Curriculum Vitae

Ellen Gethner, PhD
Associate Professor of Computer Science
Adjunct Professor of Mathematics

University of Colorado Denver

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Education

- **PhD** (Theoretical Computer Science) University of British Columbia, May, 2002
  Thesis Supervisors: David G. Kirkpatrick and Nicholas Pippenger
  Thesis Title: Computational Aspects of Escher Tilings

- **PhD** (Mathematics) The Ohio State University, December, 1992
  Thesis Advisor: L. Alayne Parson
  Thesis Title: Rational Period Functions for the Modular Group and Related Discrete Groups

- **MA** (Mathematics) University of Washington, August, 1983

- **AB** (Mathematics) Smith College, Cum Laude, Highest Honors, 1981

- Carleton College (Mathematics) 1977-9

MAA Chauvenet Prize

- Winner of the MAA (Mathematical Association of America) Chauvenet Prize in 2002 with
  co-authors Stan Wagon and Brian Wick for *A stroll through the Gaussian Primes* (appearing
  in the American Mathematical Monthly, 105 (1998), no. 4, 327–337).

Professional Experience

- Associate Professor of Computer Science, Fall 2008-
  Adjunct Professor of Mathematics, Fall 2008-
  Assistant Professor of Computer Science, 2002-2008
  Department of Computer Science and Engineering
  University of Colorado Denver
  Denver, CO, 80217

- Graduate Research Assistant, 1999-2002
  Department of Computer Science
  University of British Columbia
  Vancouver, British Columbia V6T 1Z4
  Canada

- Assistant Professor, 1997-99
  Department of Mathematics
  Claremont McKenna College
  Claremont, CA

- Visiting Assistant Professor, 1996-97
  Department of Mathematics and Computer Science
  Grinnell College
  Grinnell, Iowa

- Postdoctoral Fellow, 1994-96
  Mathematical Sciences Research Institute
  Berkeley, California

- Visiting Assistant Professor, 1992-94
  Department of Mathematics and Statistics
  Swarthmore College
  Swarthmore, Pennsylvania

- Graduate Teaching Assistant and Research Associate, 1986-92
  Department of Mathematics
  Ohio State University
  Columbus, Ohio

- Senior Research Associate 1983-86
  Amherst Associates and Jennings, Ryan, Federa and Co.
  Amherst, Massachusetts

- Graduate Teaching Assistant, 1981-83
  Department of Mathematics
  University of Washington
  Seattle, Washington

Bibliography

[1] Ellen Gethner and Joan P. Hutchinson. Connected graphs with complementary edge-orbits. *Ars Combin.*, 12:135–146, 1981.

[2] Ellen Gethner. Rational period functions with irrational poles are not Hecke eigenfunctions. In *A tribute to Emil Grosswald: number theory and related analysis*, volume 143 of *Contemp. Math.*, pages 371–383. Amer. Math. Soc., Providence, RI, 1993.

[3] Ellen Gethner. Rational period functions on $G(\sqrt{2})$ and $G(\sqrt{3})$ with hyperbolic poles are not Hecke eigenfunctions. *Illinois J. Math.*, 39(4):695–722, 1995.

[4] Ellen Gethner and H. M. Stark. Periodic Gaussian moats. *Experiment. Math.*, 6(4):289–292, 1997.

[5] Ellen Gethner, Stan Wagon, and Brian Wick. A stroll through the Gaussian primes. *Amer. Math. Monthly*, 105(4):327–337, 1998.

[6] Ellen Gethner. On the exact location of the zeros of certain families of rational period functions and other related rational functions. *Proc. Amer. Math. Soc.*, 127(1):1–10, 1999.

[7] Alex Brodsky, Stephane Durocher, and Ellen Gethner. The rectilinear crossing number of K_{10} is 62. *Electron. J. Combin.*, 8(1):Research Paper 23, 30 pp. (electronic), 2001.

[8] Ellen Gethner. On a generalization of a combinatorial problem posed by M. C. Escher. In *Proceedings of the Thirty-second Southeastern International Conference on Combinatorics, Graph Theory and Computing (Baton Rouge, LA, 2001)*, volume 153, pages 77–96, 2001.

[9] Alex Brodsky, Stephane Durocher, and Ellen Gethner. Toward the rectilinear crossing number of K_n: new drawings, upper bounds, and asymptotics. *Discrete Math.*, 262(1-3):59–77, 2003.

[10] Ellen Gethner and William M. Springer, II. How false is Kempe's proof of the four color theorem? In *Proceedings of the Thirty-Fourth Southeastern International Conference on Combinatorics, Graph Theory and Computing*, volume 164, pages 159–175, 2003.

