

Geir Agnarsson
CURRICULUM VITÆ
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Research Interests:

- Graph theory: Graph coloring, extremal graph theory, geometric intersections graphs, graph algorithms.
- Discrete mathematics: Combinatorics, partially ordered sets.
- Algebraic structures: Ring theory, algebras over fields, linear spaces.

Education:

Ph.D. 1996	U. of California at Berkeley	Pure Mathematics.
B.Sc. 1990	University of Iceland	Math. major & Physics minor.

Thesis Adviser and Title:

Adviser: Prof. George Mark Bergman.
Thesis title: *On Monomial Ideals and Co-relations for Algebras over Fields.*

Appointments:

1. 2002 – : Assistant Professor, tenure track, Department of Mathematical Sciences, George Mason University (GMU), Fairfax, Virginia.
2. 2000 – 2002: Assistant Professor, tenure track, Department of Computer Science, Armstrong Atlantic State University (AASU), Savannah, Georgia.
3. 1999 – 2000 : Visiting Professor, Department of Mathematics, c/o Prof. William T. Trotter, Arizona State University (ASU), Tempe, Arizona.
4. 2000 (Summer) : Visiting Scholar, Los Alamos National Laboratory (LANL), c/o Dr. Madhav Marathe, Los Alamos, New Mexico.
5. 1997 – 2000 : Postdoctoral Researcher, Science Institute, University of Iceland, Reykjavík, Iceland.
6. 1996 – 1997 : Research Fellow, Department of Mathematics, University of California at Berkeley, Berkeley, California.
7. 1994 – 1996 : Junior Specialist, Department of Mathematics, University of California at Berkeley, Berkeley, California.

Grants and Awards:

1. *Junior Faculty Leave*, GMU, Spring 2005.
2. Summer Research Funding for Tenure-Track Faculty, GMU, \$ 4000, for the project *Distance-k vertex coloring planar graphs*, March 2003.
3. Research Grant from The Science Fund of the University of Iceland, approx. \$ 5000, for the project *Monomial Ideals in Finitely Generated Algebras over Fields*, 1999.
4. Junior Specialist (JS) on NSF Research Grants for Prof. Tsit-Yuen Lam and Prof. George M. Bergman, numerous semester during graduate studies at U. C. Berkeley.
5. Fulbright Scholarship from the *Fulbright Foundation* in Iceland, for graduate studies in the USA, 1990.

Graduate Students:

1. *Thesis Adviser and Chair*: Jill Dunham, Ph.D. student, Dept. of Math. Sciences, GMU (ongoing, since Fall 2006.)
2. *Advisory Committee Member*: Jacqueline R. Yang, Ph.D. student, School of Information Technology and Engineering, GMU. Ph.D. Dissertation: *Identity Switching for Federated Access Control*. Graduated Spring 2006.

Teaching experiences:

1. Courses at GMU:
 - (a) Math 697, Independent Research, for graduate students.
 - (b) Math 641, Combinatorics and Graph Theory, graduate course.
 - (c) Math 621, Algebra, graduate course.
 - (d) Math 325, Discrete Mathematics II (Combinatorics), for math and cs majors.
 - (e) Math 302, Geometry (Euclidean and Non-Euclidean), for math and cs majors.
 - (f) Math 301, Number Theory, for math and cs majors.
 - (g) Math 125, Discrete Mathematics I, for math and cs majors.
 - (h) Math 114, Calculus and Analytic Geometry II, for science and engineering majors.
 - (i) Math 113, Calculus and Analytic Geometry I, for science and engineering majors.
 - (j) Math 108, Introductory Calculus with Business Applications.
 - (k) Math 106, Concepts of Mathematics.
2. Courses at AASU:
 - (a) CSCI-1060, introduction to computing and algorithms.
 - (b) CSCI-2620, upper division discrete mathematics for computer science majors.

- (c) CSCI-2410, upper division course on data structures and algorithms, implemented in Java.
- 3. University lecturer for the Science Institute of the University of Iceland, 1997 - 1999. Courses:
 - (a) Math-09.10.12, first year calculus for natural sciences.
 - (b) Math-09.10.68, upper division graph theory for mathematics and computer science majors.
- 4. Instructor-in-charge at the Department of Mathematics, U. C. Berkeley, Summers of 1993 - 1996. Courses:
 - (a) Math-S1B, second year calculus for engineers and science majors.
 - (b) Math-S32, pre-calculus.
 - (c) Math-110, upper division linear algebra for mathematics and computer science majors.

