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## Regular Positions

**Associate Professor**, Claremont McKenna College, Claremont, California, 2018–present.  
**Extended Faculty**, Claremont Graduate University, Claremont, California, 2019–present.

**Associate Professor**, Carleton College, Northfield, Minnesota, 2016–2018.  
**Assistant Professor**, Carleton College, Northfield, Minnesota, 2009–2016.

**Postdoctoral Fellow**, Bowdoin College, Brunswick, Maine. 2007–2009.

## Visiting Positions

**von Neumann Fellow**, Institute for Advanced Study, Princeton, New Jersey, 2017–2018.

**Visiting Scholar**, University of Southern California, Los Angeles, California, Fall 2012.

## Education

**Ph.D. in Mathematics**, Yale University, New Haven, CT, May 2007.

**M. Phil. in Mathematics**, Yale University, New Haven, CT, December 2003.

**M.S. in Mathematics**, Yale University, New Haven, CT, May 2003.

**Fulbright Student**, Budapest Semesters in Mathematics, Hungary. 1999–2000.

**B.A. in Mathematics**, Pomona College, Claremont, CA. May 1999.  
*Summa cum laude*, Distinction in major.

## Research Grants and Awards

**National Science Foundation Grant**, DMS-1906323, \$229,315, 2019-2022.

Principal investigator for “RUI: Knots in Three-dimensional Manifolds: Quantum Topology, Hyperbolic Geometry, and Applications”. Funded by NSF programs: MPS/DMS-Topology, BIO/MCB-Molecular biophysics, MSPA-Interdisciplinary, and Office of Interdisciplinary Activities.

**Summer Collaborators**, Institute for Advanced Study, Princeton, New Jersey, July 2018.

Research on “Locality and universality of topological quantum computing” with Shawn Cui, Kevin Tian, Jennifer Franko Vasquez, and Zhenghan Wang.

**von Neumann Fellowship**, Institute for Advanced Study, Princeton, New Jersey, Fall 2017–Spring 2018.  
Awarded to outstanding early-career mathematicians who are 5–15 years post PhD.

**National Science Foundation Grant**, DMS-1510453 and DMS-1841221, \$160,084, 2015-2021.

Principal investigator for “RUI: Skeins on Surfaces”. Funded by NSF programs: MPS/DMS-Topology, BIO/MCB-Genetic Mechanisms, and MSPA-Interdisciplinary.

**National Science Foundation Conference Grant**, DMS-11522850, \$40,000, July 2015.

Co-principal investigator for “Classical and quantum hyperbolic geometry and topology”, providing funding for a conference at Orsay, France.

**GEAR Network Research Member**, 2014-present.

Nominated member of “RNMS: Geometric Structures and Representation Varieties”, National Science Foundation Grants DMS-1107452, 1107263, 1107367.

**National Science Foundation Grant**, DMS-1105692, \$124,770, 2011-2016.

Principal investigator for “RUI: Relating quantum and classical topology and geometry”. Funded by NSF program: MPS/DMS-Topology.

**Carleton College Eugster Fellowship and Class of '49 Fellowship**, 2012-13.

Faculty Development Award for an additional two terms of junior sabbatical leave.

**Association for Women in Mathematics Mentoring Travel Grant**, 2010-11.

For research collaboration with Francis Bonahon, University of Southern California.

**Bowdoin College Faculty Research Award**, 2007-08.

**Association for Women in Mathematics Travel Grant**, 2007.

**Fulbright Student Research Fellowship**, US Department of State, 1999-2000.

Full academic year grant at Budapest Semesters in Mathematics, Hungary.

### Teaching, Curricular, and other Academic Awards

**Carleton College Summer Curricular Grant**, Visualization of the Liberal Arts Initiative, 2010.

For mathematical models for curricular use.

**Project NExT Fellowship**, Richard Good Fund, Mathematical Association of America, 2009-10.

**Prize Teaching Fellowship**, Yale University, 2007.

One of seventeen graduate students campus-wide honored for excellence in undergraduate teaching.

