] [[pdf](#)]
21. Z. Dvořák, B. Lidický, B. Mohar: *5-choosability of graphs with crossings far apart*, Journal of Comb. Theory B **123** (2017), 54–96. [[doi](#)]
22. Z. Dvořák, B. Lidický, B. Mohar, L. Postle: *5-list-coloring planar graphs with distant precolored vertices*, Journal of Comb. Theory B **122** (2017), 311–352. [[doi](#)]
23. B. Brimkov, J. Edmond, R. Lazar, B. Lidický, K. Messerschmidt, S. Walker: *Injective choosability of subcubic planar graphs with girth 6*, Discrete Math. **340** (2017), 2538–2549. [[doi](#)] [[pdf](#)]
24. Z. Berikkyzy, C. Cox, M. Dairyko, K. Hogenson, M. Kumbhat, B. Lidický, K. Messerschmidt, K. Moss, K. Nowak, K. F. Palmowski, D. Stolee: *(4,2)-choosability of planar graphs with forbidden structures*, Graphs and Combinatorics, **33** (2017), 751–787. [[doi](#)] [[pdf](#)]
25. E. Gethner, L. Hogben, B. Lidický, F. Pfender, A. Ruiz, M. Young: *Crossing numbers of complete tripartite and balanced complete multipartite graphs*, J. of Graph Theory. **84** (2017), 552–565. [[doi](#)] [[pdf](#)]
26. J. Balogh, P. Hu, B. Lidický and F. Pfender: *Maximum density of induced C_5 is achieved by iterated blow-ups*, European J. of Combinatorics, **52** (2016), 47–58. [[doi](#)] [[pdf](#)]
27. F. Cicalese, B. Keszegh, B. Lidický, D. Palvolgyi, T. Valla: *On the Tree Search Problem with Non-uniform Costs*, Theoretical Computer Science **647** (2016), 2232. [[doi](#)] [[pdf](#)]
 - Also at WG 2015 (*International Workshop on Graph-Theoretic Concepts in Computer Science*). Lecture Notes in Computer Science **9224** (2016), 90–102. [[doi](#)] [[pdf](#)]
28. J. Balogh, M. Delcourt, B. Lidický, C. Palmer: *Rainbow copies of C_4 in edge-colored hypercubes*, Discrete Applied Math., **210** (2016), 35–37. [[doi](#)] [[pdf](#)]

29. I. Choi, B. Lidický, D. Stolee: *On Choosability with Separation of Planar Graphs with Forbidden Cycles*, J. of Graph Theory, **81** (2016) 283–306. [[doi](#)] [[arXiv](#)]
30. Z. Dvořák, B. Lidický: *3-coloring triangle-free planar graphs with a precolored 8-cycle*, J. of Graph Theory, **80** (2015), 98–111. [[doi](#)] [[arXiv](#)]
31. H.A. Kierstead, B. Lidický: *On choosability with separation of planar graphs with lists of different sizes*, Discrete Math. **338** (2015), 1779–1783. [[doi](#)] [[arXiv](#)]
32. J. Balogh, P. Hu, B. Lidický, O. Pikhurko, B. Udvari, J. Volec: *Minimum number of monotone subsequences of length 4 in permutations*, Combinatorics, Probability and Computing, **24** (2015), 658–679. [[doi](#)] [[arXiv](#)]
33. J. Balogh, P. Hu, B. Lidický, H. Liu: *Upper bounds on the size of 4- and 6-cycle-free subgraphs of the hypercube*, European J. of Combinatorics, **35** (2014), 75–85. [[doi](#)] [[arXiv](#)]
34. O.V. Borodin, Z. Dvořák, A.V. Kostochka, B. Lidický, M. Yancey: *Planar 4-critical graphs with four triangles*, European J. of Combinatorics, **41** (2014), 138–151. [[doi](#)] [[arXiv](#)]
35. Z. Dvořák, B. Lidický: *4-critical graphs on surfaces without contractible (≤ 4)-cycles*. SIAM J. Discrete Math., **28** (2014), 521–552. [[doi](#)] [[arXiv](#)]
36. O.V. Borodin, A.V. Kostochka, B. Lidický, M. Yancey: *Short proofs of coloring theorems on planar graphs*, European J. of Combinatorics, **36** (2014), 314–321. [[doi](#)] [[arXiv](#)]
37. B. Lidický, H. Liu, C. Palmer: *On the Turán number of forests*, Electronic Journal of Combinatorics, **20-2** (2013) P62. [[pdf](#)] [[arXiv](#)]
38. S. Har-Peled, B. Lidický: *Peeling the Grid*, SIAM J. Discrete Math. **27** (2013), 650–655. [[doi](#)] [[arXiv](#)]
39. V. Jelínek, E. Jelínková, J. Kratochvíl, B. Lidický, M. Tesař, T. Vyskočil: *The Planar Slope Number of Planar Partial 3-Trees of Bounded Degree*, Graphs and Combinatorics **29-4** (2013), 981–1005. [[doi](#)] [[arXiv](#)]
 - Also at *Graph Drawing 2009*, Lecture Notes in Computer Science **5849** (2010), 304–314. [[doi](#)]
40. Z. Dvořák, B. Lidický, R. Škrekovski: *Bipartizing fullerenes*, European J. of Combinatorics **33** (2012), 1286–1293. [[doi](#)] [[arXiv](#)]
41. P. Golovach, B. Lidický, B. Martin, D. Paulusma: *Finding vertex-surjective graph homomorphisms*, Acta Informatica **49** (2012), 381–394. [[doi](#)] [[arXiv](#)]
 - Also at *CSR 2012 (International Computer Science Symposium in Russia)*, Lecture Notes in Computer Science **7353** (2012), 160–171. [[doi](#)]