Refereed Journal Publications:

1. Geir Agnarsson: On a class of presentations of matrix algebras, *Communications in Algebra*, **24** (1996), No. 14, 4331 – 4338.
2. Geir Agnarsson; S. A. Amitsur; J. C. Robson: Recognition of matrix rings II, *Israel Journal of Mathematics*, **96** (1996), 1 – 13.
3. Geir Agnarsson: Number of outside corners of monomial ideals, *Journal of Pure and Applied Algebra*, **117/118** (1997), 3 – 21.
4. Geir Agnarsson; Stefan Felsner; William T. Trotter: The maximum number of edges in a graph of bounded dimension, with applications to ring theory, *Discrete Mathematics*, **201** (1999), 5 – 19.
5. Geir Agnarsson: Co-generators for algebras over fields and commutative applications, *Communications in Algebra*, **28** (2000), No. 9, 4071 – 4087.
6. Geir Agnarsson; Raymond Greenlaw; Magnús M. Halldórsson: On powers of chordal graphs and their colorings, *Congressus Numerantium*, **144** (2000), 41 – 65.
7. Geir Agnarsson; Benjamin Doerr; Tomasz Schoen: Coloring t -dimensional m -boxes, *Discrete Mathematics*, **226** (2001), 21 – 33.
8. Geir Agnarsson: On powers of some intersection graphs, *Congressus Numerantium*, **151** (2001), 97 – 109.
9. Geir Agnarsson: Extremal graphs of order dimension 4, *Mathematica Scandinavica*, **90** (2002), 5 – 12.
10. Geir Agnarsson: On the Sylvester denumerants for general restricted partitions, *Congressus Numerantium*, **154** (2002), 49 – 60.

11. Geir Agnarsson: On chordal graphs and their chromatic polynomials, *Mathematica Scandinavica*, **93** (2003), 240 – 246.
12. Geir Agnarsson; Peter Damaschke; Magnús M. Halldórsson: Powers of geometric intersection graphs and dispersion algorithms, *Discrete Applied Mathematics*, **132** (2004), 3 – 16.
13. Geir Agnarsson; Magnús M. Halldórsson: Coloring powers of planar graphs, *SIAM Journal of Discrete Mathematics*, **16** (2003), No. 4, 651 – 662.
14. Geir Agnarsson; Ágúst Egilsson: On vertex coloring simple genetic digraphs, *Congressus Numerantium*, **161** (2003), 117 – 127.
15. Geir Agnarsson; Narsingh Deo; Paulius Micikevicius: On the expected number of level- i nodes of a random labeled tree, *Bulletin of the Institute of Combinatorics and its Applications*, **41** (2004), 51 – 06.
16. Geir Agnarsson; Li Chen: On the extension of vertex maps to graph homomorphisms, *Discrete Mathematics*, **306** (2006), 2021 – 2030.
17. Geir Agnarsson; Magnús M. Halldórsson: A note on strongly simplicial vertices of powers of trees, *Discrete Mathematics*, to appear.
18. Geir Agnarsson; Ágúst Egilsson; Magnús M. Halldórsson: Vertex coloring acyclic digraphs and their corresponding hypergraphs *Discrete Applied Math.*, to appear.

Refereed Conference Proceedings:

1. Geir Agnarsson; Magnús M. Halldórsson: Coloring Powers of Planar Graphs, *Proceedings of the Eleventh Annual ACM-SIAM Symposium On Discrete Algorithms, San Francisco, CA, 2000*, 654 – 662, (2000).
2. Geir Agnarsson; Peter Damaschke; Magnús M. Halldórsson: Powers of Geometric Intersection Graphs and Dispersion Algorithms, *Proceedings of the Eighth Scandinavian Workshop on Algorithm Theory, Turku, Finland, 2002*, Lecture Notes in Computer Science, LNCS – **2368**, 140 – 149, (2002).
3. Geir Agnarsson; Ágúst S. Egilsson; Magnús M. Halldórsson: Proper down-coloring simple acyclic digraphs, *Proceedings of the Second Workshop in Applications of Graph Transformations with Industrial Relevance, Charlottesville, VA, 2003*, Lecture Notes in Computer Science, LNCS – **3062**, 299 – 312, (2004).
4. Geir Agnarsson; Magnús M. Halldórsson: On Colorings of Squares of Outerplanar Graphs, *Proceedings of the Fifteenth Annual ACM-SIAM Symposium On Discrete Algorithms, New Orleans, LA, 2004*, 237 – 246, (2004).
5. Geir Agnarsson; Magnús M. Halldórsson: Strong colorings of hypergraphs, *Proceedings of the 2nd Workshop on Approximation and Online Algorithms, Bergen, Norway, 2004*, Lecture Notes in Computer Science, LNCS – **3351**, 253 – 266, (2005).