[11] Alice M. Dean, Ellen Gethner, and Joan P. Hutchinson. Unit bar-visibility layouts of triangulated polygons. In *Proceedings of the 12th international conference on Graph Drawing*, GD'04, pages 111–121, Berlin, Heidelberg, 2004. Springer-Verlag.

[12] Alice M. Dean, William Evans, Ellen Gethner, Joshua D. Laison, Mohammad Ali Safari, and William T. Trotter. Bar k-visibility graphs: bounds on the number of edges, chromatic number, and thickness. In *Graph drawing*, volume 3843 of *Lecture Notes in Comput. Sci.*, pages 73–82. Springer, Berlin, 2006.

[13] J. Joseph Fowler and Ellen Gethner. Counting Escher's $m \times m$ ribbon patterns. *J. Geom. Graph.*, 10(1):1–13, 2006.

[14] Alice M. Dean, William Evans, Ellen Gethner, Joshua D. Laison, Mohammad Ali Safari, and William T. Trotter. Bar k-visibility graphs. *J. Graph Algorithms Appl.*, 11(1):45–59, 2007.

[15] Ellen Gethner, Doris Schattschneider, Steve Passiouras, and J. Joseph Fowler. Combinatorial enumeration of 2×2 ribbon patterns. *European J. Combin.*, 28(4):1276–1311, 2007.

[16] Debra L. Boutin, Ellen Gethner, and Thom Sulanke. Thickness-two graphs. I. New nine-critical graphs, permuted layer graphs, and Catlin's graphs. *J. Graph Theory*, 57(3):198–214, 2008.

[17] Michael Ferrara, Christine Lee, Phil Wallis, and Ellen Gethner. deBruijn-like sequences and the irregular chromatic number of paths and cycles. *Discrete Math.*, 309(20):6074–6080, 2009.

[18] Ellen Gethner, Bopanna Kallichanda, Alexander S. Mentis, Sarah Braudrick, Sumeet Chawla, Andrew Clune, Rachel Drummond, Panagiota Evans, William Roche, and Nao Takano. How false is Kempe's proof of the four color theorem? II. *Involve*, 2(3):249–266, 2009.

[19] Ellen Gethner and Thom Sulanke. Thickness-two graphs. II. More new nine-critical graphs, independence ratio, cloned planar graphs, and singly and doubly outerplanar graphs. *Graphs Combin.*, 25(2):197–217, 2009.

[20] Michael O. Albertson, Debra L. Boutin, and Ellen Gethner. The thickness and chromatic number of r-inflated graphs. *Discrete Math.*, 310(20):2725–2734, 2010.

[21] Michael O. Albertson, Debra L. Boutin, and Ellen Gethner. More results on r-inflated graphs: arboricity, thickness, chromatic number and fractional chromatic number. *Ars Math. Contemp.*, 4(1):5–24, 2011.

[22] Michael Ferrara, Breeann Flesch, and Ellen Gethner. List-distinguishing colorings of graphs. *Electron. J. Combin.*, 18(1):Paper 161, 17, 2011.

[23] Ellen Gethner and Joshua D. Laison. More directions in visibility graphs. *Australas. J. Combin.*, 50:55–65, 2011.

[24] Ellen Gethner, David G. Kirkpatrick, and Nicholas Pippenger. M.C. Escher wrap artist: Aesthetic coloring of ribbon patterns. In *FUN*, pages 198–209, 2012.

[25] Stephane Durocher, Ellen Gethner, and Debajyoti Mondal. Thickness and colorability of geometric graphs. In *Graph-Theoretic Concepts in Computer Science - 39th International Workshop, WG 2013, Lübeck, Germany, June 19-21, 2013, Revised Papers*, pages 237–248, 2013.

[26] Michael Ferrara, Ellen Gethner, Stephen G. Hartke, Derrick Stolee, and Paul S. Wenger. List distinguishing parameters of trees. *Discrete Applied Mathematics*, 161(6):864–869, 2013.

[27] Ellen Gethner, David G. Kirkpatrick, and Nicholas Pippenger. Computational aspects of M.C. Escher's ribbon patterns. *Theory Comput. Syst.*, 54(4):640–658, 2014.

[28] Shannon Steinmetz Ellen Gethner and Joseph Verbeke. A view of music. In Douglas McKenna Kelly Delp, Craig S. Kaplan and Reza Sarhangi, editors, *Proceedings of Bridges 2015: Mathematics, Music, Art, Architecture, Culture*, pages 289–294, Phoenix, Arizona, 2015. Tessellations Publishing. Available online at `http://archive.bridgesmathart.org/2015/bridges2015-289.html`.