**Barbara Sanford Allen Prize, Bertha Clendenen McCord Prize, and Concerto Competition Winner**, Pomona College, 1999.

For excellence in music, piano performance.

**Phi Beta Kappa**, Pomona College, inducted 1999.

**Sigma Xi**, Pomona College, inducted 1997.

**Jaeger Prize in Mathematics**, Pomona College, 1996.

### Research and Professional Enrichment Programs

**Short-term Visitor**, Microsoft Station Q, University of California Santa Barbara, March 2019.

**Faculty Participant**, *Elementary Topology in the Undergraduate Curriculum*, Undergraduate Faculty Program, Park City Mathematics Institute/Insitute of Advanced Study. July 2011.

**Faculty Fellow**, Green Dot, Project NExT, Mathematics Association of America. 2009-10.

**Postdoctoral Participant**, AMS Research Communities in Teichmüller Theory & Low-dimensional Topology, Snowbird, Utah. July 2008.

**Graduate Intern**, Division of Macroeconomic Analysis and Quantitative Studies, United States Federal Reserve Board, Washington, DC. Summer 2001.

**Undergraduate Researcher**, Matrix theory, Research Experience for Undergraduates, College of William and Mary. Summer 1998.

**Exchange student**, University College, Oxford University. Michaelmas 1997.

**Undergraduate Research Assistant**, Department of Chemistry, Pomona College. Summer 1997.

**Undergraduate Participant**, Summer Institute in Mathematical Sciences for Undergraduate Women, UC Berkeley. Summer 1997.

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## Research Interests

### GEOMETRIC TOPOLOGY AND QUANTUM TOPOLOGY

Topology and hyperbolic geometry of low-dimensional manifolds  
 Topological quantum field theories, Jones polynomial for links, quantum invariants of 3-manifolds  
 Kauffman bracket skein algebra, Quantizations of Teichmüller space, Volume Conjecture

### APPLICATIONS OF TOPOLOGY AND GEOMETRY.

Topological quantum computation  
 Knotting in DNA and proteins

## Research Publications

(\* denotes a student. Authors are listed alphabetically in mathematics.)

### *Refereed Journal Articles*

1. (with Han-Bom Moon) The Roger-Yang Kauffman skein algebra and the decorated Teichmüller space. Accepted to *Quantum Topology*.
2. (with Shawn Cui, Kevin Tian, Jennifer Franko Vasquez, Zhenghan Wang) The search for leakage-free, entangling Fibonacci braiding gates. *Journal of Physics A: Mathematical and Theoretical* Volume 52, Number 45 (2019), 455301.
3. (with Francis Bonahon) Representations of the Kauffman bracket skein algebra III: closed surfaces and naturality. *Quantum Topology* Volume 1, Issue 2 (2019), 325-398.
4. (with Erica Flapan and Adam He) Topological descriptions of protein folding. *Proceedings of the National Academy of Sciences* Volume 116, Number 19 (2019), 9360-9369.
5. (with Francis Bonahon) Representations of the Kauffman bracket skein algebra II: Punctured surfaces. *Algebraic & Geometric Topology* Volume 17, Number 6 (2017), 3399-3434.
6. (with Jennifer Franko Vasquez and Zhenghan Wang) Qubit representations of the braid groups from generalized Yang-Baxter matrices. *Quantum Information Processing*, Volume 15, Number 7 (2016), 3035-3042.
7. (with Martin Bobb\*, Stephen Kennedy and Dylan Peifer\*) Presentations of Kauffman bracket arc algebra for small surfaces. *Involve: A Journal of Mathematics*, Volume 9, Number 4 (2016), 689-698.