42. J. Ekstein, P. Holub, B. Lidický: *Packing Chromatic Number of Distance Graphs*, Discrete Applied Math. **160** (2012), 518–524. [[doi](#)] [[arXiv](#)]
43. J. Fiala, P. Golovach, J. Kratochvíl, B. Lidický, D. Paulusma: *Distance Three Labelings of Trees*, Discrete Applied Math. **160** (2012), 764–779. [[doi](#)]
 - Also contains: P. Golovach, B. Lidický, D. Paulusma: *L(2,1,1)-labeling is NP-complete for trees*, Theory and Applications of Models of Computation (TAMC 2010), Lecture Notes in Computer Science **6108** (2010), 211–221. [[doi](#)]
44. J. Fiala, M. Kamiński, B. Lidický, D. Paulusma: *The k-in-a-path problem for claw-free graphs*, Algorithmica **62** (2012), 499–519. [[doi](#)]
 - Also at STACS 2010, Proceedings of the 27th International Symposium on Theoretical Aspects of Computer Science, LIPIcs **5** (2010), 371–382. [[doi](#)] [[arXiv](#)]
45. Z. Dvořák, B. Lidický, R. Škrekovski: *Graphs with two crossings are 5-choosable*, SIAM Journal on Discrete Mathematics **25** (2011), 1746–1753. [[doi](#)] [[arXiv](#)]
46. Z. Dvořák, B. Lidický, R. Škrekovski: *Randić index and the diameter of a graph*, European Journal of Combinatorics **32** (2011), 434–442. [[doi](#)]
47. R. Eрман, F. Havet, B. Lidický, O. Pangrác: *5-colouring graphs with 4 crossings*, SIAM Journal on Discrete Mathematics **25** (2011), 401–422. [[doi](#)]
48. Z. Dvořák, B. Lidický, R. Škrekovski: *3-choosability of triangle-free planar graphs with constraint on 4-cycles*, SIAM Journal on Discrete Mathematics **24** (2010), 934–945. [[doi](#)]
49. T. Kaiser, D. Král, B. Lidický, P. Nejedlý, R. Šámal: *Short cycle covers of graphs with minimum degree three*, SIAM Journal on Discrete Mathematics **24** (2010), 330–355. [[doi](#)] [[arXiv](#)]
50. Z. Dvořák, B. Lidický, R. Škrekovski: *On 3-choosability of plane graphs without 3-, 7- and 8-cycles*, Discrete Mathematics **309** (2009), 5899–5904. [[doi](#)]
51. K. Kawarabayashi, D. Král, J. Kynčl, B. Lidický: *6-critical graphs on the Klein bottle*, SIAM Journal on Discrete Mathematics **23** (2009), 372–383. [[doi](#)]
52. B. Lidický: *On 3-choosability of plane graphs having no 3-, 6-, 7- and 8-cycles*, Australasian Journal of Combinatorics **44** (2009), 77–86. [[pdf](#)]
53. J. Fiala, S. Klavžar, B. Lidický: *The packing chromatic number of infinite product graphs*, European Journal of Combinatorics **30** (2009), 1101–1113. [[doi](#)]