[29] Stephane Durocher, Ellen Gethner, and Debajyoti Mondal. On the biplanar crossing number of K_n. In *Proceedings of the 28th Canadian Conference on Computational Geometry, CCCG 2016, August 3-5, 2016, Simon Fraser University, Vancouver, British Columbia, Canada*, pages 93–100, 2016.

[30] Stephane Durocher, Ellen Gethner, and Debajyoti Mondal. Thickness and colorability of geometric graphs. *Comput. Geom.*, 56:1–18, 2016.

[31] Ellen Gethner, Leslie Hogben, Bernard Lidický, Florian Pfender, Amanda Ruiz, and Michael Young. On crossing numbers of complete tripartite and balanced complete multipartite graphs. *J. Graph Theory*, 84(4):552–565, 2017.

[32] Michael Ferrara, Ellen Gethner, Stephen G. Hartke, Derrick Stolee, and Paul S. Wenger. Extending precolorings to distinguish group actions. *Eur. J. Comb.*, 72:12–28, 2018.

[33] Ellen Gethner. To the moon and beyond. In *Graph theory—favorite conjectures and open problems. 2*, Probl. Books in Math. Springer, [Cham], 2018. Chapter 11, 20pp.

[34] Rod Hilton and Ellen Gethner. Predicting code hotspots in open-source software from object-oriented metrics using machine learning. *International Journal of Software Engineering and Knowledge Engineering*, 28(3):311–332, 2018.

Book Chapter and Non-Refereed Expository Publication

1. Ellen Gethner, *In prime territory*, invited book chapter in The Edge of the Universe: Celebrating Ten Years of Math Horizons, ed. by Deanna Haunsperger and Stephen Kennedy. Mathematical Association of America, 2006.

2. Ellen Gethner, *In prime territory*, invited article in Math Horizons, 3 (1996) no. 4, 8–13.

Courses Taught

U=undergraduate course; G=graduate course

At UC Denver

- Algorithms (G)

- Applied Graph Theory (U and G)

- Applied Number Theory (U and G)

- Computational Geometry (U and G)

- Combinatorial and Computational Geometry: Special Topics (G)

- Computer Security (G)

- Directed Research and Thesis Advisor (U and G)

- Discrete Linear Systems (U)

- Discrete Structures (U)

- Independent Study (U and G)

- Internship sponsor (U)

Prior to UC Denver

- Abstract Algebra (U)

- Analytic Number Theory (U)

- Calculus I, II, III (U)

- Calculus with *Mathematica* (U)

- Computational Number Theory with *Mathematica* (U)

- Directed Research and Thesis Advisor (U)

- Discrete Mathematics (U)

- Discrete Structures (U)

- Elementary Number Theory (U)

- Freshman Honors Seminar: Number Theory (U)

- Linear Algebra and Differential Equations (U)

Keynote, Invited, and Contributed Talks

Keynote

1. (with Shannon Steinmetz and Joey Verbeke) *An Animated View of Music* RaCAS, University of Colorado Denver April 2015, Research

2. *Mining the mesmerizing miraculous mysteries of mathematics... for Art!.* Mini-stem school, University of Colorado Denver, March 2014, Outreach

3. *Searching for a Thickness-Two 10-Chromatic Graph and Discovering Other Treasures Along The Way*, Conference in Celebration of Smith College Alumnae Mathematicians, Smith College, Northampton, MA, September, 2007, Research

4. *Unravelling the Chromatic Number of Thickness-Two Graphs*, Discrete Mathematics Day, Skidmore College, Saratoga Springs, NY, September, 2006, Research

5. *The Art of Computation: M.C. Escher in the 21st Century*, Young Mathematicians Conference, Ohio State University, Columbus, Ohio, August, 2005, Research

6. *Prime Time*, UNO High School Outreach, University of Nebraska/Omaha, February, 2001, Outreach

7. *What Does a Research Mathematician Do?*, Bay Area Mathematics Project For High School Teachers, Albany, California, July, 1996, Outreach

8. *Prime Time*, MSRI Junior High School Outreach Program, Mathematical Sciences Research Institute, Berkeley, California, June, 1996, Outreach

9. *Prime Time*, Numbers In Action, Mathematical Sciences Research Institute, Berkeley, California, December, 1995, Outreach

Invited

1. *Thickness and Simultaneous Embeddings*, Invited Speaker for series WDM (women doing math), Texas State University, April 2018.

2. *Thickness, Simultaneous Embeddings, and Graph Sculpting* Invited Minisymposium CanaDAM (Canadian Discrete and Algorithmic Mathematics), Ryerson University, Toronto, ON, Canada, June 2017.