8. (with Martin Bobb\*, Stephen Kennedy and Dylan Peifer\*) The Kauffman bracket arc algebra is finitely generated. *Journal of Knot Theory and its Ramifications*, Volume 25, Number 6 (2016), 1650034, 14pp.
9. (with Francis Bonahon) The Witten-Reshetikhin-Turaev representation of the Kauffman bracket skein algebra. *Proceedings of the American Mathematical Society*, Volume 144, Number 6 (2016), 2711-2724.
10. (with Francis Bonahon) Representations of the Kauffman bracket skein algebra I: Invariants and miraculous cancellations. *Inventiones Mathematicae*, Volume 204, Number 1 (2016), 195-243.
11. (with Erica Flapan, Jeremy Grevet\*, Qi Li\* and Daisy Sun\*) Knotted and linked products of recombination on  $T(2, n) \# T(2, m)$  substrates. *Journal of the Korean Mathematics Society*, Volume 51, Number 4 (2014), 817–836.
12. (with Francis Bonahon) Quantum traces for representations of surface groups in  $SL_2$ . *Geometry & Topology*, Volume 15, Number 3 (2011), 1569-1615.
13. (with Francis Bonahon) Kauffman brackets, character varieties, and triangulations of surfaces. *Topology and geometry in dimension three* (Proceedings of JacoFest), 179-194. Contemporary Mathematics Series, Volume 560, American Mathematical Society, Providence, RI, 2011.
14. (with Nathan Dunfield) Quantum invariants of random Heegaard splittings. *Algebraic & Geometric Topology* Volume 11, Number 4 (2011), 2191-2205.
15. Quantum invariants can provide sharp Heegaard genus bounds. *Osaka Journal of Mathematics*, Volume 48, Number 3 (2011), 709-718.
16.  $SO(3)$  quantum invariants are dense in  $\mathbb{C}$ . *Mathematical Proceedings of the Cambridge Philosophical Society*, Volume 148, Number 2 (2010), 289-295.
17. The  $SO(3)$  quantum invariants: their density and topological applications. Ph.D. thesis, Yale University, under the direction of Andrew Casson, 2007. 80pp.

### Books and Edited Volumes

1. (edited with Erica Flapan) Topology of Biopolymers. Contemporary Mathematics, Volume 746. American Mathematical Society, 2020.
2. (with Erica Flapan and other members of the Park City Mathematics Institute Undergraduate Faculty Program) Knots, Molecules, and the Universe: An Introduction to Topology. American Mathematical Society, 2015.

### Other Publications

1. Three chapters in A Concise Encyclopedia of Knot Theory, editors C. Adams, E. Flapan, A. Heinrich, L. Kauffman, L. Ludwig, S. Nelson, CRC Press. In press.
  - Protein knots, links, and non-planar graphs, 7 pages.
  - (with Jozef Przytycki) Skein modules, 9 pages.
  - (with Jozef Przytycki) Kauffman bracket skein modules and algebras, 9 pages.
2. Extended abstract for an invited talk, “The  $SL_2$ -character variety and representations of the Kauffman bracket skein algebra”. Mathematisches Forschungsinstitut Oberwolfach Workshop Report No. 30, 2015, pp 1741–1742.

3. Review of Lectures on the Topology of 3-manifolds, second edition, by N. Saveliev. MAA Reviews, available at <http://mathdl.maa.org/mathDL/19/?pa=reviews&sa=viewBook&bookId=72936>.
4. Contributions to the publications of the Girls' Angle: A Math Club for Girls, Boston.
  - i. An Interview with Helen Wong. Girls' Angle Bulletin, Volume 3, Number 5, July 2010.
  - ii. Adding the Numbers from 1 to 100. Women in Mathematics Video Series, available at [http://www.girlsangle.org/page/video\\_clips.html](http://www.girlsangle.org/page/video_clips.html).
  - iii. Summer Fun: Adding Up Numbers. Girls' Angle Bulletin, Volume 3, Number 5, July 2010.
5. (with Anna Dragonova) Instructor's manual for Number Theory: A Lively Introduction with Proofs, Applications, and Stories, written by J. Pommersheim, T. Marks, and E. Flapan. Wiley, 2010.

### Research Presentations

*Conference Lectures* (Plenary addresses are in bold.)