Books:

1. Geir Agnarsson; Raymond Greenlaw: Graph Theory: Modeling, Applications, and Algorithms, *Pearson Prentice Hall*, 464 pp, ISBN – 0131423843, (2007).
2. Geir Agnarsson; Raymond Greenlaw: Graph Theory: Modeling, Applications, and Algorithms, *Pearson International Edition*, 464 pp, ISBN – 0131565362, (2007).

Submitted papers (preprints):

1. Geir Agnarsson; Ágúst Egilsson; Magnús M. Halldórsson: Vertex coloring acyclic digraphs and their corresponding hypergraphs, [arXiv:0706.1539v1](#) [math.CO].
2. Geir Agnarsson: On multipartite posets, [arXiv:0706.1529v1](#) [math.CO].
3. Geir Agnarsson; Magnús M. Halldórsson: On Colorings of Squares of Outerplanar Graphs, [arXiv:0706.1526v1](#) [math.CO].
4. Geir Agnarsson; Walter Morris, On Minkowski sum of simplices, [arXiv:math/0605564v1](#) [math.CO].

Conferences and talks:

- Numerous talks at internationally recognized conferences since graduate studies at U. C. Berkeley.
- Invited talks since Spring of 1996:
 1. Invited Speaker, Colloquium, Dept. of Math. Sciences, GMU, Fairfax, Virginia, May 4, 2007. Title: *Fermat's Last Theorem, history and proof.*
 2. Invited Speaker, Mathematics Colloquium, James Madison University (JMU), Harrisonburg, Virginia, February 1, 2006. Title: *Vertex Coloring Planar Graphs, Inductively and Theoretically.*
 3. Invited Speaker, SIAM Conference on Discrete Mathematics, Nashville, Tennessee, June 13 – 16, 2004. Invited Minisymposia in Graph Colorings. Title: *Vertex Coloring Acyclic Digraphs.*
 4. Invited Speaker, Clemson University, Clemson, South Carolina, November 8 – 9 2001. The Sixteenth Clemson Mini-Conference On Discrete Mathematics. Title: *Coloring Powers of Planar Graphs.*
 5. Invited Speaker, Combinatorics, Algorithms and Theoretical Computer Science Seminar (CATS), The University of Georgia, March 14, 2001. Title: *The maximum number of edges in a graph of bounded order dimension.*
 6. Invited Speaker, Virginia Bioinformatics Institute (VBI), Blacksburg, Virginia, January 29, 2001. Title: *A Way to Measure Communications in Certain Systems over Time.*
 7. Invited Speaker, University of Central Florida, Orlando, Florida, Department of Computer Science, November 1, 2000. Title: *Product Ramsey Numbers for Grid Graphs.*

8. Invited Speaker, Arizona State University, Tempe, Arizona, Seminar in Discrete Mathematics, April 11, 2000. Title: *On Chordal Graphs and Chromatic Polynomials*.
9. Invited Speaker, Rutgers, The State University of New Jersey, New Jersey, The Center for Discrete Mathematics and Theoretical Computer Science (DIMACS), DREI'99, July 19 - August 6, 1999 Title: *Distance k -Coloring Planar Graphs*.
10. Invited Speaker, Universität Hamburg, Germany, Matematisches Seminar (department of mathematics), Juni 2, 1997. Title: *On the Number of Outside Corners of Filters in 4-Dimensional Space*.
11. Invited Speaker, New Mexico State University, Las Cruces, New Mexico, Holiday Symposium, January 3 – 7, 1997. Title: *On Functionals and Outside Corners of Monomial Ideals*.
12. Special Session Speaker, 914th AMS Meeting, Rider University, Lawrenceville, New Jersey, October 5 – 6, 1996. Title: *On Functionals and Outside Corners of Monomial Ideals*.