3. *New Results on the Geometric Thickness of Graphs*, AMS Special Session on Extremal Graph Theory, University of Akron, October 2012

4. *Open Research Problems*, University of Colorado Denver Discrete Math Seminar, August, 2012

5. *M.C. Escher Wrap Artist: Aesthetic Coloring of Ribbon Patterns*, FUN with Algorithms, Venice, Italy, June 2012

6. *The Art of Computation: M.C. Escher in the 21st Century* UCD, Denver, Colorado, May, 2011, Invited Presentation for the Math Club

7. *A Stroll Through the Gaussian Primes*, Invited Plenary Hour Long Talk at MathPath, a summer camp for exceptionally bright middle school math students, June, 2011, hosted by Colorado College

8. *To the Moon and Beyond: Thickness of Graphs*, Invited Colloquium at the University of Nebraska at Omaha, November 2011, Research

9. *To the Moon and Beyond*, Discrete Math Seminar UCD, Denver, Colorado, October, 2010, Research

10. *The Thickness and Chromatic Number of r-Inflated Graphs*, AMS Special Session on Graph Theory, Newark, New Jersey, May 2010, Research

11. *The Art of Computation: M.C. Escher in the 21st Century*, Bates College, March 2010, Research

12. *To the Moon and Beyond*, CoNE Revisited: Celebrating the Inspirations of Michael O. Albertson, Smith College, March 2010, Research

13. *The Art of Computation: M.C. Escher in the 21st Century*, Willamette University, February 2010, Research

14. *An Adventurer's Guide to the Colorful Tale of Thickness-Two Graphs*, MathFest Invited Paper Session on Graph Theory with Connections to Geometry and Topology, Madison, WI, July, 2008, Research

15. *An Adventurer's Guide To The Treasure Hunt For High Chromatic Thickness-Two Graphs*, Mathematics Colloquium, Skidmore College, Saratoga Springs, NY, April, 2008, Research

16. *An Adventurer's Guide To The Treasure Hunt For High Chromatic Thickness-Two Graphs*, Mathematics Colloquium, Willamette University, Salem, OR, February, 2008, Research

17. *The Rectilinear Crossing Number of the Complete Graph*, guest lecturer in Mike Albertson's Discrete Geometry class at Smith College, Northampton, MA, September, 2007, Research

18. *New Results on Thickness-Two Graphs*, 20th Cumberland Conference, Emory University, Atlanta, GA, May 2007, Research

19. *The Art of Computation: M.C. Escher in the 21st Century*, Math and Computer Science Colloquium at Hamilton College, Clinton, New York, April, 2006, Research

20. *Unravelling the Chromatic Number of Thickness-Two Graphs*, SIAM Special Session on Geometric Representations of Graphs, San Antonio, January, 2006, Research/Organizer

21. *The Art of Computation: M.C. Escher in the 21st Century*, Math and Computer Science Colloquium at Colorado College, Colorado Springs, March, 2005, Research

22. *Color Coded Escher Tilings: Theory and Practice*, Math and Computer Science Colloquium at Skidmore College, Saratoga Springs, New York, February, 2005, Research

23. *A Unit Bar-visibility Layout Algorithm for Outerplanar Near Triangulations*, 35th Southeastern Conference on Graph Theory (Invited Special Session), Combinatorics, and Computing, Florida State University, March, 2004, Research

24. *On Unit-Bar Visibility Graphs*, AMS Joint Central and Western Section Meeting, Special Session on Graphs and Digraphs, October, 2003, Research

25. *M.C. Escher Inspires a Coloring Problem of a Different Colour: Art, Computer Science and Mathematics Collide*, Combinatorialists of New England, Smith College/Northampton, March, 2001, Research

26. *A Panoply of Potentially Pleasing Patterns*, UNO Mathematics/CS Seminar, University of Nebraska/ Omaha, February, 2001 Research

27. *M.C. Escher Inspires a Coloring Problem of a Different Colour: Art, Computer Science and Mathematics Collide*, UNO Mathematics Colloquium, University of Nebraska/Omaha February, 2001, Invited/Research

28. *M.C. Escher Inspires a Coloring Problem of a Different Colour: Art, Computer Science and Mathematics Collide*, Simon Fraser University, Centre for Experimental and Constructive Mathematics (CECM), January, 2001, Research

29. *A Panoply of Potentially Pleasing Patterns*, SCU Mathematics Colloquium, Santa Clara University, Santa Clara, California, October, 2000, Research

