

# Curriculum Vitae

Keiko Kawamuro

## 1 Personal information

**Address** Department of Mathematics, University of Iowa, 14 MacLean Hall, Iowa City, Iowa 52242-1419.

**Phone number** 319-335-0792

## 2 Education and Appointment

- Professor, University of Iowa, Fall 2020–Present
- Interim Director of Graduate Study, University of Iowa, Fall 2020
- Associate Professor with tenure, University of Iowa, Fall 2015–Spring 2020
- Assistant Professor, University of Iowa, Fall 2009–Spring 2015
- Member of Institute for Advanced Study, 2009 Spring. (Postdoctoral mentor: Mark Goresky)
- G. C. Evans Instructor, Rice University, 2006–2009. (Postdoctoral sponsor: Tim Cochran)
- Ph. D., Mathematics, Columbia University, 2006. (Thesis advisor: Joan Birman)

## 3 Academic Honors, Awards and Memberships

- Professional Development Award, Spring 2023.
- National Science Foundation Grant (PI: Keiko Kawamuro, Co-PI: Ben Cooper, Hao Fang, Mohammad Farajzadeh-Tehrani, and Charlie Frohman) “RTG: Geometry and Topology at Iowa” DMS-2038103 \$2,083,686
- National Science Foundation Grant (Principal Investigator) “Variations of right-veering open books and knot positivity” DMS-2005450 \$221,943
- National Science Foundation Grant (PI: Keiko Kawamuro, Co-PI: Elif Kuz), “The 7th Midwest Women in Mathematics Symposium” DMS-1844267. \$20,000
- National Science Foundation Grant (Co-PI with Monica Torres), “Midwest Women in Mathematics Symposium” DMS-1740959
- Simons Foundation, Mathematics and Physical Sciences-Collaboration Grants for Mathematicians (Award ID 426710) (Principal Investigator), “Applications of open book foliations” September 2016–December 2022.
- University of Iowa, Career Development Award, 2017 Spring.
- College of Liberal Arts and Sciences Dean’s scholar at University of Iowa, 2015–2017.
- Member, Association of Women in Mathematics, 2015–2018
- SQuaRE by American Institute of Mathematics “Contact and Symplectic Geometry and the Mapping Class Groups” (Co-PI with Inanc Baykur, John Etnyre and Jeremy Van-Horn Morris). 2014–2017.

- National Science Foundation Grant (Principal Investigator), “Braids and Contact Geometry” DMS-1206770.
- Flexible Load Assignment, 2012 Fall.
- Old Gold Summer Fellowship, 2010.
- National Science Foundation Grant (Principal Investigator), “Geometric Approach to Braid Theory” DMS-0806492, DMS-1016138.
- Research Fellowship for Young Scientists, Japan Society of promotion of Sciences, 1999–2001.

## 4 Publications and Preprints

1. *Central sequence subfactors and double commutant properties.*  
International Journal of Mathematics. 10 (1999), no. 1, 53–77.
2. *A Rohlin property for one-parameter automorphism groups of the hyperfinite  $\text{II}_1$  factor.*  
Publications of the Research Institute for Mathematical Sciences 36 (2000), no. 5, 641–657.
3. *An extension of completely positive maps compatible with the Jones basic construction.*  
Multiformity of operator algebras (Kyoto, 2001). Surikaiseki kenkyusho Kokyuroku, No. 1230 (2001), 93–94.
4. *Algebraic crossing number and braid index of knots and links.*  
Algebraic & Geometric Topology 6 (2006), 2313–2350.
5. *Conjectures on the braid index and the algebraic crossing number.*  
Intelligence of Low Dimensional Topology (2006), 151–156. Series on Knots and Everything. World Sci. Publ., Hackensack, NJ, 2007.
6. *Khovanov-Rozansky homology and the braid index of a knot.*  
Proceedings of the American Mathematical Society volume 137, No. 7 (2009) 2459–2469.
7. *On transverse knots and branched covers.* (with Shelly Harvey and Olga Plamenskaya)  
International Mathematics Research Notices (2009) : 512-546.
8. *Connect sum and transversely non simple knots.*  
Mathematical Proceedings of the Cambridge Philosophical Society, volume 146, (2009) issue 03, 661-669.
9. *On A. Weil.* (with Mark Goresky)  
Bulletin (New Series) of the American Mathematical Society. volume 46, No. 4, Oct 2009, 667-668.
10. *The Self-Linking Number in Annulus and Pants Open Book Decompositions.* (with Elena Pavelescu)  
Algebraic & Geometric Topology. 11 (2011), no. 1, 553-585.
11. *A polynomials invariant of pseudo-Anosov maps.* (with Joan Birman and Peter Brinkmann)  
Journal of Topology and Analysis. Vol. 4, No. 1 (2012) 13-47.
12. *The self-linking number in planar open book Decompositions.*  
Mathematical Research Letters. 19 (2012), no. 01, 41-58.
13. *Open book foliation.* (with Tetsuya Ito)  
Geometry & Topology 18 (2014) 1581-1634.
14. *Visualizing overtwisted discs in open books.* (with Tetsuya Ito),  
Publications of Research Institute for Mathematical Sciences. **50** (2014), 169-180.