1. AMS Special Session: Algebraic Structures Related to Knot Theory, AMS-MAA Joint meetings, Virtual, January 2021.
2. **Quantum Topology and Geometry** (in honor of Vladimir Turaev), Centre International de Rencontres Mathématiques (Luminy), Marseilles, France, May 2020, cancelled due to COVID-19.
3. **Geometry and Representation Theory**, UC Riverside, December 2019.
4. AMS Special Session: Invariants of Knots and Spatial Graphs, Riverside, November 2019.
5. **Biology, Analysis, Geometry, Energies, Links [bagel19]: A Program on Low-dimensional Topology, Geometry, and Applications**, Institute for Mathematics and its Applications, Minneapolis, June 2019.
6. **Quantum Topology and Hyperbolic Geometry Conference**, Da Nang, Vietnam, May 2019.
7. **Graduate Student Conference in Algebra, Geometry, and Topology**, Temple University, Philadelphia, June 2018.
8. **Cornell Topology Festival**, Cornell University, Ithaca, May 2018.
9. AMS Special Session: Symplectic Geometry and Contact Geometry, Minneapolis, October 2016.
10. **Classical and quantum hyperbolic geometry and topology** (in honor of Francis Bonahon), Université Paris-Sud (Orsay), France, July 2015.
11. **New Perspectives on the Interplay between Discrete Groups in Low-Dimensional Topology and Arithmetic Lattices**, Oberwolfach Workshop, Mathematisches Forschungsinstitut, Oberwolfach, Germany, June 2015.
12. AMS Special Session: Geometric Aspects of 3-Manifold Invariants, St. Louis, October 2013.
13. AMS Special Session: Combinatorial Methods in Knot Theory, New Orleans, October 2012.
14. **Moab Topology Conference** (research talk and introductory talk for graduate students), May 2012.
15. AMS Special Session: Low-Dimensional Topology and Geometry, Winston-Salem, September 2011.
16. **Conference on Quantum Geometry and Topology**, Centre International de Rencontres Mathématiques (Luminy), Marseilles, France, July 2010.

17. AMS Special Session: Quantum Invariants of 3-manifolds and Modular Categories, St. Paul, April 2010.
18. **Conference on Knot Theory and its Applications to Physics and Biology**, Abdus Salam International Centre for Theoretical Physics, Trieste, Italy, May 2009.
19. **Program for Women in Math: More Examples of Groups**, Ohio State University, May 2009.
20. AMS Special Session: Low Dimensional Topology and Geometry, Raleigh, April 2009.
21. AMS Special Session: Geometric Group Theory, Middletown, October 2008.
22. AMS Mathematical Research Communities in Teichmüller Theory and Low-dimensional Topology, Snowbird, June 2008.
23. AMS Special Session: Knot and 3-Manifold Invariants, Baton Rouge, March 2008.
24. AMS Session: Geometry and Topology III, San Diego, January 2008.
25. AMS Special Session: Heegaard Splittings, Bridge Positions, and Low Dimensional Topology, AMS-MAA Joint Meetings, San Diego, January 2008.

*Colloquia and Research Seminars*

1. Topology Seminar, George Washington University, December 2020.
2. Topology Seminar, UC Riverside, November 2019.
3. Claremont Applied Math Seminar, May 2019.
4. Claremont Topology Seminar, January 2019.
5. Colby College Colloquium, October 2018.
6. Claremont Colleges Mathematics Colloquium, September 2018.
7.  $L^2$  Geometry-Topology Seminar, sponsored by Lafayette College and Lehigh University, April 2018.
8. Mathematical Conversations, Institute for Advanced Study, March 2018.
9. Topology Seminar, Princeton University, March 2018.
10. Geometry and Topology Seminar, Rutgers University, February 2018.
11. Member's Seminar, Institute for Advanced Study, November 2017.
12. Geometry and Topology Seminar, Temple University, November 2017.
13. Philadelphia Area Topology Contact/Hyperbolic (PATCH) Seminar, sponsored by Bryn Mawr, Haverford, UPenn, and Temple, Philadelphia, April 2015.
14. Colloquium, Summer Mathematics Program for Women, Carleton College, July 2014.
15. Duke-UNC Topology Seminar, Univ. of North Carolina, Chapel Hill, February 2013.
16. Claremont Topology Seminar, Claremont Colleges, December 2012.
17. Geometry Topology Seminar, Univ. of Southern California, Los Angeles, October 2012.
18. Claremont Topology Seminar, Claremont Colleges, September 2012.
19. Topology Seminar, University of California, Riverside, April 2012.
20. Claremont Topology Seminar, Claremont Colleges, April 2012.