Professional Service:

- Regular referee for the following journals:
 - *Discrete Mathematics (DM)*.
 - *Discrete Applied Mathematics (DAM)*.
 - *Discrete Mathematics and Theoretical Computer Science (DMTCS)*.
 - *The Ramanujan Journal*.
 - *Information Processing Letters (IPL)*.
 - *International Journal of Mathematics and Mathematical Sciences (IJMMS)*.
 - *Bulletin of the Institute of Combinatorics and its Applications (Bulletin of the ICA)*.
- Regular reviewer for the following conference proceedings:
 - *ACM-SIAM Symposium on Discrete Algorithms (SODA)*.
 - *European Symposia on Algorithms (ESA)*.
 - *Scandinavian Workshop on Algorithm Theory (SWAT)*.
 - *International Symposium on Fundamentals of Computation Theory (FCT)*.
 - *Foundations of Software Technology and Theoretical Computer Science (FSTTCS)*.
 - *Annual ACM Southeastern Conference (ACMSE)*.
- Regular reviewer of grant proposals submitted to the following foundations:
 - *National Science Foundation (NSF)*.
 - *The Icelandic Centre for Research (RANNIS)*.

- Regular reviewer:
 - *The Mathematical Reviews (MR) Database.*
- External Reviewer:
 - *Computer Science Program: Department of Computer Science at Armstrong Atlantic State University, Savannah, Georgia, February 17 – 18, 2006.*

Professional Societies:

1. *Institute of Combinatorics and its Applications (ICA)*. A *Fellow* since February 6, 2007.
2. *Society for Industrial and Applied Mathematics (SIAM)*. Member since June 16, 2004.
3. *American Mathematical Society (AMS)*. Member since 1997.
4. *Icelandic Mathematical Society*. Member since 1990.

Organization and Committee Work:

1. Chair of the *Combinatorics, Algebra and Geometry Seminar (CAGS)* at the Dept. of Math. Sciences at GMU. Since Fall 2006.
2. Distinguished *Prelim Exam Keeper* (appointed by David Walnut.) Since Fall 2006.
3. Current member of the *Algebra Prelim Exam (APE) Committee* (together with Jay Shapiro and Rebecca Goldin.) Since Fall 2006.
4. Current member of the *Prelim Exam Committee (PEC)* for incoming Ph.D. students in mathematics of the Dept. of Math. Sciences at GMU. Since Fall 2006.
5. Current member of the *Policy and Hiring Committee (P & H)* of the Dept. of Math. Sciences at GMU (3 year appointment), since Fall 2006.
6. Organizer of the *Mid-Atlantic Algebra Conference 2004* (with Jay Shapiro), held at GMU, November 13 – 14, 2004.
7. Former member of the *Graduate Program Committee*, Department of Computer Science, AASU, 2000 – 2002.
8. Treasurer for the *Icelandic Mathematical Society*, Spring 1999.
9. Organizer of the *Nordic Mathematical Competition (NMC – 1999)*, in 1999.
10. Team leader for Iceland in the *International Mathematical Olympiad (IMO-1998 in Taiwan)* and (IMO-1999 in Romania), summers of 1998 and 1999 respectively.
11. Organizer of the *Research Seminar* at the Science Institute, University of Iceland, 1998.

Honors:

1. Elected a *Fellow* of the ICA by the Council of the ICA, February 6, 2007.
2. Elected an *Associate Fellow* of the ICA by the Council of the ICA, March 20th, 2000.
3. Special honorary awards upon graduation from high school, Spring of 1987, for outstanding performance in mathematics and in physics.
4. Represented Iceland in the following competitions:
 - (a) The *Nordic Mathematical Competition* (NMC-1987), 1st place, shared with a Swedish and a Finnish competitor, in 1987.
 - (b) The *International Mathematical Olympiad*, (IMO-1986) in Poland Summer of 1986, and (IMO-1987) in Cuba Summer of 1987.

Fairfax, VA, September 10, 2007

Geir Agnarsson