15. *Operations on open book foliations.* (with Tetsuya Ito), Algebraic & Geometric Topology 14 (2014), no. 5, 2983-3020.
16. *Overtwisted discs in planar open books.* (with Tetsuya Ito), International Journal of Mathematics Vol. 26, No. 3 (2015) 1550027 (29 pages)
17. *On the self-linking number of transverse links.* (with Tetsuya Ito). Geometry & Topology Monographs 19 (2015) 157–171.
18. *Removing local extrema of surfaces in open book decompositions.* Intelligence of Low-dimensional Topology, RIMS kokyuroku **1960** (2015) 37–45.
19. *Coverings of open books.* (with Tetsuya Ito), Advances in the Mathematical Sciences, Association for Women in Mathematics Series Volume 6 (2016) 139–154.
20. *Essential open book foliations and fractional Dehn twist coefficient.* (with Tetsuya Ito) Geometriae Dedicata, 187 (2017), 17-67. doi:10.1007/s10711-016-0188-7.
21. *On a question of Etnyre and Van Horn-Morris.* (with Tetsuya Ito), Algebraic & Geometric Topology 17 (2017) 561–566.
22. *Quasi right-veering braids and non-loose links.* (with Tetsuya Ito), Algebraic & Geometric Topology. 19-6, 2989–3032 (2019)
23. *Positive factorizations of symmetric mapping classes.* (with Tetsuya Ito) The Mathematical Society of Japan, Vol. 71, No. 1 (2019) pp. 309–327. doi: 10.2969/jmsj/78827882
24. *The defect of Bennequin-Eliashberg inequality and Bennequin surfaces.* (with Tetsuya Ito) Indiana University Mathematics Journal, 68(68 No. 3), 799–833. (2019)
25. *Positivities of knots and links and the defect of Bennequin inequality* (with Jesse Hamer and Tetsuya Ito) arXiv:1809.10836. Exp. Math. 31 (2022), no. 1, 199-225.
26. *Braids, fibered knots, and concordance questions* (with Hubbard, D., Kawamuro, K., Kose, F. C., Martin, G., Plamenevskaya, O., Raoux, K., Truong, L., Turner, H.) Assoc. Women Math. Ser., 27 Springer, Cham, 2021, 293-324.
27. *On the fractional Dehn twist coefficients of branched covers* (with Tetsuya Ito) submitted to J. Sympl. Geometry and revised following referee’s comments in June 2022, December 2023 and December 2024.
28. *Comparing Bennequin-type inequalities* (with Elaina Aceves and Lihn Throng) New York Journal of Mathematics, Volume 27 (2021), 124-140.
29. *Agol cycles of pseudo-Anosov 3-braids* (with Elaina Aceves), Geometriae Dedicata (2023) 217:81 <https://doi.org/10.1007/s10711-023-00812-z>.
30. *Birman-Ko-Lee left canonical form and its applications* (with Michele Capovilla-Searle and Rebecca Sorsen) <https://doi.org/10.48550/arXiv.2304.00064>
31. *The Tiling Book*, Book Review, AMS Notices, October issue 2023.
32. *Complete description of Agol cycles of pseudo-Anosov 3-braids* (with Eiko Kin) accepted by Tokyo Journal of Mathematics September 2024.
33. *Twist left-veering open books, overtwistedness, looseness and virtual looseness* (with Tetsuya Ito) accepted by Osaka Journal of Mathematics December 2024.
34. *On the negative band number* (with Michele Capovilla-Searle, Tetsuya Ito, and Rebecca Sorsen) arXiv:2504.17637. Preprint, 2025.

## 5 List of colloquia, research seminars, and talks at research conferences

### 5.1 Colloquia

1. Columbia Undergraduate Mathematical Society, Columbia University, October, 2005.
2. University of Iowa, January 21st, 2009.  
*Transverse knots via braids.*
3. University of Wisconsin, Madison, January 26th, 2009.  
*Transverse knots via braids.*
4. University of California, Santa Cruz, January 29th, 2009.  
*Transverse knots via braids.*
5. University of California, Riverside. March 11th, 2009.  
*Transverse knots via braids.*
6. Univ. Sci. Tech. China. July 7th, 2009.  
*Braids, transverse knots, and the self linking number.*
7. RTG special lecture at Michigan State University, April 13th, 2010.  
*On geometric braids.*
8. University of California, Riverside. March 14, 2012.  
*Open book foliation.*
9. Washington University. April 5, 2012.  
*Open book foliation and overtwisted contact structure.*
10. Utah State University. October 11, 2012.  
*Open book foliation and its applications.*
11. Western Illinois University. February 13, 2013.  
*Open book foliation and contact structures.*
12. Western Illinois University. April 4, 2019. *On positivities of knots and links.*
13. Wichita State University, September 15, 2023. *Contact structures and open book foliations.*
14. Creighton University, October 4, 2024. *Geometric Braids.*
15. University of Iowa, October 24, 2024. *Geometric Braids.*

### 5.2 Research seminars

1. Operator algebra seminar, UCLA, December, 1998.
2. Operator algebra seminar, MSRI, November, 2000.
3. Operator algebra seminar, UCSB, January 2001.
4. Geometric topology seminar, Columbia University, December, 2005.
5. Geometry/topology seminar, SUNY at Buffalo, February, 2006.
6. Topology seminar at Rice University, August, 2006. *The algebraic crossing number and braid index of knots and links.*