21. RTG Geometry/Topology Seminar, Michigan State University, November 2011.
22. Low-dimensional Topology Seminar, Michigan State University, November 2011.
23. Joint Mathematics Colloquium, Claremont Colleges, December 2010.
24. Claremont Topology Seminar, Claremont Colleges, November 2010.
25. Topology Seminar, Univ. of Southern California, Los Angeles, March 2010.
26. Topology Seminar, Univ. of Minnesota, Minneapolis, February 2010.
27. Mathematics seminar, St. Olaf College, October 2009.
28. Colloquium, Summer Mathematics Program for Women, Carleton College, June 2009.
29. Mathematics Seminar, College of the Holy Cross, February 2009.
30. Colloquium, College of the Holy Cross, February 2009.
31. Colloquium, Carleton College, February 2009.
32. Mathematics seminar, Bowdoin College, February 2009.
33. Mathematics seminar, Bucknell University, February 2009.
34. Geometric group theory seminar, University of Bristol, England, January 2009.
35. Topology and geometric group theory seminar, Cornell University, December 2008.
36. Geometric group theory and topology seminar, Tufts University, November 2008.
37. Haverford-Bryn Mawr Joint Mathematics Colloquium, Bryn Mawr College, October 2008.
38. Colby-Bowdoin-Bates Joint Mathematics Colloquium, Colby College, April 2008.
39. Mathematics seminar, Bowdoin College, March 2008.
40. Topology seminar, Boston College, January 2008.
41. Undergraduate mathematics lunchtime talk, Bowdoin College, November 2007.
42. Colloquium, Bowdoin College, April 2007.
43. Topology seminar, University of California, Santa Barbara, March 2007.
44. Topology seminar, Yale University, February 2007.
45. Topology seminar, Claremont Colleges, February 2007.
46. Graduate student seminar, Yale University, October 2006.

### General Audience Presentations

1. “Knotting in DNA and proteins.” Atul-Vyas Memorial Lecture, Claremont McKenna College, November 2019.
2. “My Mathematics Community.” Ninetta Runnals Dinner for Women in Mathematics, Colby College, October 2018.
3. “Mathematics or (k)not?” After Hours Conversations, Institute for Advanced Study, March 2018.
4. “Mathematical Models.” Panel on Creativity, Visuality, and the Liberal Arts, Reunion Weekend, Carleton College, June 2011.

5. “Mathematical Models.” Faculty Workshop on Showing and Knowing: How Exhibits, Displays, and Posters Teach, Carleton College, December 2010.
6. “Chaos in Tom Stoppard’s *Arcadia*.” Pre-play Student Event, Carleton College, May 2010.
7. “What is knot theory?” Science and Math Faculty Lunchtime Talk, Carleton College, April 2010.
8. “Imagining a 3-dimensional sphere.” New Faculty Workshop, Carleton College, December 2009.

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## Undergraduate Teaching

### *Calculus and Introductory Level*

Calculus I (Claremont Math 30), Fall 2018, Spring 2019.  
 Differential Calculus with Laboratory (Bowdoin Math 161), Fall 2007, Fall 2008.  
 Single-variable Calculus (Yale Math 112), Fall 2002 and Fall 2003.  
 Calculus III (Claremont Math 32) Spring 2020, Spring 2021.  
 Honors Seminar in Calculus III (Claremont Math 32H), Fall 2018.  
 Multivariable Calculus (Carleton Math 211), 2 sections in Fall 2009, Spring 2010, 2 sections in Fall 2010, 2 sections in Fall 2011, Spring 2014, 2 sections in Fall 2014, Fall 2015, Fall 2016.  
 Multivariable Calculus (Yale Math 120), Fall 2004, Fall 2005, and Spring 2007.  
 Discrete Structures (Claremont Math/CSCI 55), Fall 2019, Spring 2019.

