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US Citizen

# Jennifer Hom

	Research Interests
	Low-dimensional topology, Heegaard Floer homology
	Appointments
2023-	Professor, Georgia Institute of Technology, Atlanta, GA.
2018-2023	Associate Professor, Georgia Institute of Technology, Atlanta, GA.
	Assistant Professor, Georgia Institute of Technology, Atlanta, GA.
	Ritt Assistant Professor, Columbia University, New York, NY.
	Visiting Positions
Fall 2022	Chern Professor, Mathematical Sciences Research Institute, Berkeley, CA.
	Member, Institute for Advanced Study, Princeton, NJ.
Spring 2013	·
2009-2010	Program Associate, Mathematical Sciences Research Institute, Berkeley, CA
	Education
2005-2011	Ph.D. Mathematics, University of Pennsylvania, Philadelphia, PA.
	Advisor: Paul Melvin, <i>Bryn Mawr College</i> Thesis title: Heegaard Floer invariants and cabling
2009-2010	Exchange Scholar, University of California, Berkeley, Berkeley, CA.
	Semester Abroad, Independent University of Moscow, Moscow, Russia.
	B.S. Applied Physics, Columbia University, New York, NY.
2000 200 1	Minor in Applied Mathematics, magna cum laude
	Research Grants, Awards, and Honors
2024	AMS Levi L. Conant Prize
2023	Fellow of the American Mathematical Society
2022-2023	Simons Fellow

- 2022 International Congress of Mathematicians (ICM) Invited Speaker, Topology section
- 2022-2023 **NSF Grant DMS-2208225**, The 2022 Graduate Student Topology and Geometry Conference (primarily written by graduate students)
- 2021-2024 NSF Grant DMS-2104144, Topology between dimensions three and four
- 2018-2023 **NSF RTG Grant, DMS-1745583**, Research Training in Geometry and Topology (Co-PI with Etnyre, Belegradek, Margalit, Wickelgren)
- 2018-2021 **NSF Grant DMS-1833189**, Tech Topology Conference IV (PI with Co-PIs Etnyre, Margalit)
- 2018-2019 College of Sciences Cullen-Peck Scholar Award, Georgia Tech
- 2016-2021 **NSF CAREER Grant DMS-1552285**, Heegaard Floer homology and low-dimensional topology
- 2015-2019 Alfred P. Sloan Research Fellowship
- 2013-2016 **NSF Grant DMS-1307879**, Heegaard Floer homology, concordance, and categorification
- 2014-2016 **AIM SQuaRE Grant** (joint with Sam Lewallen, Tye Lidman, and Liam Watson), Categorification, bordered Floer homology, and the Seifert form
- Fall 2004 AMS Math in Moscow Scholarship

# Teaching Awards

- 2024 CIOS Honor Roll, Georgia Tech
- 2013 Award for Excellence in Teaching, Department of Mathematics, Columbia University
- 2006, 2007 Good Teaching Award, Department of Mathematics, University of Pennsylvania

## Publications

- A note on rational band moves with D. Chen, M.H. Kim, J. Park, and Z. Wu. La Matematica, Volume 3, pages 777–782, (2024). arXiv:2311.11507
- Topologically and rationally slice knots with S. Kang and J. Park.
   Selecta Math. Vol. 31 (2025), no. 2, Paper No. 28. arXiv:2304.06265
- PL-genus of surfaces in homology balls with M. Stoffregen, and H. Zhou.
   Forum of Math, Sigma, 12 (2024), Paper No. e14. arXiv:2301.04729
- An involutive dual knot surgery formula with K. Hendricks, M. Stoffregen, and I. Zemke. To appear in **Journal of Symplectic Geometry**. arXiv:2205.12798
- 5. Naturality and functoriality in involutive Heegaard Floer homology with K. Hendricks, M. Stoffregen, and I. Zemke.
  To appear in **Quantum Topology**, 2024. arXiv:2201.12906

6. Homology concordance and knot Floer homology with I. Dai, M. Stoffregen, and L. Truong.

Math. Ann. 390 (2024), no. 4, 6111?6186. arXiv:2110.14803

7. Homology cobordism, knot concordance, and Heegaard Floer homology To appear in **Proceedings of the ICM 2022**. arXiv:2108.10400

8. Getting a handle on the Conway knot

Bulletin of the American Mathematical Society Vol. 59, No. 1 (2022). arXiv:2107.09171