7. Topology seminar at UT Austin, September, 2006. *The algebraic crossing number and braid index of knots and links.*
8. Topology seminar at Rice University, October, 2006. *Non-sharpness of the Morton-Franks-Williams inequality.*
9. Geometry/Topology seminar at University of Wisconsin-Madison, March 23rd, 2007. *Relation between the writhes and the braid index of knots*
10. Topology seminar at Rice University, August 27th, 2007. *Khovanov-Rozansky homology and braid index.*
11. Topology seminar at University of Iowa, October 11th, 2007. *Khovanov-Rozansky homology and braid index.*
12. Topology seminar at University of Iowa, October 12th, 2007. *Contact surgery and branched covering.*
13. Topology seminar at Rice University, January 14th, 2008. *On transverse knots and branched covers.*
14. Topology seminar at Columbia University, February 29th 2008. *Transverse knots and their branched covers.*
15. Institute for Advanced Study, May 22nd, 2008. *Classification of transverse knots in contact manifolds.*
16. Topology Seminar at Rice University, January 12th, 2009. *Defining a self-linking number for transverse knots in the lens space  $L(k, 1)$ .*
17. Topology seminar at Georgia Tech. March 2nd 2009. *Annulus open book decompositions and the self linking number.*
18. Topology and Geometry seminar at Penn State University Altoona. March 6th, 2009. *Transverse knots via braids.*
19. Geometric topology seminar at Columbia University, April 10th, 2009.
20. Topology seminar at Princeton University, April 23rd, 2009.
21. Geometric PDF seminar, IAS, Princeton. April 28th, 2009.
22. Topology seminar at University of Iowa. September 29th, 2009. *Lorenz knots and pseudo-Anosov map.*
23. Topology seminar at University of Iowa. February 23rd, 2010.
24. Columbia University Geometric Topology seminar. February 26th, 2010.
25. Notre Dome University, April 1st, 2010.
26. Topology seminar at Michigan State University, April 14th, 2010. *Characteristic polynomials of pseudo-Anosov maps.*
27. Topology seminar, Tokyo Institute of Technology, June 16th, 2010. *A polynomial invariant of pseudo-Anosov maps.*
28. Topology seminar, University of Tokyo, July 20th, 2010. *A polynomial invariant of pseudo-Anosov maps.*
29. Topology seminar, California Institute for technology, November 18th, 2010. *An invariant of pseudo-Anosov maps*

30. Topology seminar, CUNY Graduate center, December 8th, 2010.  
*The self linking number and planar open books*
31. Topology seminar, University of Iowa, February 17th, 2011.  
*The self linking number and characteristic foliation I.*
32. Topology seminar, University of Iowa, February 24th, 2011.  
*The self linking number and characteristic foliation II.*
33. Topology seminar, The University of Tokyo, July 11, 2011.  
*The self linking number and planar open book decomposition.*
34. Topology seminar, University of Iowa, September 22, 2011.  
*Open book foliation and application to contact geometry.*
35. Topology seminar, University of Georgia, Athens. February, 13, 2012.  
*Open book foliation.*
36. Topology seminar, Washington University. April 6, 2012.  
*The self linking number of transverse knots.*
37. Topology seminar, University of Tokyo. June 8, 2012.  
*Introduction to Open Book Foliation.*
38. Topology seminar at University of British Columbia. September 19, 2012.  
*Open book foliation and fractional Dehn twist coefficient.*
39. Topology seminar at Georgia Institute of Technology. October 1, 2012.  
*Open book foliation and fractional Dehn twist coefficient.*
40. Topology seminar at California Institute of Technology. October 26, 2012.  
*Open book foliation and fractional Dehn twist coefficient.*
41. Topology seminar at Duke University. November 6, 2012.  
*Open book foliation and fractional Dehn twist coefficient.*
42. Tuesday Topology seminar at University of Tokyo. March 19, 2013.  
*Open book foliation and application to contact topology.*
43. Topology seminar at Michigan State University. November 11, 2013.  
*On overtwisted disks.*
44. Topology seminar at University of Iowa, February 17, 2015.  
*On virtually overtwisted contact structure.*
45. Columbia University, April 29, 2016. *Quasi-right-veering braids and quasi-positive braids.*
46. Pekin University, June 4, 2017. Beijing, China. *The Bennequin-Eliashberg inequality and quasipositive knots and links.*
47. Shanghai Jiaotong University, June 15, 2017, Shanghai, China. *The Bennequin-Eliashberg inequality and quasipositive knots and links.*
48. Tokyo Institute of Technology, June 30, 2017, Tokyo, Japan. *The Bennequin-Eliashberg inequality and quasipositive knots and links.*
49. University of Iowa, Topology Seminar, February 24, 2022. *Agol cycles of pseudo-Anosov 3-braids.*
50. Rutgers University, Topology Seminar, March 9, 2022. *Agol cycles of pseudo-Anosov 3-braids.*
51. CIMAT, Flco Gonzalez Acuna Seminar, April 7, 2022. *Agol cycles of pseudo-Anosov 3-braids.*