Papers in refereed conferences (without journal version)

54. Z. Dvořák, B. Lidický: *Independent sets near the lower bound in bounded degree graphs*. At STACS 2017 (Symposium on Theoretical Aspects of Computer Science). LIPIcs **66** (2017), 28:1–28:13. [[doi](#)] [[pdf](#)]

55. D. Nikovski, B. Lidický, W. Zhang, K. Kataoka, K. Yoshimoto: *Markov decision processes for train run curve optimization*, IEEE ESARS 2012 (Electrical System for Aircraft, Railway and Ship Propulsion). [doi]
56. O. Bílka, B. Lidický, M. Tesař: *Locally injective homomorphism to the simple Weight graphs*, Theory and Applications of Models of Computation (TAMC 2011), Lecture Notes in Computer Science **6648** (2011), 471–482. [doi]
57. B. Lidický, M. Tesař: *Complexity of locally injective homomorphism to the Theta graphs*, IWOCA 2010 (International Workshop on Combinatorial Algorithms), Lecture Notes in Computer Science **6460** (2010), 326–336. [doi]
58. A. Maitos, F. Jordán, B. Lidický, K. Kabele, P. Strachan: *Coupling building simulation with a hardware real-time controller*, Simulace budov a techniky prostředí 2010 (Simulations of buildings, technology and environment), ČVUT (2010), 115–120. [pdf]
59. V. Jelínek, E. Jelínková, J. Kratochvíl, B. Lidický: *Clustered Planarity: Embedded Clustered Graphs with Two-Component Clusters*, (Graph Drawing 2008), Lecture Notes in Computer Science **5417** (2009), 121–132. [doi]

Papers submitted to refereed journals and conferences

60. J. Balogh, F. Clemen, M. Lavrov, B. Lidický, F. Pfender: *Making K_{r+1} -free Graphs r -partite* (2019). [arXiv]
61. A. Blumenthal, B. Lidický, Y. Pehova, F. Pfender, O. Pikhurko, J. Volec: *Sharp bounds for decomposing graphs into edges and triangles* (2019). [arXiv]
62. Z. Dvořák, B. Lidický: *Coloring count cones of planar graphs* (2019). [arXiv]
63. A. Blumenthal, B. Lidický, R. R. Martin, S. Norin, F. Pfender, J. Volec: *Counterexample on conjecture of Harris on Hall ratio* (2018). [arXiv]
64. I. Choi, B. Lidický, F. Pfender: *Facial unique-maximum colorings of plane graphs with restriction on big vertices* (2018). [arXiv]
65. B. Lidický, F. Pfender: *Semidefinite Programming and Ramsey Numbers* (2017). [arXiv]

Other unrefereed manuscripts

- J. Ekstein, J. Fiala, P. Holub, B. Lidický: *The packing chromatic number of the square lattice is at least 12*. Available at <https://arxiv.org/abs/1003.2291> (2010).
- P. Kolman, B. Lidický, J.-S. Sereni: *Fair Edge Deletion Problems on Tree-Decomposable Graphs and Improper Colorings*, available as ITI report 333 (2010). [pdf]

- N. Chenette, L. Postle, N. Streib, R. Thomas, C. Yerger, K. Kawarabayashi, D. Král, J. Kynčl, B. Lidický: *Six-Critical Graphs on the Klein Bottle* (Topological and Geometric Graph Theory 2008), *Electronic Notes in Discrete Mathematics* **31** (2008), 235–240. [[doi](#)]