 A note on PL-disks and rationally slice knots with K. Hendricks, M. Stoffregen, and I. Zemke. To appear in Proceedings of Frontiers in Geometry and Topology, 2023. arXiv:2107.09022

10. On the quotient of the homology cobordism group by Seifert spaces with K. Hendricks, M. Stoffregen, and I. Zemke.

Trans. Amor. Math. Soc. Soc. B. 0 (2022), 757, 78, arXiv:2102.04262

**Trans. Amer. Math. Soc.** Ser. B 9 (2022), 757–78. arXiv:2103.04363

11. Linear independence of rationally slice knots with S. Kang, J. Park, M. Stoffregen.

Publishers, 2022, 145-153. arXiv:2006.11249

Geometry & Topology 26 (2022), no. 7, 3143-3172 arXiv:2011.07659

12. Surgery exact triangles in involutive Heegaard Floer homology with K. Hendricks, M. Stoffregen, and I. Zemke.

To appear in **Memoirs of the AMS**. arXiv:2011.00113

13. Lectures notes on Heegaard Floer homology
IAS/Park City Mathematics Series Volume: 28; 2021. arXiv:2008.01836

14. Dehn surgery and non-separating two-spheres with T. Lidman. Proceedings of the 2020 BIRS Workshop on Interactions of Gauge Theory and Contact and Symplectic Topology, Open Book Ser., 5 Mathematical Sciences

15. Ribbon knots, cabling, and handle decompositions with S. Kang, J. Park. Math. Res. Lett. 28 (2021), no. 5, 1441–1457. arXiv:2003.02832

 More concordance homomorphisms from knot Floer homology with I. Dai, M. Stoffregen, and L. Truong. Geometry & Topology, 25 (2021), no. 1, 275–338. arXiv:1902.03333

17. An infinite-rank summand of the homology cobordism group with I. Dai, M. Stoffregen, and L. Truong. **Duke Math. J.** 172 (2023), no. 12, 2365–2432. arXiv:1810.06145

18. Applications of involutive Heegaard Floer homology with K. Hendricks and T. Lidman.

Knot concordance in homology cobordisms
with A. Levine and T. Lidman. Duke Math. J. 171 (2022), no. 15, 3089–3131.
arXiv:1801.07770

20. A note on knot concordance and involutive knot Floer homology with K. Hendricks.

**Breadth in contemporary topology**, 113–118, Proc. Sympos. Pure Math., 102, Amer. Math. Soc., Providence, RI, 2019. arXiv:1708.06389

21. Involutive Heegaard Floer homology and rational cuspidal curves with M. Borodzik. Appendix by A. Schinzel.

**Proceedings of the London Mathematical Society**, Vol. 118 (2018), lss. 3, arXiv:1609.08303

22. A note on surgery obstructions and hyperbolic integer homology spheres with T. Lidman.

Proceedings of the American Mathematical Society, 146 (2018), no. 3, 1363-1365, arXiv:1604.06047

23. Satellite knots and L-space surgeries

**Bulletin of the London Mathematical Society**, Vol. 48 (2016), Iss. 5, 771–778, arXiv:1601.05696

24. A survey on Heegaard Floer homology and concordance
Tim Cochran Memorial Volume, JKTR, Vol. 22, lss. 2, arXiv:1512.00383

25. A note on positive definite, symplectic manifolds with T. Lidman.

**Journal of the European Mathematical Society**, Vol. 21, Iss. 1, 2019, 257–270, arXiv:1510.00373

26. Cable links and L-space surgeries

with E. Gorsky.

**Quantum Topology**, Vol. 8, Iss. 4, 2017, 629–666, arXiv:1502.05425

27. The Alexander invariant, Seifert forms, and categorification with T. Lidman and L. Watson.

**Journal of Topology**, Vol. 10, lss. 1 (2017), 22–100, arXiv:1501.04866

28. Surgery obstructions and Heegaard Floer homology with C. Karakurt and T. Lidman.

**Geometry & Topology**, **20** (2016), 2219–2251, arXiv:1408.1508

29. A note on the concordance invariants epsilon and upsilon

**Proceedings of the American Mathematical Society**, **144** (2016), 897–902, arXiv:1407.8200

30. Berge-Gabai knots and L-space satellite operations with T. Lidman and F. Vafaee.

Algebraic & Geometric Topology 14 (2014), 3745–3763, arXiv:1406.1597

31. Four-ball genus bounds and a refinement of the Ozsváth-Szabó tau-invariant with Z. Wu.

Journal of Symplectic Geometry, Vol. 14, No. 1 (2016), 305–323, arXiv:1401.1565

32. An infinite rank summand of topologically slice knots

**Geometry & Topology**, 19 (2015), 1063-1110, arXiv:1310.4476, updated Feb. 2019 to include corrigendum.

33. Reducible surgeries and Heegaard Floer homology

with T. Lidman and N. Zufelt.