52. Osaka University, Topology Seminar, January 11, 2023. *The dual Garside left canonical form and the fractional Dehn twist coefficient.*
53. Tokyo Institute of Technology, Topology Seminar, January 25, 2023. *The dual Garside left canonical form and the fractional Dehn twist coefficient.*
54. University of Iowa, Topology Seminar, March 2, 2023. *Birman-Ko-Lee left canonical form and its applications*
55. University of Tokyo, Topology Seminar, July 23, 2024. *Shortest Word Problem in Braid Theory*

### 5.3 Talks at research conferences

1. 4th Operator Algebras International Conference, Constanta, Romania, July 2001.
2. International KOOK seminar at Osaka City University, Osaka, Japan, July, 2004.
3. Knots in Washington, George Washington University, December, 2005.
4. Intelligence of Low Dimensional Topology 2006, Hiroshima, July, 2006.
5. Second Louisiana-Texas-Topology-Retreat at LSU, Baton Rouge, February 4th, 2007.  
*3-braids and the algebraic crossing number.*
6. The Many Strands of the Braid Groups at Banff International Research Station, Canada, April 26th, 2007. *Braid index and algebraic crossing number.*
7. AMS meeting at LSU, March 29th, 2008.  
*Negative flype & transverse knot.*
8. AMS Mathematics Research Communities, Snowbird, June 16th, 2008.  
*Generalized Jones' conjecture.*
9. Knots in Washington XXVII, George Washington University, January 11th, 2009.  
*Braids and Open Book Decompositions.*
10. Conference on Topology and Geometry of Knots at Oklahoma State University. March 20-21, 2009.
11. MSRI, Knot Homology Theories Connections for Women workshop. January 21st, 2010.  
*Characteristic polynomials of pseudo-Anosov maps.*
12. Workshop on pseudo-Anosovs with small dilatation at University of Wisconsin, Madison, April 24th, 2010.  
*Characteristic polynomials of pseudo-Anosov maps.*
13. AMS meeting at New Jersey Institute of Technology. May 23, 2010.  
*Polynomial Invariants of Pseudo-Anosov maps.*
14. Knots, Contact Geometry and Floer Homology, Tambara, Japan. May 30th, 2010.  
*A polynomial invariant of pseudo-Anosov maps.*
15. Conference "Geometry, Dynamics, and Topology Day 2011". Eastern Illinois University, March 26th 2011.
16. International Conference "Braids in Seville" at Universidad de Sevilla, Spain, June 15th, 2011.  
*Braids in planar open books & the self linking number.*
17. AMS sectional meeting, Lincoln Nebraska. October 15, 2011.  
*Open book foliation.*
18. AMS sectional meeting, Tampa, FL. March 11, 2012.  
*Essential open book foliation.*

19. “Georgia Topology Conference 2012”, University of Georgia, Athens, GA, May 12, 2012. *Open book foliation & tightness criteria of contact structures.*
20. “Workshop and Conference on Holomorphic Curves and Low Dimensional Topology” Stanford University, CA, August 2, 2012. *Open Book Foliation and Applications.*
21. “Homological Invariants in Low-dimensional Topology” AMS Spring Eastern Sectional Meeting, Chestnut Hill, Massachusetts. April 6, 2013. *Bypass move and stabilization of open books.*
22. “Interactions between low dimensional topology and mapping class groups” Max Plank Institute, Bonn, Germany, July 4th, 2013. *The self linking number of transverse links and the Johnson-Morita homomorphism.*
23. “Geometric Topology of Knots and 3-manifolds” AMS sectional meeting at Temple University, October 13, 2013. *The self-linking number of transverse links and sharpness of Bennequin-Eliashberg inequality.*
24. “Geometric Topology in Low Dimensions” AMS sectional meeting at Washington University, October 20, 2013. *The self-linking number of transverse links and sharpness of Bennequin-Eliashberg inequality.*
25. “AWM Research Symposium 2015” University of Maryland, April 11-12, 2015. *Applications of open book foliations.*
26. “Knots, braids, and mapping classes” A conference in honor of Bill Menasco’s 60th birthday, University at Buffalo, May 11-12, 2015. *Some applications of open book foliations.*
27. “Intelligence of Low-dimensional Topology (ILDIT)” at Research Institute for Mathematical Sciences, Kyoto, Japan. May 20-22, 2015. *Removing local extrema of surfaces in open book decompositions*
28. “Advances in Quantum and Low-Dimensional Topology” at the University of Iowa, March 11-13, 2016. *Quasi-right-veering braids.*
29. “Georgia Topology Conference” at University of Georgia, May 28 2016. *Quasi positive braids and cyclic branched coverings.*
30. AMS Special Session on “Symplectic Geometry and Contact Geometry” at University of St. Thomas (Minneapolis), Oct. 29, 2016. *Positive factorizations of symmetric mapping classes.*
31. Fifth Annual Midwest Women in Mathematics Symposium, February 25, 2017, Indiana University–Purdue University Indianapolis, *On quasipositive and strongly quasipositive links.*
32. “Four Dimensional Topology” Osaka City University, September 6, 2018, *The fractional Dehn twist coefficients of branched coverings.*
33. Three-dimensional Floer Theory, Contact Geometry, and Foliations, March 22, 2019, AMS Spring Central and Western Joint Meeting in University of Hawaii, *On positivities of knots and links.*
34. AMS Joint Meeting, January, 2021. *Flype, pseudo-Anosov braids and the fractional Dehn twist coefficient.*
35. AMS sectional meeting, Purdue University, March 26, 2022. *Agol cycles of 3-braids.*
36. ”Women at the intersection of mathematics and theoretical physics meet in Okinawa”, at Okinawa Institute of Science and Technology (OIST) Graduate School in Japan. *Diagrammatic left canonical form of braids and applications.* March 20-24, 2023.
37. “The topology of 3- and 4-manifolds” AMS Fall Central Sectional Meeting at Creighton University, Nebraska, *Agol cycles of pseudo-Anosov 3-braids and Garside normal forms,* October 7, 2023.
38. ICERM, Braids Reunion Workshop, *Shortest Word Problem in Braid Theory,* July 15, 2024.