### *Intermediate Level*

Mathematical Structures (Carleton Math 245), Spring 2012, Winter 2015, Spring 2017.  
 Seminar in Low-dimensional Topology (Carleton Math 295), Fall 2016.  
 Topics in Topology (Bowdoin Math 227) Spring 2008.  
 Linear Algebra (Claremont Math 60), Fall 2019, Spring 2020.  
 Linear Algebra (Carleton Math 232), Spring 2010, 2 sections in Winter 2011, Winter 2012.  
 Linear Algebra with Laboratory (Bowdoin Math 201), Spring 2009.  
 Ordinary Differential Equations (Claremont Math 111), 2 sections in Fall 2020.

### *Upper Level*

Special Topics: Quantum Computation (Claremont Math 195), Spring 2021.  
 Real Analysis (Carleton Math 331), 2 sections in Winter 2017.  
 Knot Theory (Carleton senior comps seminar Math 395), Winter 2015.  
 Topology (Carleton Math 354), Winter 2010, Winter 2012, Spring 2014.  
 Surfaces (Carleton senior seminar Math 395), Spring 2011.

### *Independent Studies*

Directed Research in Mathematics (Claremont Math 197), 4 students, Spring 2019.  
 Fundamental Group of Surfaces (Carleton Math 392), 3 students, Spring 2017.  
 Geometry of Surfaces (Carleton Math 392), 3 students, Fall 2015.



Math of Structural Geology (Carleton Math 291), 1 student, Spring 2015.

Applied Calculus (Carleton Math 291), 1 student, Fall 2014.

Kauffman Skein Algebra (Carleton Math 392), 2 students, Spring 2012.

Senior Integrative Exercise (Carleton Math 400), 3 students, 2009-10; 3 students, 2010-11; 2 students, 2013-14; 9 students, 2015-16; 4 students, 2016-17.

## Undergraduate Project Supervisions

*Directed research while at Claremont McKenna College*

1. Noah Haig (HMC), Matthew Hines, Fred Qin, Hannah Zhang: "Slipknotting in Proteins", Spring and Fall 2019, Spring and Summer 2020. Four first-year students.
2. Miriam Caron (Pitzer), Yulei Max Guo: "Topological Quantum Computation", Summer 2020.

*Other projects while at Claremont McKenna College*

1. Ruth Efe (math and economics major): "Economics applications using Differential Equations", Summer 2020. Developed worksheets and special projects for calculus and differential curriculum.
2. Ryan Burton and Ruth Efe (mathematics-economics dual majors): "Economic applications in Calculus", Spring 2019. Developed worksheets presenting unusual examples of how calculus can be applied in economics.
3. Samuel Harrison and Annika Ozizmir: "3D-printing", Spring 2019. Learned how to use a 3D-printer, with goal of developing projects suitable for mathematics classes at all levels.