Mathematical Research Letters, Vol. 22 (2015), Iss. 3, arXiv:1307.5317

34. On the knot Floer filtration of the concordance group

with S. Hancock and M. Newman.

Journal of Knot Theory and Its Ramifications, Vol. 22 (2013), Iss. 14, arXiv:1210.4193

- 35. On the concordance genus of topologically slice knots
  International Mathematics Research Notices, Vol. 2015 (2015), Iss. 5, 1295–1314, arXiv:1203.4594
- 36. Bordered Heegaard Floer homology and the tau-invariant of cable knots **Journal of Topology**, Vol. 7 (2014), Iss. 2, 287–326, arXiv:1202.1463
- 37. The knot Floer complex and the smooth concordance group

  Commentarii Mathematici Helvetici, Vol. 89 (2014), Iss. 4, 537–570, arXiv:1111.6635
- 38. A note on cabling and L-space surgeries
  Algebraic & Geometric Topology 11 (2011), 219–223, arXiv:0912.4046
- 39. Discriminative topological features reveal biological network mechanisms with M. Middendorf, E. Ziv, C. Adams, L. Chen, R. Koytcheff, C. Levovitz, G. Woods, and C. Wiggins. **BMC Bioinformatics** 2004, 5:181

## Preprints

- 40. Ribbon knots and iterated cables of fibered knots with J. Park. Submitted, 2025. arXiv:2507.20455
- 41. Handle decomposition complexity and representation spaces with P. Aceto, A. Daemi, T. Lidman and J. Park. Submitted, 2025. arXiv:2210.06607
- 42. Unknotting number and cabling with T. Lidman and J. Park. Submitted, 2022. arXiv:2206.04196

## Lecture Series

- Sept. 2022 Heegaard Floer homology, knot concordance, and connections to 4-dimensional topology (3 lectures), 4-Manifolds: From Above and Below, CIRM, Luminy, France
- Aug. 2022 Heegaard Floer homology and topology in dimensions 3.5 (3 lectures), Frontiers in Geometry and Topology Summer School, ICTP, Trieste, Italy
- Jul. 2019 Heegaard Floer homology (4 lectures), PCMI Graduate Summer School, Park City, Utah

# Colloquia and Conference Talks

- Apr. 2025 Gauge Theory and Floer Homology in Low Dimensional Topology, Simons Center
- Mar. 2025 Colloquium, Tufts University, Medford, MA
- Sept. 2024 Colloquium, Georgia Institute of Technology, Atlanta, GA
- Sept. 2024 Conant Lecture, Worcester, MA
- Aug. 2024 What's Your Trick?, Banff International Research Station, Banff, Canada
- May 2024 Georgia Topology Conference, Athens, GA
- Apr. 2024 Workshop on Gauge Theory & Low-dimensional Topology, Miami, FL
- Jan. 2024 Geometry and Topology Workshop, Los Angeles, CA