39. Knots in Washington 50, George Washington University. (Plenary Speaker) *The negative band number of knots and links*, December 6, 2024.
40. The annual end of the year seminar, Seseragi Kaikan, Tokyo, Japan. *The negative band number of knots and links*, December 27, 2024.
41. Redbud Topology and Geometry Conference (Graduate workshop), University of Arkansas *Birman-Ko-Lee generators of the braid groups*, February 28, 2025.
42. Redbud Topology and Geometry Conference, University of Arkansas *Negative band numbers of links and braids*, March 2, 2025.
43. Plenary talk speaker at AMS Spring Western Sectional Meeting at California Polytechnic State University, San Luis Obispo, CA, Recent Developments in Contact and Symplectic Geometry, *Twist left-veering open books*, May 3, 2025.
44. Plenary talk speaker at JMM 2026, Washington DC, Women and Gender Minorities in Symplectic and Contact Geometry and Low Dimensional Topology, *Fractional Dehn twist coefficient and braids*, January 7, 2026.

## 6 Public Lectures and talks

1. Career Lecture at Kibougaoka Elementary School, Yokohama, Japan “How to become a mathematician” July 13, 2025.
2. International Career Seminar “Tokyo → CA → NY → TX → NJ → IA” March 5, 2024.
3. Sonia Kovalevskaya Day “Visualizing Topological Spaces” March 5, 2022.
4. 3-hour course for 2-4 graders “Play-Doh Math” at Belin-Blank Center for Gifted Education and Talent Development. University of Iowa. September 9, 2017.
5. Lecture to local elementary school kids (K-6), “Play with a möbius band” at Zion Lutheran Church, Iowa City, December 10, 2016.
6. College of Liberal Arts & Sciences Dean’s Advisory Board Meeting. September 17, 2015.  
*My research and teaching.*
7. Public lecture series: “Math is attractive (Sugaku no miryoku) for middle school and high school girls”, University of Tokyo. March 17, 2013.  
Talk 1. *Female mathematicians I met in the world.*  
Talk 2. *Feel spaces by open books.*

## 7 Postdocs and Ph.D. students

### 7.1 Postdoc

- Elizabeth Buchanan (Ph.D. 2023, Dartmouth)
- Joseph Breen (Ph.D. 2022, UCLA) Placement: Assistant Professor at the University of Alabama.
- Amey Kaloti (Ph.D. 2014, Georgia Institute of Technology, “Stein fillings of contact structures supported by planar open books”)

## 7.2 Ph.D. Students

- Marcos Ortiz (Ph.D. 2015)
- Camila Ramirez (Ph.D. 2017)
- Jesse Hamer (Ph.D. 2018)
- Elaina Aceves (Ford Fellow, August 2017–2022, Ph.D. 2022, Placement: University of Utah)
- Rebecca Sorsen (September 2019–May 2024. Placement: St. Mary’s University)
- Michele Copovilla-Searle (LLMJ fellow, August 2021–)
- Merrick Dodge (August 2023–)

## 7.3 Mentoring

- Rich Ligo (Presidential Ph.D. student Ph.D. 2017.)
- Niki Amaraweera Kalutotage (Ph.D. student. Fall 2019-Spring 2021)
- Nicholas Morrow (Undergraduate RTG fellow, January 2021–December 2021, August 2022–May 2023) Undergraduate thesis advice and NSF GRFP application advice, graduate school application advice.
- Calvin Kotrba (Undergraduate RTG fellow, January 2022–May 2022.)
- Jude Shelton (Undergraduate RTG fellow, August 2022–December 2022)
- Leslie Colton (August 2022–May 2023)
- Paria Karimi (August 2022–May 2023)
- Mackenzie Weber (Undergraduate RTG fellow, January 2023–December 2023)
- Richard Yang (High school student, RTG fellow, Spring 2024, 1 hour career consultation)
- Minou Emmad (1st year student, RTG fellow, Spring 2024, 1 hour career consultation)
- Lucy Henneker (August 2024–May 2025)
- Amol Bhagavathi, Josey Hackemack, Philippe Jay, Eric Lucas, Gabe Postacchini, John Sutton (RTG fellow, Fall 2024, 1 hour individual career consultation)
- Sophia I Van Daele (3rd year undergraduate student), Spring 2026.