Invited Graduate School Lectures

- International Research School on Graph Limits (11 hours of lectures), Lyon, France, *Flag Algebras Method* Jan 2018
- Guest lecturer, University of Illinois, Urbana-Champaign (3 hours of lectures), *Flag Algebras Method* Mar 2018

Long Invited Conference Talks

- 6th Lake Michigan Workshop on Combinatorics and Graph Theory, Kalamazoo, MI, *Introduction to flag algebras and their applications (3 × 50 min)* Apr 2019
- Atlanta Lecture Series XXIII, Atlanta, GA, *Decomposing graphs into edges and triangles* Mar 2019
- Cycles and Colourings, Nový Smokovec, Slovakia, *3-coloring triangle-free planar graphs* Sep 2016
- Czech-Slovak Graph Theory Conference, Boží Dar, Czech Republic, *Flag algebra and some applications* Jun 2015

Significant Invited Conference Talks

1. Extremal Combinatorics at Illinois 3, Chicago, IL, USA, *Decomposing Random d -regular Graphs Into Stars* Aug 2016
2. Atlanta Lecture Series, Atlanta, GA, USA, *Upper bounds on small Ramsey numbers* Feb 2015
3. 1st Lake Michigan Workshop on Combinatorics and Graph Theory, Kalamazoo, MI, USA, *Monotone subsequences in permutations* Mar 2014
4. Atlanta Lecture Series, Atlanta, GA, USA, *Number of monotone subsequences of length four in permutations* Jan 2014

Invited Conference Talks

1. 2020 One day Meeting on Extremal Combinatorics, Seoul, South Korea, *Decomposing graphs into edges and triangles* Jan 2020
2. CanaDAM, Vancouver, BC, Canada, *Coloring Count Cones of Planar Graphs* May 2019
3. AMS meeting #1143, Ann Arbor, MI, USA, *Decomposing graphs into edges and triangles* Oct 2018

4. SIAM conference on Discrete Mathematics '18, Denver, CO, USA, *Polychromatic Colorings of Complete Graphs with Respect to 1-,2-factors and Hamiltonian Cycles* Jun 2018
5. AMS meeting #1132, Buffalo, NY, USA, *On facial unique-maximum (edge-)coloring* Sep 2017
6. Mostly Manitoba, Michigan, and Minnesota Combinatorics Graduate Student Workshop, Duluth, MN, USA, *Small Ramsey Numbers* Apr 2017
7. AMS meeting #1127, Bloomington, IN, USA, *Independent sets near the lower bound in bounded degree graphs* Apr 2017
8. AMS meeting #1123, Minneapolis, MN, USA, *Independent sets near the lower bound in bounded degree graphs* Oct 2016
9. AMS meeting #1122, Denver, CO, USA, *Decomposing Random d -regular Graphs Into Stars* Oct 2016
10. SIAM conference on Discrete Mathematics '16, Atlanta, GA, USA, *Precoloring extension for planar graphs* Jun 2016
11. Canadian Math. Society winter meeting 2015, Montreal, QC, Canada, *Inducibility of Short Cycles* Dec 2015
12. AMS meeting #1112, Chicago, IL, USA, *Precoloring extension for planar graphs* Oct 2015
13. AMS meeting #1108, East Lansing, MI, USA, *Using flag algebras on small Ramsey numbers* Mar 2015
14. AMS meeting #1102, Eau Claire, WI, USA, *Rainbow triangles in 3-edge-colored graphs* Sep 2014
15. SUMMIT 190: Balogh, Csaba, Hajnal, and Pluhár are 190, Szeged, Hungary, *Flag Algebras and Iterated Blow-ups* Jul 2014
16. SIAM conference on Discrete Mathematics '14, Minneapolis, MN, USA, *Rainbow triangles in 3-edge-colored graphs* Jun 2014
17. AMS national meeting, Baltimore, MD, USA, *Use of flag algebras with permutations* Jan 2014
18. AMS meeting #1092, Louisville, KY, USA, *3-coloring triangle-free planar graphs with a precolored 8-cycle* Oct 2013
19. AMS meeting #1089, Boulder, CO, USA, *Short proofs of coloring theorems on planar graphs* Apr 2013
20. AMS meeting #1087, Oxford, MS, USA, *Short proofs of coloring theorems on planar graphs* Mar 2013
21. SIAM conference on Discrete Mathematics '12, Halifax, NS, Canada, *4-critical graphs on surfaces without contractible cycles of length at most 4* Jun 2012
22. SIAM conference on Discrete Mathematics '12, Halifax, NS, Canada, *$L(2, 1, 1)$ -labeling is NP-complete for trees* Jun 2012
23. AMS meeting #1080, Washington DC, USA, *Upper bounds on the size of 4- and 6-cycle-free subgraphs of the hypercube* Mar 2012