- May 2023 Graduate Student Conference in Algebra, Geometry, and Topology, Temple University, Philadelphia, PA
- Apr. 2023 Colloquium, Rutgers University, New Brunswick, NJ
- Apr. 2023 Gauge Theory and Low Dimensional Topology, University of Miami, Coral Gables, FL
- Mar. 2023 Low-dimensional Workshop, Rényi Institute, Budapest, Hungary
- Mar. 2023 Special Session on Contact and Symplectic Topology in Dimensions 3 and 4, AMS Sectional Meeting, Atlanta, GA
- Feb. 2023 Distinguished Women in Mathematics Colloquium, Stillwater, OK
- Oct. 2022 Global KMS International Conference, Korea (virtual)
- Sept. 2022 Connections Workshop: Floer Homotopy Theory, MSRI/SLMath, Berkeley, CA
- Aug. 2022 Frontiers in Geometry and Topology, ICTP, Trieste, Italy
- Jul. 2022 Topologie Workshop, Oberwolfach, Germany
- Jul. 2022 ICM, Topology section (virtual, recorded in Copenhagen, Denmark)
- Apr. 2022 Colloquium, University of Pennsylvania, Philadelphia, PA
- Apr. 2022 Brandeis-Harvard-MIT-Northeastern Colloquium, Northeastern University, Boston, MA (virtual)
- Apr. 2022 Colloquium, University of Georgia, Athens, GA
- Apr. 2022 Special Session for Women and Gender Minorities in Symplectic and Contact Geometry and Topology, JMM (virtual)
- Jan. 2022 Colloquium, Chinese University of Hong Kong (virtual)
- Nov. 2021 Cascade Topology Conference, Boise, ID (virtual)
- Jun. 2021 Richmond Geometry Festival, Richmond, VA (virtual)
- Jun. 2021 Georgia Topology Conference, Athens, GA (virtual)
- Jan. 2021 Floer homology in low-dimensional topology, Simons Center (virtual)
- Jan. 2021 Current Events Bulletin, JMM invited address (virtual)
- Jan. 2021 Special Session on Women of Color in Algebra and Topology, JMM (virtual)
- Nov. 2020 Workshop on Link Homology and Concordance, Toronto, Canada (virtual)
- Nov. 2020 Colloquium, Dartmouth College, Hanover, NH (virtual)
- Feb. 2020 Brandeis-Harvard-MIT-Northeastern Colloquium, Brandeis University, Waltham, MA
- Oct. 2019 Distinguished Women in Mathematics Colloquium, University of Texas, Austin, TX
- Jul. 2019 Frontiers in Floer homology, Boston, MA
- Jun. 2019 Smooth concordance classes of topologically slice knots, AIM, San Jose, CA
- May 2019 Workshop on Low-dimensional Topology (two talks), KIAS, Seoul, Korea
- Apr. 2019 Southern California Topology Colloquium, Pasadena, CA
- Feb. 2019 Colloquium (Horizons speaker), Rice University, Houston, TX
- Jan. 2019 Clifford Lectures Conference, New Orleans, LA

- Jan. 2019 Topology of Manifolds: Interactions Between High and Low Dimensional Topology, Creswick, Australia
- Nov. 2018 Special Session on Interactions Between Contact and Symplectic Geometry and Lowdimensional Topology, AMS Sectional Meeting, Fayetteville, AR
- Jul. 2018 Topologie Workshop, Oberwolfach, Germany
- Jun. 2018 Low-Dimensional Topology and Its Interactions with Symplectic Geometry, Princeton, NJ
- May 2018 Gökova Geometry/Topology Conference, Gökova, Turkey
- Jan. 2018 Low-dimensional Topology Workshop, Los Angeles, CA
- Nov. 2017 Texas Geometry and Topology Conference, Austin, TX
- Nov. 2017 Lloyd Roeling Topology Conference, Lafayette, LA
- Jun. 2017 32nd Annual Summer Topology Conference, Dayton, OH
- Jun. 2017 Women in Geometry and Topology, Zurich, Switzerland
- Jun. 2017 Swiss Knots, Bern, Switzerland
- May 2017 Georgia International Topology Conference, Athens, GA
- Feb. 2017 Colloquium, Ohio State University, Columbus, OH
- Jan. 2017 3-Manifold Workshop, Newton Institute, Cambridge, United Kingdom
- Jan. 2017 Colloquium, Georgia Southern University, Statesboro, GA
- Oct. 2016 Four-manifolds and Knot Concordance, Max Plank Institute for Mathematics, Bonn, Germany
- Aug. 2016 Homological Invariants in Low Dimensional Topology, Tehran, Iran
- Jun. 2016 Perspectives in Topology and Geometry of 4-manifolds, Dubrovnik, Croatia
- Jun. 2016 Topology in Dimension 3.5: A Conference in Memory of Tim Cochran, Houston, TX
- May 2016 Flavors of Gauge Theory, Toronto, Canada
- Apr. 2016 31st Annual Geometry Festival, Princeton, NJ
- Mar. 2016 Interactions of Gauge Theory with Contact and Symplectic Topology, Banff International Research Station, Banff, Canada
- Dec. 2015 Workshop on Flows, Foliations and Contact Structures, Institute for Advanced Study, Princeton, NJ
- Dec. 2015 Tech Topology Conference, Atlanta, GA
- Aug. 2015 William Rowan Hamilton Geometry and Topology Workshop, Dublin, Ireland
- Jun. 2015 Low-dimensional Topology Workshop, Princeton, NJ
- May 2015 Moab Topology Conference, Moab, UT
- Apr. 2015 Special Session on Low-Dimensional Topology, AWM Research Symposium, College Park, MD
- Mar. 2015 Special Session on Geometric Structures on Low-Dimensional Manifolds and Their Invariants, AMS Sectional Meeting, Washington, DC