## 7.4 Practicum

- Juan Felipe Ariza Mejia (Fall 2025, MATH:2850 Vector Calculus)
- Nandita Nair (Spring 2025, MATH:3720 Abstract Algebra)
- Elise Askelsen (Fall 2024, MATH:3720 Abstract Algebra)
- Margarita Bustos-Gonzalez (Fall 2023, MATH:1860 Calc II)

## 8 Service

### 8.1 Departmental Service

- Undergraduate Research (Negative band number project) Wednesday 10-11am with Sophia I Van Daele. Spring 2026.
- Undergraduate Seminar ‘Differential Geometry’ Wednesday 5-6pm, 4 students, (Co-organizer with Joshua Jordan) Spring 2025.
- Undergraduate Seminar ‘Visualizing Mathematics with 3D Printing’ 6 students, Tuesday 12:30pm (Co-organizer with Robert DeYeso) Fall 2024.
- Undergraduate Seminar ‘Knot Theory’ 6 students, 1 hour every Tuesday for seminar and 1.5 hour every Friday for teaching presenting students, Fall 2023.
- Undergraduate Seminar ‘Tiling of spaces’ 6 students, twice a week in Spring 2022.
- Undergraduate Career Workshop “Graduate Degree in Mathematics”, Organizer, December 2019, April 2022, April 2023.
- Organizer of Undergraduate Colloquium ‘Panorama of Geometry and Topology’ September 2020, April 2021, November 2021, April 2022, November 2022, April 2023, November 2023, April 2024, October 2024, December 2025.
- Organizer of Topology Summer Crash Course for incoming graduates, August 2021, 2022.
- Organizer of Kids Math Club in University of Iowa, Fall 2022. (four 1.5 hour meetings + TA training).
- Organizer of Kids Topology Club, October 3, 2021.
- Interim Director of Graduate Study, Fall 2020
- Committee
  - Laurent Jay’s 5-year review committee member, Spring 2026.
  - Chair. Search Committee for a RTG postdoc fellow, Fall 2025 - Spring 2026.
  - Undergraduate committee, Fall 2025–
  - Hiring committee, Fall 2025–
  - Cindy Farthing’s tenure promotion committee, Fall 2025.
  - Appointed to interview candidates for a departmental administrator, Spring 2024.
  - Frauke Bleher’s 5th year review committee, Spring 2024.
  - Ryan Kinser’s promotion committee, Fall 2023.
  - Webpage committee, Chair. Fall 2022–Spring 2023.
  - Zahra Aminzare’s 4-th year review committee, Member, Spring 2022.
  - Mohhamad Farajzadeh Tehrani’s tenure promotion committee, Member, Fall 2021
  - Salary Committee, Fall 2021.
  - Faculty Council, Member, Fall 2019–Spring 2020
  - Council for Diversity, Equity, and Inclusion, Spring 2020–Spring 2021.
  - Hiring Committee 2019 Fall–Spring 2021
  - Mohhamad Farajzadeh Tehrani’s third year review, Member, Spring 2021
  - Mohhamad Farajzadeh Tehrani’s second year review, Member, Spring 2020
  - Ben Cooper’s Promotion and Tenure Committee, Fall 2018–Spring 2019.

- Graduate course curriculum committee (topology group representative), appointed by Chair Tomova, May–July 2017.
  - Colloquium Committee, Co-chair Fall 2009–Spring 2011; Chair Fall 2017–Spring 2018
  - Undergraduate committee Fall 2015–Spring 2018
  - Search committee Fall 2015.
  - Executive committee Fall 2013–Spring 2014 and Fall 2015–Spring 2018
  - Ph.D. Qualifying Exam Committee Fall 2013. Spring 2014, Fall 2014, Spring 2015, Fall 2018–Spring 2020, Fall 2022, Spring 2023 (I am on sabbatical in Spring 2023, but I made Part A problems and graded them.) Fall 2023, Spring 2024
  - Committee of the 2nd Year Review for Ben Cooper, Spring 2016.
- Comprehensive Exam Committee:  
Mike Fitzpatrick (December 2011), Nathan Druivenga (August 2012), Marcos Ortiz (December 2012), Colin Grove (September 2013), Nelson Colon (September 2013), Dido Salazar-Torres (December 2013), Camila Ramirez (October, 2014), Daniel Rodman (April 2015), Richard Ligo (May 8th, 2015), Jesse Hamer (April 2016), Tyler Schroeder (November 2016). Rebeccah MacKinnon (August 2017). Puttipong Pongtanapaisan (September 2017). Jose Roman Aranda Cuevas (October 2017). Imad Bakhira (November 2017). Nick Connolly (November 2018). Elaina Aceves (November 2019). Cody Gilbert (August 2020). Rebecca Sorsen (October 2021). Hoang-An Nguyen (March 2022). Elise Askelsen (October 2022). Margarita Bustos Gonzalez (December 2022). Juan Felipe Ariza (May 2023). Michele Capovilla-Searle (February 2024, Chair). Matthew Barbar (April 2024). Joe Starr (August 2024). Abdul Shabeer Abdul Sattar (April 2025). Merrick Dodge (August 2025, Chair). Ashwin Ayilliath Kutteri (December 2025).
- Defense committee:  
Soojeong Kim, April 2010. Paul H. Drube, April 2011. Alexander M. Zupan, April 26. 2012. Dido Salazar-Torres April 1, 2015. Colin Grove, January 28, 2016. Rich Ligo, April 14, 2017. Daniel Rodman, April 2017. Camila Ramirez (Chair), April 20, 2017. Thomas Kindred, February 21, 2018. Jesse Hamer (Chair), November 27, 2018. Mitchel Messmore, May 2020. Puttipong Pongtanapaisan, April 2021. Roman Jose Aranda, April 2021. Nicholas Conolly, July 2021. Elaina Aceves, March 2022. Paul Pravakar, May 4, 2023. Hoang-An Andy Nguyen, May 10, 2023. Rebecca Sorsen (Chair) April 2024. Margarita Bustos-Gonzalez, Mar 26, 2025. Joe Starr, August 18, 2025.
- Reference letters:
    - Nandita Nar, Spring 2026 (TA award recommendation)
    - Sophia I Van Daele, Spring 2026 (National Lab intern application)
    - Elizabeth Buchanan, Fall 2025 (Tenure track job application)
    - Joshua Jordan, Fall 2025 (Tenure track application)
    - Elizabeth Buchanan, April 2025 (AMS-Simons Travel Grant)
    - Casey Stone, April 2025 (Tenure track job application)
    - Philippe Jay, November 2024 (Graduate school application, 40 schools)
    - Catherine Xu, November 2024 (math research program known as PRIMES-USA)
    - Robert DeYeso, September 2024 (Tenure Track job application)
    - Margarita Bustos-Gonzalez, September 2024 (Tenure Track job application)
    - Joseph Breen, April 2024 (AMS-Simons Travel Grant), September 2024 (Tenure Track job application)
    - Hannah Turner, September 2023 (Tenure track job application)
    - Diana Hubbert, Tenure promotion letter in CUNY, March 2023.