*Senior comprehensive exercises supervised while at Carleton College*

1. (co-advised with Joshua Davis) Nathan Bern, Nate Osher, Thomas Redding: "Persistence Homology Applied to Structural Geology", 2017-2018. Using data consisting of orientations of spinel crystals at a fault site in New Caledonia obtained by Sarah Titus et al. Nathan and Nate continued the project with NSF-funding in Summer 2018.
2. Crystal Lai, Julian Skotheim, Matt Sikkink Johnson: "Finite Generators for the Muller Arc Algebra", 2015. Julian and Matt each gave a 10-minute presentation at the Joint Mathematics Meetings in Seattle, January 2016.
3. Ross Jennings, Bibek Pokharel, Ken Schiller: "Approximating the Jones polynomial using a Topological Quantum Computer", 2015.
4. Sarah Milstein, Rachel Schuh, Nora White: "Product-to-Sum Formula for the Roger-Yang Arc Algebra", 2015.
5. (co-advised with Stephen Kennedy) Martin Bobb, Dylan Peifer: "Finite Generators for the Roger-Yang Arc Algebra", 2013-15. Martin and Dylan continued the project with NSF-funding in Summer 2014. Martin and Dylan each gave a 10-minute presentation at the Joint Mathematics Meetings in San Antonio, January 2015. Dylan presented at Binghamton University Graduate Conference in Algebra and Topology, November 2015. Led to two articles, in *Involve* and in *J. of Knot Theory and its Ramifications*.
6. Jonathan Hahn, Collin Hazlett: "Product-to-Sum Formula for a Punctured Torus", 2012-14. Jon and Collin presented at the Unknot Conference in Denison University, summer 2012.

7. Jeremy Grevet, Qi Li, Daisy Sun: “Products of Site-specific Recombination on Torus Knot Substrates”, 2010-11. Led to an article with Erica Flapan in *J. of the Korean Mathematics Society*.
8. Alex Fisher, Rosemary Phelps, Danny Wells: “On Torus Knots”, 2010.

*Other projects supervised while at Carleton College*

1. Jackson van Fleet Brown (geology major): “Geology applications in Multivariable Calculus”, Spring 2015. Developed calculus curriculum in consultation with geology faculty.
2. Krissy Lunz, Jacque Oman (studio art majors): Carleton Visuality Initiative Grant Project on “Art in Topology and Geometry”, Summer 2010. Created mathematical models for curricular use; later exhibited in Carleton’s Gould Library in Fall 2011.

### Course-related Mathematical Exhibitions

“If It’s Knot Theory, What Is It?” Gould Library, Carleton College, Spring and Summer 2015. Collaboratively designed with students in *Senior Seminar: Knot Theory* and library curator Margaret Pezalla-Granlund. Exhibit was featured in *Northfield News* and selected items were showcased at the University of Minnesota Women in Math’s booth at the Minnesota State Fair 2015.

“Quilting, Copper, and Yarn: Math with Models.” Gould Library, Carleton College, Fall 2011. Featuring models by two studio art majors and wall-cards by students in *Senior Seminar: Surfaces*. Photos and description available at <https://apps.carleton.edu/campus/viz/exhibitions/library/math.with.models/>

“Curating Across Disciplines: Intersections between Mathematics and Art.” Becker Gallery, Bowdoin College Museum of Art, Spring 2008. Collaboratively designed with museum curator Diana Tuite.

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### Professional Memberships

Mathematical Association of America  
 American Mathematical Society  
 Association for Women in Mathematics

Phi Beta Kappa  
 Sigma Xi

### Professional Service Activities

*Research Conference Organizer*

1. (with Colleen Delaney and Jennifer Franko Vasquez) *Braid Groups and Quantum Computing*, Special Session, Association for Women in Mathematics Research Symposium, Rice University, April 2019.
2. (with Erica Flapan) *Topology of Biopolymers*, Special Session, Sectional meeting of the American Mathematical Society, Northeastern University, Boston, MA, April 2018.
3. (with Charles Frohman) *Topological Representation Theory*, Special Session, National meeting of the American Mathematical Society(joint meetings), Seattle, WA, January 2016.

4. (with Michel Boileau, Louis Funar, Dave Futer, Francois Guéritaud, Ko Honda, Frederic Paulin) *Classical and quantum hyperbolic geometry and topology: A conference in honor of Francis Bonahon*, Université Paris-Sud (Orsay), France, July 2015. Funded in part by NSF Conference Grant DMS-11522850, Centre National de la Recherche Scientifique, and Ambassade de France aux Etats-Unis.
5. (with David Damiano and Scott Taylor) *Topological, Geometric, and Quantum invariants of 3-manifolds*, Special Session, Sectional meeting of the American Mathematical Society, College of the Holy Cross, Worcester, MA, April 2011.