- Jan. 2015 Special Session on Knot Theory, JMM, San Antonio, TX
- Jan. 2015 Colloquium, Rice University, Houston, TX
- Jan. 2015 Colloquium, Georgia Institute of Technology, Atlanta, GA
- Dec. 2014 Colloquium, University of Wisconsin, Madison, WI
- Dec. 2014 Colloquium, University of Virginia, Charlottesville, VA
- Nov. 2014 Colloquium, Indiana University, Bloomington, IN
- Nov. 2014 Colloquium, Washington University, St. Louis, MO
- Oct. 2014 Special Session on Interactions Between Knots and Manifolds, AMS Sectional Meeting, San Francisco, CA
- Sept. 2014 Special Session on Knot Concordance and 4-manifolds, AMS Sectional Meeting, Eau Claire, Wisconsin
- Jan. 2014 Special Session on Algebraic Structures Motivated by Knot Theory, JMM, Baltimore, MD
- Oct. 2013 Topology, Geometry and Group Theory, Informed by Experiment, ICERM, Providence, RI
- Oct. 2013 Special Session on Contact and Symplectic Topology, AMS Sectional Meeting, Philadelphia, PA
- Apr. 2013 Special Session on Homological Invariants in Low-Dimensional Topology, AMS Sectional Meeting, Boston, MA
- Mar. 2013 Special Session on Low-Dimensional Topology, AWM Research Symposium, Santa Clara, CA
- Jan. 2013 Special Session on Knots, Links and Three-manifolds, JMM, San Diego, CA
- Dec. 2012 Symplectic and Low-Dimensional Topologies in Interaction, Simons Center, Stony Brook, NY
- Oct. 2012 Colloquium, Syracuse University, Syracuse, NY
- Oct. 2012 Special Session on Knot Theory and 4-manifolds, AMS Sectional Meeting, Akron, OH
- Aug. 2012 Workshop on Holomorphic Curves and Low-Dimensional Topology, Palo Alto, CA
- Jun. 2012 Topology Students Workshop (faculty speaker), Atlanta, GA
- May 2012 21st Century Geometry, Program for Women in Mathematics, Institute for Advanced Study, Princeton, NJ
- Mar. 2012 Special Session on Low-Dimensional Topology, AMS Sectional Meeting, Tampa, FL
- Sept. 2011 Special Session on Gauge Theory and Low-Dimensional Topology, AMS Sectional Meeting, Ithaca, NY
- Mar. 2011 Interactions Between Contact Symplectic Topology and Gauge Theory, Banff International Research Station, Banff, Canada
- Jan. 2011 Special Session on Knot Theory, JMM, New Orleans, LA
- Jul. 2010 Knot Concordance and Homology Cobordism Workshop, Middletown, CT

- May 2010 Special Session on Homology Theories for Knots and Skein Modules, AMS Sectional Meeting, Newark, NJ
- May 2010 Knots in Washington XXX, George Washington University, Washington, DC
- Apr. 2009 Graduate Student Topology Conference, University of Wisconsin, Madison, WI

#### Seminar Talks

- 2025 University of Maryland Harvard University
- 2024 University of Nebraska, Lincoln Georgia Institute of Technology
- 2023 Joint Los Angeles Topology Seminar Oklahoma State University
- 2022 University of California, Berkeley Rényi Institute (virtual) Knots and Representation Theory Seminar (virtual)
- 2021 University of Pennsylvania (virtual) Stanford (virtual) Oxford (virtual) Knot Online Seminar (virtual)
- 2019 University of Texas, Austin CIRGET, University of Quebec at Montreal Boston Graduate Topology Seminar Harvard University Triangle Topology Seminar (Duke, NCSU, UNC) Michigan State University
- 2018 University of Oregon North Carolina State University Tulane University Columbia University
- 2017 University of Warsaw University of California, Davis
- 2016 University of Georgia Triangle Topology Seminar (Duke, NCSU, UNC; two talks) Georgia Institute of Technology SUNY Stony Brook / Simons Center for Geometry and Physics Institute for Advanced Study
- 2015 Massachusetts Institute of Technology 