30. *A Panoply of Potentially Pleasing Patterns*, SFSU Mathematics Colloquium, San Francisco State University, San Francisco, California, April, 1999, Research

31. *A Panoply of Potentially Pleasing Patterns*, Claremont Colleges Mathematics Colloquium, Claremont Colleges, Claremont, California, March, 1999, Research

32. *Periodic Gaussian Moats*, Cal State Bakersfield Mathematics Colloquium, Cal State Bakersfield, Bakersfield, California, March, 1998, Research

33. *Periodic Gaussian Moats*, Franklin and Marshall College Mathematics Colloquium, Franklin and Marshall College, Lancaster, Pennsylvania, March, 1998, Research

34. *1001 Hikes on the Gaussian Primes*, SCU Mathematics Colloquium, Santa Clara University, Santa Clara, California, February, 1998, Research

35. *1001 Hikes on the Gaussian Primes*, Conference in Celebration of Women in Number Theory and Analysis, UC Berkeley and MSRI, August, 1996, Research

36. *1001 Hikes on the Gaussian Primes*, UCSD Colloquium, UC San Diego, La Jolla, California, February, 1996, Research

37. *1001 Hikes on the Gaussian Primes*, University of San Diego Combinatorics/Number Theory Brown Bag Seminar, University of San Diego, San Diego, California, February, 1996, Research

38. *A Stroll Through the Gaussian Primes*, Noetherian Ring, UC Berkeley, Berkeley, California, October, 1995, Research

39. *A Stroll Through the Gaussian Primes*, UCSB Number Theory Seminar, UC Santa Barbara, Santa Barbara, California, October, 1995, Research

40. *Latest Results on the Gaussian Moat Problem*, Conference on Analytic Number Theory, University of Illinois, Allerton Park Conference Center, May, 1995, Research

41. *Searching for the Great Gaussian Gap*, Oregon State University Mathematics Colloquium, Corvallis, Oregon, April, 1995, Research

42. *Exact Location of Zeros of Rational Period Functions*, AWM Workshop, Joint Meetings, Cincinnati, Ohio, January, 1994, Research

43. *Rational Period Functions, Zeros*, Bryn Mawr/Haverford Mathematics Colloquium, Bryn Mawr, Pennsylvania, October, 1993, Research

44. *Rational Period Functions, Hecke Operators and Zeros*, Temple University Number Theory and Combinatorics Seminar, Temple University, Philadelphia, Pennsylvania, February, 1993, Research

45. *Rational Period Functions, New Directions*, AMS Special session on Modular Forms and Related Topics, San Antonio, Texas, January, 1993, Research

46. *Rational Period Functions, Hecke Operators*, Conference in Celebration of Joseph Lehner's 80th Birthday, Swarthmore College, Swarthmore, Pennsylvania, October, 1992, Research

47. *Rational Period Functions, Hecke Operators*, AMS Special Session: Modular Forms, Arithmetic Algebraic Geometry, Temple University, Philadelphia, Pennsylvania, April, 1991, Research

48. *Rational Period Functions, Hecke Operators*, AWM Workshop, Joint Meetings San Francisco, California, January, 1990, Research

49. *Cyclic Quadrilaterals*, Summer Program for High School Students, Hampshire College, Hampshire, Massachusetts, July, 1980, Outreach

Contributed

1. *Unravelling the Chromatic Number of Thickness-Two Graphs*, Discrete Mathematics Seminar, UC Denver, September, 2006, Research

2. *Unit Bar-visibility Layouts of Triangulated Polygons*, UC Denver Computer Science PhD Seminar, October, 2004, Research

3. *Unit Bar-visibility Layouts of Triangulated Polygons*, 12th International Symposium on Graph Drawing, City University of New York, September, 2004, Research

4. *How False is Kempe's Proof of the Four Color Theorem?*, 34th Southeastern Conference on Graph Theory, Combinatorics, and Computing, Florida State University, March, 2003, Research

5. *Computational Aspects of Escher Tilings*, Discrete Mathematics Seminar, University of Colorado at Denver, September, 2002, Research

6. *On Rotation Systems*, UBC Theory Reading Group, University of British Columbia/Vancouver, May, 2002, Expository

7. *On Representations of Some Thickness-Two Graphs*, UBC Theory Reading Group, University of British Columbia/Vancouver, May, 2002, Expository

8. *Toward the Chromatic Number of an Escher Tile*, 33rd Southeastern Conference on Graph Theory, Combinatorics, and Computing, Florida State University, March, 2002, Research

9. *Coloring Ordinary Maps, Maps of Empires, and Maps of the Moon*, UBC Theory Reading Group, University of British Columbia/Vancouver, November, 2001, Expository