24. 7th Slovenian International Conference on Graph Theory, Bled, Slovenia, *Packing Coloring and Grids* Jun 2011

Contributed Talks

1. WaterColor, Waterloo, ON, USA, *Coloring Count Cones of Planar Graphs* Sep 2019
2. 47th Southeastern International Conference on Combinatorics, Graph Theory & Computing, Boca Raton, FL, USA, *Inducibility of Short Cycles* Mar 2016
3. 25th International Workshop on Combinatorial Algorithms, Duluth, MN, USA, *3-coloring triangle-free planar graphs with a precolored 9-cycle* Oct 2014
4. 27th Cumberland Conference on Combinatorics, Graph Theory & Computing, Morgantown, WV, USA, *On the Tree Search Problem with Non-uniform Costs* May 2014
5. 7th Symposium on Graph Theory, Combinatorics, Algorithms and Applications, Košice, Slovakia, *4-critical planar graphs with four triangles* Jul 2013
6. Midwest Graph Theory Conference LIV, Oxford, OH, USA, *3-coloring planar graphs with four triangles* Apr 2013
7. Midwest Graph Theory Conference LIII, Ames, IA, USA, *4-critical graphs on surfaces without contractible cycles of length at most 4* Sep 2012
8. 25th Cumberland Conference, Johnson City, TN, USA, *The planar slope-number of planar partial 3-trees of bounded degree* May 2012
9. CanaDAM, Victoria, BC, Canada, *List coloring and crossings* May 2011
10. Cycles and Colourings, Tatranská Štrba, Slovakia, *Packing chromatic number for square and hexagonal lattices* Sep 2010
11. SIAM conference on Discrete Mathematics '10, Austin, TX, USA, *5-coloring graph with 4 crossing* Jun 2010
12. Algebraic, Topological and Complexity Aspects of Graph Covers 2010, Auckland, New Zealand, *Dichotomy for locally injective homomorphism to simple weight graph* Feb 2010
13. Joint Mathematical Conference CSASC 2010, Prague, Czech Republic, *k-in-a-path on claw-free graphs* Jan 2010
14. CanaDAM 2009, Montreal, QC, Canada, *On 3-choosability of triangle-free planar graphs* May 2009
15. Cycles and Colourings, Tatranská Štrba, Slovakia, *Shortest cycle cover of graphs with minimum degree three* Sep 2008
16. Cycles and Colourings, Tatranská Štrba, Slovakia, *Packing chromatic number for lattices* Sep 2007
17. Midsummer Combinatorial Workshop, Prague, Czech Republic, *6-critical graphs in the Klein bottle* Jun–Jul 2007
18. Winter School on Combinatorics, Finse, Norway, *Discharging and list coloring* Mar 2007

Colloquia Talks

1. Iowa State University, Iowa, IA, USA, *Flag Algebras and Applications* Oct 2017
2. University of Minnesota, Duluth, MN, USA, *Triangles and 3-coloring of Planar Graphs*
Feb 2016
3. Michigan Technological University, Houghton, MI, USA, *Flag Algebras and Applications to Permutations* Nov 2014
4. Miami University, Oxford, OH, USA, *Flag algebras and its applications* Dec 2013