   University of Texas, Austin 

   Northwestern University
- Vanderbilt University Philadelphia Area Topology Seminar (Bryn Mawr, Haverford, Temple, UPenn) Wesleyan University University of Texas, Austin Rice University
   Boston College Harvard University Joint Los Angeles Topology Seminar (CalTech, UCLA, USC) Chinese University of Hong Kong
- 2013 Princeton University Triangle Topology Seminar (Duke, NCSU, UNC; two talks) CIRGET, University of Quebec at Montreal (two talks) University of Texas, Austin (two talks) Columbia University Simons Center for Geometry and Physics Indiana University
- 2012 Syracuse University California Institute of Technology
- 2011 Georgia Institute of Technology SUNY Stony Brook Indiana University University of Virginia Michigan State University Rice University University of Pennsylvania Brandeis University Columbia University
- 2010 Wesleyan University 
   • Massachusetts Institute of Technology 
   • University of Rochester
   Stanford University 
   • University of California, Berkeley
- 2009 University of California, Davis

## Teaching Experience

- 2018- Reading Course Supervisor, Georgia Institute of Technology, Atlanta, GA.
  - Alex Eldridge (Spring 2024), Caifei Fan (Spring 2024), Owen Huang (Spring 2024), Luis Kim (Spring 2024), Weizhe Shen (Summer 2020), Shashank Markande (Spring 2019), Hyun Ki Min (Spring 2019), Anubhav Mukherjee (Fall 2019), Thomas Rodewald (Spring 2019), Hunter Vallejos (Spring 2019), Agniva Roy (Fall 2018), Hongyi Zhou (Fall 2018), Sally Collins (Summer 2018),
- 2016- Instructor, Georgia Institute of Technology, Atlanta, GA.
  - o Abstract Algebra I (Fall 2024)
  - Abstract Algebra II (Spring 2024)
  - o Knots, 3-manifolds, and 4-manifolds (Fall 2023)
  - Abstract Algebra (Spring 2022)
  - o Foundations of Mathematical Proof (Fall 2021)
  - Foundations of Mathematical Proof (Spring 2021)
  - o Foundations of Mathematical Proof (Fall 2020)
  - o Knot Theory and Grid Homology (Spring 2020)
  - Foundations of Mathematical Proof (Fall 2019)
  - Abstract Algebra (Fall 2018)
  - Heegaard Floer Homology (Fall 2017)
  - Algebraic Topology (Spring 2017)
  - o Introduction to Multivariable Calculus (Fall 2016)
- 2011-2015 Instructor, Columbia University, New York, NY.
  - Introduction to Algebraic Topology (Spring 2014, Spring 2015)
  - Introduction to Higher Mathematics (Fall 2013)
  - o Calculus III (Fall 2011, Fall 2012, Fall 2013, Fall 2014)
- 2011-2014 **REU Leader**, Columbia University, New York, NY.
  - Left-orderable groups and knot surgery (Summer 2014)
    - Non-left-orderable surgeries on twisted torus knots by K. Christianson, J. Golubuff, L. Hamman, and S. Varadaraj. *Proceedings of the American Mathematical Society*, 144 (2016), 2683-2696. arXiv:1410.1908
  - Heegaard Floer Homology and the Fundamental Group (Summer 2013)
    - **On left-orderability and double branched covers of Kanenobu's knots** by F. Doria Medina, M. Jackson, J. Ruales, and H. Zeilberger. *Journal of Knot Theory and Its Ramifications*, Vol. 24, Iss. 14. arXiv:1310.1877
  - Applications of Knot Floer Homology to the Concordance Group (Summer 2012)
     Knot Floer filtration classes of topologically slice knots by J. Tobin.
     Journal of Knot Theory and Its Ramifications, Vol. 23, Iss. 9. arXiv:1309.1999
  - Knot Floer Homology: Properties and Computations (Summer 2011)
     Joint paper On the knot Floer filtration of the concordance group by S. Hancock, J. Hom, and M. Newman. *Journal of Knot Theory and Its Ramifications*, Vol. 22, Iss. 14
- 2006-2008 Instructor, University of Pennsylvania, Philadelphia, PA.
  - Ideas in Mathematics (Summer 2008)
  - Calculus III (Summer 2007)
  - Calculus I (Summer 2006)
- 2006-2010 **Teaching Assistant**, *University of Pennsylvania*, Philadelphia, PA. Calculus I, Calculus II

2007 Grader, University of Pennsylvania, Philadelphia, PA.

**Topology** 

2003-2004 Teaching Assistant, Columbia University, New York, NY.