10. *M.C. Escher Inspires a Coloring Problem of a Different Colour: Art, Computer Science and Mathematics Collide*, 32nd Southeastern Conference on Combinatorics, Graph Theory, and Computing, Louisiana State University/Baton Rouge, February, 2001, Research

11. *M.C. Escher Inspires a Coloring Problem of a Different Colour: Art, Computer Science and Mathematics Collide*, CS Theory Seminar, University of British Columbia/Vancouver, February, 2001, Research

12. *M.C. Escher: Computational Geometer Extraordinaire*, Recent Trends in Geometry and Symmetry, University of Wisconsin, Madison, Wisconsin, May, 2000, Research

13. *Gaussian Moat Problem: A New Approach?*, UBC Theoretical Computer Science Seminar, University of British Columbia, Vancouver, B.C. Canada, Nov, 1999, Research

14. *A Combinatorial Problem of M.C. Escher*, Conference in Honor of Paul Erdos, Hungarian Academy of Sciences, Budapest, Hungary, July, 1999, Poster: Research

15. *Rectangle Visibility Graphs: On a Paper of Hutchinson, Shermer, and Vince*, Claremont Colleges Combinatorics and Algebra Seminar Pomona College, Claremont, California, May, 1999, Contributed/ Research

16. *The Mathematics of English Change Ringing*, Pomona College "Mathematics of Music" Class Pomona College, Claremont, California, May, 1999, Outreach

17. *On the Number of Inequivalent Escher-like Tiles in Four Aspects*, Claremont Colleges Combinatorics and Algebra Seminar, Pomona College, Claremont, California November, 1998, Research

18. *1001 Hikes on the Gaussian Primes*, Regional Meeting of the AMS and MAA, Claremont Colleges, Claremont, California, October, 1997, Research

19. *The Bridge Between Modular Forms and Fermat's Last Theorem, part 5* Grinnell Math Faculty Seminar Grinnell College, Grinnell, Iowa April, 1996, Expository

20. *The Bridge Between Modular Forms and Fermat's Last Theorem, part 4* Grinnell Math Faculty Seminar Grinnell College, Grinnell, Iowa April, 1996, Expository

21. *The Bridge Between Modular Forms and Fermat's Last Theorem, part 3* Grinnell Math Faculty Seminar Grinnell College, Grinnell, Iowa April, 1996, Expository

22. *The Bridge Between Modular Forms and Fermat's Last Theorem, part 2* Grinnell Math Faculty Seminar Grinnell College, Grinnell, Iowa April, 1996, Expository

23. *The Bridge Between Modular Forms and Fermat's Last Theorem, part 1* Grinnell Math Faculty Seminar Grinnell College, Grinnell, Iowa April, 1996, Expository

24. *A Stroll Through the Gaussian Primes*, West Coast Number Theory Conference, Asilomar Conference Center, Pacific Grove, California, December, 1995, Research

25. *Still Searching for the Great Gaussian Gap*, MSRI Postdoctoral Seminar, Mathematical Sciences Research Institute, Berkeley, California, April, 1995, Research

26. *Rational Period Functions II*, OSU Complex Analysis Seminar, Ohio State University, Columbus, Ohio, April, 1992, Research

27. *Rational Period Functions I*, OSU Complex Analysis Seminar, Ohio State University, Columbus, Ohio, April, 1992, Research

28. *On a Paper of Heiko Harborth*, University of Washington Combinatorics and Geometry Seminar, University of Washington, Seattle, Washington, February, 1982, Research

29. *Platonic Graphs on the Torus*, University of Washington Combinatorics and Geometry Seminar, University of Washington, Seattle, Washington, October, 1981 Research

Recognitions, Honors, and Awards

1. *In prime territory*, by Ellen Gethner, invited book chapter in The Edge of the Universe: Celebrating Ten Years of Math Horizons, ed. by Deanna Haunsperger and Stephen Kennedy. Mathematical Association of America, 2006.