- Michele Capovilla-Searle February 2021 (LLMJ fellow), October 2021 (NSF GREP), April 2024 (Post-comp fellowship), March 2025 (ICERM workshop)
  - Carter Tams, February 2023 (REU), November 2023 (NSA-job application)
  - Nicholas Morrow, May 2022 (REU), December 2022 (Graduate school application) and October 2022 (NSF GREP-application).
  - Mitch Majure, December 2022 (Graduate school application) and February 2023 (William and Carolyn Glasgow Mathematical Sciences Scholarship application).
  - Pravakar Paul, September 2022 (Balard-Seashore application), November 2022 (Postdoc application), April 2023 (updated Postdoc application, more teaching oriented contents).
  - Rebecca Sorsen, February 2022 (Post Comp), February 2023 (Summer Fellowship), September 2023 (BS-fellowship), October 2023 (Tenure track job application)
  - Elaina Aceves, November 2021 (Postdoc application)
  - Ali Sameer January 2021 (Graduate application)
  - Danxuan Chen 2021 (Graduate application)
- Panel for the prospective math graduate students, March 2015, April 2016, April 2017, March 2019.
  - The 1st year seminar as a representative of the Geometry-Topology group, October 27, 2023.

## 8.2 Service for college

- Chemistry Department Review Committee Spring 2020
- A judge for the Jakobsen Conference, March 2018.

## 8.3 Service for university

- Hancher Auditorium Advisory Committee, Member Fall 2020–Spring 2022
- Judicial Commission Committee 2017– 2023.

## 8.4 Professional services

- Editor of International Journal of Mathematics, February 2024–.
- Conference organization
  - Organizer of “Midwest Panorama of Geometry and Topology”, June 2025.
  - Co-organizer of the workshop “Braids” at ICERM Brown University, Spring 2022.
  - Co-organizer of Group 6 in Women in Symplectic and Contact Topology, July 22–26, 2019 at ICERM Brown University.
  - University of Iowa, 7th Midwest Women in Mathematics Symposium, Organizer, April 2019
  - Purdue University, A Kaleidoscope of Mathematics (Mini Workshop), Organizer, February 2019
  - Co-Organizer, 6th Midwest Women in Mathematics Symposium (at Purdue University), March 2018
  - Co-organizer: ICERM/Brown University summer workshop “Combinatorial link homology theories, braids, and contact geometry”. August 2014.
- Panels
  - NSF panel for Low-Dimensional Topology, Spring 2025
  - NSF panel for Symplectic and Contact Geometry, Spring 2021
  - NSF, Low-dimensional topology panel, Reviewer, Grant Proposals 2017