#### *Career Development Support*

**Panelist** for *Tips & Tricks for Collaboration*, Connection for Women: Quantum Symmetries, MSRI, January 2020.

**Mentor** for postdoctoral fellows at Institute for Advanced Study, 2017-18.

**Panelist** for *Women in Science Career Panel*, Women and Mathematics Program, Institute for Advanced Study, May 2018.

**Panelist** for *Mentoring Matters*, sponsored by AWM and MAA, National meeting of MAA (Mathfest), Portland, August 2014.

**Facilitator** for *Topology, Set theory, Logic*, Project NExT small group discussion, National meeting of MAA (Mathfest), Pittsburgh, August 2010.

**Session Organizer** (with T. Mechem, D. Offner, and T. Wakefield) for *Preparing pre-tenure materials*, Project NExT session, National meeting of MAA (Mathfest), Pittsburgh, August 2010.

#### *Professional Society Committees*

**MAA Committee on Memberships** 2013-16, 2017-20.

**MAA ad hoc Invited Addresses Committee** 2015-16.

**MAA Committee on Merten Hesse Prize** 2020–24.

#### *Refereeing*

**Grants Reviewer**, National Science Foundation, Division of Mathematical & Physical Sciences panelist, 2014, 2018, 2020; Ad hoc reviewer for Division of Molecular & Cellular Biosciences, 2017.

**Referee** for journals, conference proceedings, and books, including

*Inventiones Mathematicae*, *J. Knot Theory Ramifications*, *Algebraic Geometry & Topology*, *Topology and Its Applications*

*American Math. Monthly*, *Rose-Hulman Undergraduate Mathematics Journal*, *Notices of the American Mathematical Society*, *Association for Women in Mathematics Springer Books*.

*J. Mathematical Chemistry*, *Springer Books Japan*, *PeerJ—Life and Environmental Sciences*.

**Judge**, CCMS Student Poster Session, September 2019; MAA Undergraduate Poster Session, National meeting of the MAA (joint meetings), San Francisco, January 2010.

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## Collegiate Service Activities

*At Claremont McKenna College*

(Departmental)

**Hiring Committee** for two tenure-track positions, Mathematics and Statistics Department, 2018-19.

(Collegiate)

**Emergency Pandemic Child/Dependent Care Committee**, 2020.

**Field Investigative Subcommittee**, appointed by Dean of Faculty to review a tenure case, 2020-21.

**Writing Committee**, 2019-21.

**Math Faculty Representative for Student Recruitment**, Preview Program for First-generation Students, October 2019, and Panel on Academic Life for Admitted Students, April 2020.

**Presenter** on “Oral Exams in Math (and Beyond),” Teaching at CMC: Excellence, Innovation, and Technology, October 2020.

(Claremont consortium-wide)

**Claremont Colleges Mathematics Colloquium Co-chair**, 2019-21. **Claremont Colleges Topology Seminar Co-organizer**, 2018-.

*At Carleton College*

(Departmental) **Hiring Committee Member**, Winter and Spring 2017. **Faculty Liaison for Mathematics Skills Center and Tutor Training Session Leader**, 2011-12, 2014-18. **Colloquium Coordinator**, 2010-12, 2014-17. **Community Builder**, 2009-10. **Tour of Mathematics Speaker**, Winters 2009-12, 2015, 2017.

(Collegiate) **Student Fellowship Competitions Interviewer** and **Fellowships Committee**, 2014-17. **Career Development Panelist**, *Research Support for Junior Faculty*, sponsored by Learning and Teaching Center, September 2016; and *Junior Sabbatical Info Session*, sponsored by Junior Faculty Affairs, February 2015, January 2017. **Faculty Tutor**, TRIO/Student Support Services, Fall 2010, Fall 2014. **Junior Faculty Affairs Committee Member**, 2010-12. **Academic Advisor**, 2010-2017.