2. Two citations in Doris Schattschneider's Visions of Symmetry: Notebooks, Periodic Drawings, and Related Work of M.C. Escher, 2nd Ed., Harry N Abrams, Publisher, May 2004

3. Faculty Incentive Award, UC Denver Department of Computer Science and Engineering for submitting a research proposal to the NSA, Fall 2002

4. Winner of the MAA Chauvenet Prize for mathematical exposition, 2002 (with co-authors Stan Wagon and Brian Wick for the article *A stroll through the Gaussian primes.* American Mathematical Monthly 105 (1998), no. 4, 327–337)

5. Elected member of Sigma Xi, 1981, 1999

6. Mathematical Sciences Research Institute (MSRI) Postdoctoral Fellowship: Berkeley, California, 1994-96

7. Recipient of AWM Workshop Postdoctoral Travel Award: Joint Math Meetings, Cincinnati, Ohio, 1993

8. Recipient of Department of Education National Needs Grant, Ohio State University, 1989-92

9. Recipient of AWM Workshop Graduate Student Travel Award: Joint Math Meetings, San Francisco, 1990

10. General Electric Foundation Fellowship, Ohio State University, 1987-88

11. Highest Honors in Mathematics, Cum Laude, Smith College, 1981

Professional Organizations

- American Mathematical Society (AMS)

- Association for Women in Mathematics (AWM)

- Mathematical Association of America (MAA)

- Society for Industrial and Applied Mathematicians (SIAM)

  Member of the Discrete Mathematics Activity Group

Scholarly and Creative Activity
Research Interests

- Graph Theory, Combinatorics, and Discrete Mathematics

- Discrete and Combinatorial Geometry

- Number Theory

- Complex Analysis

- Scientific Visualization

- Connections among any and all of the above

Funding Received (NSA, NSF, Simons Foundation, and misc.)

- Simons Foundation Collaboration Grant for Mathematicians (PI) $35,000 from 9/1/2014-8/31/2019

- National Science Foundation Workshop Grant (co-PI) $41,220 from 5/2016-9/2019

- UC Denver College of Engineering Program Fees Recipient for *Mathematica* software to be used in the Raytheon Lab (with Will Trobaugh). Total over three years 2006-9: $16,000.

- PI for National Security Agency (NSA) 2005 UC Denver Conference Grant ("Graph Theory with Altitude") $15,000. Co- PI's John Clark (Chair of Computer Science) and Michael Jacobson (Chair of Math).

- Anonymous External Donation ($2000) for 2005 UC Denver Conference ("Graph Theory with Altitude")

- International Graduate Tuition Scholarship: University of British Columbia, 1999-2002

- Claremont McKenna College Summer Research Grant, Claremont McKenna College, 1998

- Visiting Women Scholars Project (with L. Alayne Parson), Ohio State University, 1991-92

Professional Journals Refereed

- American Mathematical Monthly

- American Mathematical Society Contemporary Mathematics Series

- Experimental Mathematics

- Ars Combinatoria

- Rocky Mountain Mathematics Journal

- Conference Proceedings: Graph Theory, Computational Intelligence and Thought

- Conference Proceedings: LATIN

- Involve: A Journal of Mathematics

- Conference Proceedings: COCOA

- Integers: The Electronic Journal of Combinatorial Number Theory

- Journal of Graph Algorithms and Applications

- Journal of Number Theory

- Springer LNCS: Theory of Computing Systems

- Springer LNCS: Graph Drawing

Association for Women in Mathematics

- Panel member to distribute graduate student travel awards for the Joint Mathematics Meetings, 1994

- Mentor for Sonya Kovalevskaya High School Day, Columbia University, 1995

National Science Foundation

- Postdoctoral focus group member, January 1997

Mathematical Association of America

- Chauvenet Prize Committee, 2003-2005 (Chair in 2004)

- William Lowell Putnam Exam grader, 1998, 2000, 2001, 2002, 2003

Conference Organizer

- Co-organizer/Program Committee Member: *CoNE Revisited: Celebrating the Inspirations of Michael O. Albertson*, Smith College, Northampton, Massachusetts, March 2010.

- Main organizer and Chair: *Graph Theory with Altitude Conference.* Co-hosted by Computer Science and Mathematics at the University of Colorado Denver Denver, Colorado, May 2005

- Co-organizer: *Conference in Celebration of Smith College Alumnae Mathematicians*, Smith College, Northampton, Massachusetts, April, 2001

Professional Consultant

- G is for Googol: A Math Alphabet Book, by David M. Schwartz; illustrated by Marissa Moss, Tricycle Press, 1998.

Television Appearance (11 minutes)

- A hike on the Gaussian primes with Cliff Stoll, The Site, MS-NBC, 1997.