- Simons Foundation, Reviewer, Grant Proposals, 2017
- Seminar Organization
  - ‘Women in Math Colloquium Series’ September 2020–December 2021.
  - Mapping Class Group (Training Seminar) Fall 2021, Spring 2024, Fall 2024.
  - Braid Seminar September 2020–March 2021
  - Tau-invariant seminar, Organizer Fall 2019
  - Grid Homology Seminar, Organizer Fall 2019
  - The University of Iowa, Topology Reading seminar, Chair 2018
  - The University of Iowa, Topology Research Seminar, Chair 2018
  - University of Iowa, Heegaard Floer Homology Seminar, Co-Organizer, 2015-2016
  - Organizer of contact geometry seminar, Spring 2012, Fall 2013. Fall 2014–Present.
  - Organizer of Heegaard Floer homology seminar, Fall 2015–Present.
  - Organizer of convex surface seminar, Fall 2014–Spring 2015.
  - Organizer of Knots and links seminar, Spring 2015.
  - Organizer of topology seminar at University of Iowa, Spring 2010–Spring 2013. Spring 2018.
  - Co-organizer of topology reading seminar at University of Iowa, Fall 2012–Spring 2013. Spring 2018, Fall 2022.
  - Co-organizer of Rice University mathematics department colloquium, 2006–2008.
  - Co-organizer of graduate student teaching seminar, 2007-2008.
  - Organizer of Columbia University geometric topology seminar, 2005-2006.
- Referee:
  - Publications of the Research Institute for Mathematical Sciences (2023, 2024)
  - Revista Matemática Iberoamericana (2022)
  - Michigan Math J. (2021)
  - J. of Topology (2020)
  - Transactions of the American Mathematical Society. (2016)
  - (Book) The Graduate Studies in Mathematics series of AMS. (2015)
  - Geometriae Dedicata (2025)
  - Geometry and Topology Monographs. (2014, 2015)
  - Journal of Knot Theory and Its Ramifications. (2008, 2014, 2016, 2025)
  - Communications in Math Physics (2009).
  - Forum Mathematicum (2011).
  - Algebraic and geometric topology. (2013-2014, 2015, 2016-2017, 2020, 2021, 2024)
  - Proceedings of AMS (2014).
- Review
  - (2026) ZbMath: Clay, Adam; Ghaswala, Tyrone Cofinal elements and fractional Dehn twist coefficients, Int. Math. Res. Not. 2024, No. 9, 7401-7420 (2024)
  - (2025) ZbMath: Feller, Peter, The slice-Bennequin inequality for the fractional Dehn twist coefficient, J. Inst. Math. Jussieu, 24(1), 273-289 (2025)
  - (2025) ZbMath Allen, Smantha; Ince, Kenan; Seungwon; Ruppik, Benjamin Matthias; Turner, Hannah, Unknotting via null-homologous twists and multitwists, Pac. J. Math. 330, No. 1, 25-41 (2024)

- (2024) MR4551190 Chatterjee, Rima Transverse links, open books, and overtwisted manifolds. *New York J. Math.* 29 (2023), 213–230. 57K10 (57K33)
- (2023) AMS Math Review MR4470109
- (2023) Zentralblatt MATH / zbMATH. ‘Legendrian ribbons and strongly quasipositive links in an open book’ by Hayden, Kyle
- (2023) AMS Notices Book Review. Review of ‘Tigling Book, An introduction to the Mathematical Theory of Tilings’ by Colin Adams.
- (2022) Zentralblatt MATH / zbMATH. Review of ‘New invariants of Legendrian knots’ by Ito Noboru and Takamura Masashi.
- (2021) Zentralblatt MATH / zbMATH. Review of ‘Transverse universal links’ by Casals, Roger and Etnyre, John B.
- (2020) AMS Review of MR3906743 Kegel, Marc Cosmetic contact surgeries along transverse knots and the knot complement problem. *Topology Appl.* 256 (2019), 46–59. 57R17 (57M25 57M27 57N40 57R65)
- (2020) AMS Review of MR3633142 Barreto, Yadira; López de Medrano, Santiago; Verjovsky, Alberto Some open book and contact structures on moment-angle manifolds. *Bol. Soc. Mat. Mex.* (3) 23 (2017), no. 1, 423–437. 57R17 (53D10 53D15)
- (2019) AMS Review of [MR3678551 Siwach, Vikash and Prabhakar, Madeti, “On minimal unknotting crossing data for closed toric braids”, *Kyungpook Math. J.* 57 (2017), no. 2, 331–360]
- AMS Review of [MR3609906 Ghiggini, Paolo and Lisca, Paolo, Open book decompositions versus prime factorizations of closed, oriented 3-manifolds, in *Interactions between low-dimensional topology and mapping class groups*, 145–155, *Geom. Topol. Publ.*, Coventry, 2015]
- Zentralblatt MATH review: “Rational Linking and Contact Geometry” (2014)
- Zentralblatt MATH review: “On the  $S^1 \times S^2$  HOMFLY-PT invariant and Legendrian links” (2013)

## 8.5 Service to community

- South East Middle School Math Club. Every Tuesday 4:10–5:10pm, Fall 2024, Spring 2025.
- Pancake day at Lincoln Elementary, February 14, 2023.
- Taught *Origami Tiling* in Mini-Course Day at Lincoln Elementary School. May 20, 2022.
- Invited speaker for Sonia Kovalevskaya Day, “Visualizing Topological Spaces” March 5, 2022
- Kids Topology Club, Organizer, Iowa City Public Library, Fall 2021.
- Iowa City Japanese School, Invited Lecture 2019
- University of Iowa, Rockwell Lecture by Hubert Bray (Duke University), Co-Organizer 2017
- Volunteer at WiSE Ambassadors 3rd Annual Mocktail November 5th, 2016.
- Advising to girls (K-6) in Lincoln Elementary school in Iowa City for the annual STEM day event. 2015-2016.
- Public talk in the event ‘Math is attractive (Sagaku no miryoku)’ for middle school and high school girls, University of Tokyo, Tokyo, Japan