Seminar Talks

1. University of Colorado Denver, Denver, CO, USA Jul 2019
2. University of Illinois, Urbana-Champaign, IL, USA Jun 2019
3. Hankuk University of Foreign Studies, Yongin-si, South Korea Apr 2018
4. Princeton University, Princeton, NJ, USA Mar 2018
5. University of Illinois, Urbana-Champaign, IL, USA Mar 2018
6. Western Michigan University, Kalamazoo, MI, USA Nov 2017
7. Charles University, Prague, Czech Republic Jun 2017
8. KAIST, Daejeon, South Korea Mar 2017
9. Charles University, Prague, Czech Republic Sep 2016
10. University of Colorado Denver, Denver, CO, USA Apr 2016
11. University of Colorado Denver, Denver, CO, USA Jul 2015
12. University of Waterloo, Waterloo, Canada Jun 2015
13. University of West Bohemia, Pilsen, Czech Republic May 2015
14. University of Illinois at Urbana-Champaign, Urbana, IL, USA Mar 2015
15. University of Colorado Denver, Denver, CO, USA Mar 2014
16. Miami University, Oxford, OH, USA Dec 2013
17. University of Szeged, Szeged, Hungary Jul 2013
18. Arizona State University, Tempe, AZ, USA Jun 2013
19. Simon Fraser University, Vancouver, BC, Canada May 2013
20. University of Illinois at Chicago, Chicago, IL, USA Apr 2013
21. Georgia Institute of Technology, Atlanta, GA, USA Mar 2013
22. Emory University, Atlanta, GA, USA Mar 2013
23. Illinois State University, Bloomington-Normal, IL, USA Oct 2012
24. Charles University, Prague, Czech Republic Jan 2012
25. Mitsubishi Electric Research Laboratories, Cambridge, MA, USA Mar 2011
26. Durham University, Durham, United Kingdom Nov 2009
27. INRIA, Nice, France Dec 2007
28. University of Ljubljana, Ljubljana, Slovenia May 2007

Internal Seminar Talks

- Iowa State University 5×
- University of Illinois at Urbana-Champaign 8×

Teaching Experience

Instructor (at ISU, Iowa):

- *MATH 165 - Calculus 1* fall 2016
- *MATH 201 - Introduction to Proofs* spring 2015(2×)
- *MATH 304 - Combinatorics* fall 2015
- *MATH 314 - Graph Theory* spring 2016
- *MATH 492 - Undergraduate Seminar* fall 2016
- *MATH 566 - Discrete Optimization (graduate course)* fall 2015, 2016, 2018
- *MATH 569x - Introduction to Discrete Mathematics (graduate course)* spring 2020
- *MATH 608 - Extremal Graph Theory (graduate course)* spring 2018

Instructor (at UIUC, Illinois):

- *MATH 213 - Basic Discrete Mathematics* spring 2012
- *MATH 413 - Introduction to Combinatorics* spring 2012, 2013, 2014(2×)
- *MATH 484 - Nonlinear Programming* fall 2011, 2012, 2013
- *MATH 589 - Nonlinear Programming (graduate course)* fall 2012
- *MATH 598 - Literature Seminar in Math (graduate course)* spring 2012

Teaching assistant (at Charles University, Prague):

- *Algorithms and Data Structures I* spring 2009
- *Combinatorics and Graph Theory II* fall 2008, 2009
- *Combinatorics and Graph Theory III* fall 2010
- *Discrete mathematics* fall 2005
- *Linear Algebra I* fall 2007, 2008
- *Linear Algebra II* spring 2008, 2009, 2010
- *Mathematical skills* fall 2009

Advised graduate students (at ISU, Iowa):

- Kyle Murphy *PhD* expected 2021
- Adam Blumenthal *PhD* coadvised with M. Young expected 2020
- Kacy Messerschmidt *PhD*, currently Mathematician II at [IGT](#) Summer 2018
- Neha Bora *MS*, currently Data Scientist at [Snag](#) Summer 2017
- Kevin Moss *PhD* coadvised with S. Butler, currently Data Engineer at Facebook Spring 2017