Service
University of Colorado Denver, Fall 2002-

- RaCAS (Research and Creative Activities Symposium) Planning Committee 2014-Present

- Member ORS (office of research services) standing awards committee Fall 2014-Summer 2016

- Board member MIS program Fall 2015-present

- Sponsor for student club Synaethetics Collective Summer 2014-present

- Undergraduate CSCI advisor 2011-present

- Member of the CSIS PhD Preliminary Exam Committee (wrote and graded the Algorithms exam 2009, 2010, 2011, 2012, 2014, 2015), 2008-present

- Member of the EAS PhD committee, Fall 2011-2014

- CS contact for curricular discussions with the UC Denver Mathematics Department, Fall 2005-present

- Member of and advisor for Master's Graduate Committee, Summer 2004-Spring 2015

- Member of and advisor for Undergraduate Committee, Fall 2015-present

- Dissertation committee member for many (about 35) MS and PhD students in CS and Math, 2003-present

- Member of the Computer Science faculty search committee, Fall 2015-Spring 2016

- Member of the Computer Science faculty search committee (two positions), Fall 2012-Spring 2013

- Member of the Department of Mathematics faculty search committee for a position in Graph Theory, Fall 2011-Spring 2012.

- Member of the Department of Mathematics faculty search committee for a position in Graph Theory, Fall 2008-Spring 2009.

- Member of the Library Discovery Layer Testing committee, Spring 2012

- Curriculum Development: Developed a course in Computational Geometry for both undergraduates and graduates (CSC 4800/5800) to be taught with the use of the software package *Mathematica*, Fall 2008

- Member of the Department of Computer Science Executive Committee, Spring 2008-Spring 2009

- Member of the University Honors and Leadership Faculty Steering Committee, Fall 2007-Fall 2008

- Member of the University of Colorado IT Policy Group, Fall 2007-2009

- Wrote, proctored, and graded the CS PhD comprehensive exam in Computer Security, 2003-2009

- Member of the Electrical Engineering Faculty Search Committee (three positions), 2006-2007

- College of Engineering Faculty Awards Committee, Spring 2006

- Chair and Main Organizer for the International Conference "Graph Theory with Altitude" held at UC Denver in May 2005.

- CSIS seminar coordinator, 2003

- Curriculum Development: Developed the Graph Theory Course (CSC/Math 4408) to be taught with the use of the software package *Mathematica*, Spring 2006 and 2007; subsequently re-engineered as CSC 4408/5408 made available to CS graduate students in Spring 2008

- Curriculum Development: developed CS 5804, the new Master's level special topics course in Combinatorial and Computational Geometry, Fall 2003 and 2004; subsequently renumbered to CSC 5409 as a regular Computer Science graduate course offering

- Curriculum Development: developed CS 7002, the new PhD level Computer Security course, Spring 2003

- Organized and hosted a week-long visit to UC Denver of Nicholas Pippenger and Mark Mc-Cann, 2003

- Staff Council: Outstanding Staff Award Committee, 2003 and 2012

- Outside committee member for five PhD candidates in the Discrete Mathematics group at UC Denver (three have graduated)

- Chair of one session of the Discrete Math Days Conference, UC Denver, August 2003

- Speaker at the November 2002 UC Denver Industrial Advisory Board Meeting

- Designed a logo for the Computer Science and Engineering Brochure, Fall 2002

University of British Columbia 1999-2002

- Organizer: Computer Science Theory Group Seminar (weekly), 2001-2002

- Participant in UBC High School Outreach Program: gave a research presentation and designed a logo for the event T-shirt.

Claremont McKenna College 1997-99

- Member: Committee on Academic Computing 1998-99

- Organizer Sigma Xi Event: Sigma Xi Distinguished Lecturer, March 1999

- Organizer and Presenter of *Mathematica* Workshops for Faculty: three 2-hour sessions, Spring 1999

- Co-organizer: CMC/Mudd/Pomona grad school night, Fall 1998 and 1999

- Undergraduate thesis advisor: Chris Bartlo, Pomona College, 1998-99

- Second reader: undergraduate thesis by Ryan Derby Talbot, supervised by Tim Hsu, Pomona College, Spring 1999

- Claremont Colleges Mathematics Colloquium: recruited and hosted four speakers, 1997-99

- Introduced and re-introduced courses in Number Theory and Abstract Algebra to the Claremont McKenna math curriculum, 1997-99

Grinnell College 1996-97

- Co-organizer: Grinnell Math and Computer Science Faculty Seminar, Elliptic curves and Fermat's Last Theorem (weekly) 1996-97

Mathematical Sciences Research Institute (MSRI) 1994-96

- Co-organizer: Postdoctoral seminar (weekly)1995-96

- Speaker: MSRI Junior High School Outreach Program, Spring 1996

- Speaker: MSRI High School Outreach Program, Winter 1995

- Judge: Lawrence Hall of Science High School Science Competition, Spring 1996

Swarthmore College 1992-94

- Library Liaison, 1992-94

- Recruiter and host: colloquium by William Dunham, Spring 1993

- Recruiter and host: one outside examiner for the mathematics honors program, Spring 1993