Calculus I

## Postdoctoral Mentoring

Neda Bagherifard (Georgia Tech, 2025-present)

Beibei Liu (Georgia Tech, 2020-2022)

Siddhi Krishna (Georgia Tech, 2020-2021)

Miriam Kuzbary (Georgia Tech, 2019-2023; NSF postdoc, 2021-2023)

JungHwan Park (Georgia Tech, 2018-2020)

Linh Truong (Columbia University, 2017-2019)

Yajing Liu (Georgia Tech, 2016)

# Graduate Supervision

#### Graduate Students

Alex Eldridge (Georgia Tech, 2025-present)

Owen Huang (Georgia Tech, 2025-present)

Sean McNally (Georgia Tech, 2021-2022)

Santana Afton (co-advised by Daniel Litt; Georgia Tech, 2020–2024)

Weizhe Shen (Georgia Tech, 2020-present)

Sarah (Sally) Collins (Georgia Tech, 2018–2023)

Hongyi (Hugo) Zhou (Georgia Tech, 2018-2023)

#### PhD Defense Committees

Dan Minahan (Georgia Tech, 2024) • Robert Shapiro (Georgia Tech, 2024) • Santana Afton (Georgia Tech, 2024) • Hugo Zhou (Georgia Tech, 2023) • Agniva Roy (Georgia Tech, 2023) • Sally Collins (Georgia Tech, 2023) • Anubhav Mukherjee (Georgia Tech, 2022) • Hyun Ki Min (Georgia Tech, 2021) • Sudipta Kolay (Georgia Tech, 2021) • Shashank Markande (Georgia Tech, 2021) • Justin Lanier (Georgia Tech, 2020) • Andrew McCullough (Georgia Tech, 2019) • Shane Scott (Georgia Tech, 2018) • Jonathan Hanselman (Columbia University, 2014) • Andre Carneiro (Columbia University, 2013)

#### Oral Exam Committees

Gary Dunkerley (University of Georgia, 2023) • Sierra Knavel (Georgia Tech, 2023) • Thomas Rodewald (Georgia Tech, 2023) • Weizhe Shen (Georgia Tech, 2022) • Santana Afton (Georgia Tech, 2021) • Sally Collins (Georgia Tech, 2020) • Hugo Zhou (Georgia Tech, 2020) • Anubhav Mukherjee (Georgia Tech, 2020) • Agniva Roy (Georgia Tech, 2020) • Tao Yu (Georgia Tech, 2020) • Surena Hozoori (Georgia Tech, 2018) • Hyun Ki Min (Georgia Tech, 2018) • Sudipta Kolay (Georgia Tech, 2017) • Mike Wong (Columbia University, 2014)

# Undergraduate Advising

- 2017 Shiyu Liang, Georgia Tech, undergraduate research

  Non-Left-Orderable Surgeries on 1-Bridge Braids, arXiv:1711.11389, to appear in Journal of

  Knot Theory and Its Ramifications
- 2012-2013 Joshua Tobin, Knot Floer filtration classes of topologically slice knots, Senior Thesis, Columbia University
  Journal of Knot Theory and Its Ramifications, Vol. 23, Iss. 9. arXiv:1309.1999
  Winner of an Outstanding Presentation Award, MAA Undergraduate Poster Session, JMM 2013
- 2011-2012 Michael Newman, Examining the knot Floer filtration of the concordance group, Senior Thesis, Columbia University
  Resulted in joint paper On the knot Floer filtration of the concordance group by S. Hancock,
  J. Hom, and M. Newman. Journal of Knot Theory and Its Ramifications, Vol. 22, Iss. 14

#### Service

#### Editorial

- 2024 Editorial Board, Advances in Mathematics
- 2023- Editorial Board, Transactions and Memoirs of the American Mathematical Society
- 2019 Editorial Board, Michigan Mathematical Journal

#### Referee

Algebraic & Geometric Topology • Annales de l'Institut Fourier • Geometry & Topology • Geometry & Topology Monographs • Journal of the American Mathematical Society • Journal of Symplectic Geometry • Journal of the Institute of Mathematics of Jussieu • Journal of Knot Theory and Its Ramifications • Journal of the London Mathematical Society • Mathematical Proceedings of the Cambridge Philosophical Society • Mathematical Research Letters • Michigan Mathematical Journal • Pacific Journal of Mathematics • Proceedings of the Gökova Geometry-Topology Conference • Quantum Topology • Transactions of the American Mathematical Society

### Grant Proposal Reviews

National Science Foundation (panelist for standard grants, 3x; CAREER; MSPRF), Swiss National Science Foundation (reviewer, 3x), Natural Sciences and Engineering Research Council of Canada (NSERC) (reviewer), Canada Research Chairs (CRC) (reviewer)

Service to the Profession

2023-2026 AMS Fellows Program Selection Committee

Institute Service

2021-2022 College of Sciences Academic Faculty Advisory Council, Georgia Tech

Departmental Service

- 2024-2025 Hiring Committee, Georgia Tech
- 2023-2025 Junior Promotion and Tenure Committee, Georgia Tech
- 2023-2024 Salary and Awards Committee, Georgia Tech
- 2020-2022 Communications, Development, and Outreach Committee, Georgia Tech
- 2020-2021 Hiring Plan Task Force, Georgia Tech
- 2018-2019, Comprehensive Exam Committee: Topology, Georgia Tech 2021
- 2018-2020 Postdoctoral Committee, Georgia Tech
- 2017-2021 Election Committee, Georgia Tech
- 2016-2017 Postdoctoral Committee, Georgia Tech

Seminar and Conference Organization

- 2017 Co-organizer of Tech Topology Conference, Georgia Tech
- 2016 Co-organizer of Geometry-Topology Seminar, Georgia Tech
- Sept. 2023 Co-organizer of Progress in Low-Dimensional Topology, AWM Research Symposium, Atlanta, GA
- Nov. 2022 Co-organizer of Floer Homotopical Methods in Low Dimensional and Symplectic Topology Workshop, MSRI
- July 2021 Tech Topology Summer School, Georgia Tech (virtual)
- Jan. 2021 Co-organizer of Special Session on Low-Dimensional Topology, JMM (virtual)
- Jul. 2019 Co-leader of Applications of Heegaard Floer homology to low-dimensional topology Research Group, WiSCon, ICERM, Providence, RI
- Summer 2017 Co-organizer of Workshop on Thirty Years of Floer Theory for 3-Manifolds, Casa Matemática Oaxaca
  - Spring 2016 Co-organizer of Workshop on Synchronizing Smooth and Topological 4-Manifolds, Banff International Research Station
    - 2015-2016 Co-organizer of Mathematical Conversations, Institute for Advanced Study

2012-2015 Co-organizer of Symplectic Geometry, Gauge Theory, and Categorification Seminar, Columbia University

Spring 2014 Co-organizer of Special Session on Invariants in Low-Dimensional Topology, AMS Sectional Meeting, Baltimore, MD

Discussion Leader

Dec. 2012 Discussion leader, Winter School in Low-Dimensional Topology, Sugadaira, Nagano, Japan

Jul. 2012 Lecturer and discussion leader, Contact and Symplectic Topology Summer School, Rényi Institute, Budapest, Hungary

Graduate Outreach and Mentorship

May 2025 Panelist, Communicating Mathematics, Graduate Student Conference in Algebra, Geometry, and Topology, Temple University

2018-present AWM Faculty Advisor, Georgia Tech AWM Student Chapter

Sept. 2024 Panelist, AMS Online Fall Graduate School Fair

Jun. 2017 Panelist, Counting Women: The challenges of being a female mathematician, University of Zurich

Jun. 2012 Mentor, Topology Students Workshop, Georgia Institute of Technology

May 2012 Mentor, Program for Women in Mathematics, Institute for Advanced Study

2006-2007 Co-organizer of monthly events for women in the mathematics department, University of Pennsylvania

Undergraduate Outreach and Mentorship

2022-present Atlanta Undergraduate Research Mathematics Seminar (AURMS), Faculty liaison

Aug. 2017, Co-organizer of Southeastern Undergraduate Mathematics Workshop, Georgia Institute 2019 of Technology

Summers REU co-organizer, Columbia University

2013-2014

Summers REU leader, Columbia University. Supervised a total of 17 undergraduates.

2011-2014

Oct. 2011 Alumna speaker, Applied Math Seminar, Columbia University

2009-2011 Graduate mentor to Jessica Ouyang and David Dunning, Undergraduate Mathematics Seminar, University of Pennsylvania

K-12 Outreach

Mar. 2020 Workshop leader, STEM Teacher @ Tech Day, Atlanta Science Festival, Georgia Tech

Nov. 2014, Workshop leader, Sonya Kovalevsky Day, Barnard College

Apr. 2013,

Mar. 2012

May 2010 Workshop leader, Julia Robinson Math Festival, Stanford University

Apr. 2009 Workshop leader, Expanding Your Horizons, Swarthmore College

Summer 2005 Teaching assistant, Center for Talented Youth, Roger Williams University

Summer 2004 Teaching assistant/Counselor, Summer Institute for Mathematics, University of Washington