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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.
- 2015-2018 **Assistant Professor**, *Georgia Institute of Technology*, Atlanta, GA.
- 2011-2015 **Ritt Assistant Professor**, *Columbia University*, New York, NY.

Visiting Positions

- Fall 2022 **Chern Professor**, *Mathematical Sciences Research Institute*, Berkeley, CA.
- 2015-2016 **Member**, *Institute for Advanced Study*, Princeton, NJ.
- Spring 2013 **Visitor**, *Simons Center for Geometry and Physics*, Stony Brook, NY.
- 2009-2010 **Program Associate**, *Mathematical Sciences Research Institute*, Berkeley, CA.

Education

- 2005-2011 **Ph.D. Mathematics**, *University of Pennsylvania*, Philadelphia, PA.
Advisor: Paul Melvin, *Bryn Mawr College*
Thesis title: Heegaard Floer invariants and cabling
- 2009-2010 **Exchange Scholar**, *University of California, Berkeley*, Berkeley, CA.
- Fall 2004 **Semester Abroad**, *Independent University of Moscow*, Moscow, Russia.
- 2000-2004 **B.S. Applied Physics**, *Columbia University*, New York, NY.
Minor in Applied Mathematics, *magna cum laude*

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
- 2013 **AMS Simons Travel Grant** (declined)
- 2013 **Award for Excellence in Teaching**, Department of Mathematics, Columbia University
- 2006, 2007 **Good Teaching Award**, Department of Mathematics, University of Pennsylvania
- Fall 2004 **AMS Math in Moscow Scholarship**

Publications

1. *PL-genus of surfaces in homology balls*
with M. Stoffregen, and H. Zhou. To appear in **Forum of Math, Sigma**, 2024. arXiv:2301.04729
2. *Homology cobordism, knot concordance, and Heegaard Floer homology*
To appear in **Proceedings of the ICM 2022**. arXiv:2108.10400
3. *Getting a handle on the Conway knot*
Bulletin of the American Mathematical Society Vol. 59, No. 1 (2022). arXiv:2107.09171
4. *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
5. *On the quotient of the homology cobordism group by Seifert spaces*
with K. Hendricks, M. Stoffregen, and I. Zemke. **Trans. Amer. Math. Soc.** Ser. B 9 (2022), 757–78. arXiv:2103.04363
6. *Linear independence of rationally slice knots*
with S. Kang, J. Park, M. Stoffregen. **Geometry & Topology** 26 (2022), no. 7, 3143–3172 arXiv:2011.07659

7. *Lectures notes on Heegaard Floer homology*
IAS/Park City Mathematics Series Volume: 28; 2021. arXiv:2008.01836
8. *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 Publishers, 2022, 145–153. arXiv:2006.11249
9. *Ribbon knots, cabling, and handle decompositions*
with S. Kang, J. Park. **Math. Res. Lett.** 28 (2021), no. 5, 1441–1457. arXiv:2003.02832
10. *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
11. *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
12. *Applications of involutive Heegaard Floer homology*
with K. Hendricks and T. Lidman.
Journal of the Institute of Mathematics of Jussieu, 20 (2021), no. 1, 187–224. arXiv:1802.02008
13. *Knot concordance in homology cobordisms*
with A. Levine and T. Lidman. **Duke Math. J.** 171 (2022), no. 15, 3089–3131. arXiv:1801.07770
14. *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
15. *Involutive Heegaard Floer homology and rational cuspidal curves*
with M. Borodzik. Appendix by A. Schinzel.
Proceedings of the London Mathematical Society, Vol. 118 (2018), Iss. 3, arXiv:1609.08303
16. *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
17. *Satellite knots and L-space surgeries*
Bulletin of the London Mathematical Society, Vol. 48 (2016), Iss. 5, 771–778, arXiv:1601.05696
18. *A survey on Heegaard Floer homology and concordance*
Tim Cochran Memorial Volume, JKTR, Vol. 22, Iss. 2, arXiv:1512.00383
19. *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
20. *Cable links and L-space surgeries*
with E. Gorsky.
Quantum Topology, Vol. 8, Iss. 4, 2017, 629–666, arXiv:1502.05425

21. *The Alexander invariant, Seifert forms, and categorification*
with T. Lidman and L. Watson.
Journal of Topology, Vol. 10, Iss. 1 (2017), 22–100, arXiv:1501.04866
22. *Surgery obstructions and Heegaard Floer homology*
with C. Karakurt and T. Lidman.
Geometry & Topology, **20** (2016), 2219–2251, arXiv:1408.1508
23. *A note on the concordance invariants epsilon and upsilon*
Proceedings of the American Mathematical Society, **144** (2016), 897–902,
arXiv:1407.8200
24. *Berge-Gabai knots and L-space satellite operations*
with T. Lidman and F. Vafaee.
Algebraic & Geometric Topology **14** (2014), 3745–3763, arXiv:1406.1597
25. *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
26. *An infinite rank summand of topologically slice knots*
Geometry & Topology, **19** (2015), 1063–1110, arXiv:1310.4476, updated Feb. 2019 to
include corrigendum.
27. *Reducible surgeries and Heegaard Floer homology*
with T. Lidman and N. Zufelt.
Mathematical Research Letters, Vol. 22 (2015), Iss. 3, arXiv:1307.5317
28. *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
29. *On the concordance genus of topologically slice knots*
International Mathematics Research Notices, Vol. 2015 (2015), Iss. 5, 1295–1314,
arXiv:1203.4594
30. *Bordered Heegaard Floer homology and the tau-invariant of cable knots*
Journal of Topology, Vol. 7 (2014), Iss. 2, 287–326, arXiv:1202.1463
31. *The knot Floer complex and the smooth concordance group*
Commentarii Mathematici Helvetici, Vol. 89 (2014), Iss. 4, 537–570, arXiv:1111.6635
32. *A note on cabling and L-space surgeries*
Algebraic & Geometric Topology **11** (2011), 219–223, arXiv:0912.4046
33. *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

34. *A note on rational band moves*
with D. Chen, M.H. Kim, J. Park, and Z. Wu. Submitted, 2023. arXiv:2311.11507
35. *Topologically and rationally slice knots*
with S. Kang and J. Park. Submitted, 2023. arXiv:2304.06265

36. *Handle decomposition complexity and representation spaces*
with P. Aceto, A. Daemi, T. Lidman and J. Park. Preprint, 2022. arXiv:2210.06607
37. *Unknotting number and cabling*
with T. Lidman and J. Park. Submitted, 2022. arXiv:2206.04196
38. *An involutive dual knot surgery formula*
with K. Hendricks, M. Stoffregen, and I. Zemke. Submitted, 2022. arXiv:2205.12798
39. *Naturality and functoriality in involutive Heegaard Floer homology*
with K. Hendricks, M. Stoffregen, and I. Zemke. Submitted, 2022. arXiv:2201.12906
40. *Homology concordance and knot Floer homology*
with I. Dai, M. Stoffregen, and L. Truong. Submitted, 2021. arXiv:2110.14803
41. *Surgery exact triangles in involutive Heegaard Floer homology*
with K. Hendricks, M. Stoffregen, and I. Zemke. Submitted, 2020. arXiv:2011.00113

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

- 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 Low-dimensional 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

- 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
- 2014 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.
 - Abstract Algebra II (Spring 2024)
 - Knots, 3-manifolds, and 4-manifolds (Fall 2023)
 - Abstract Algebra (Spring 2022)
 - Foundations of Mathematical Proof (Fall 2021)
 - Foundations of Mathematical Proof (Spring 2021)
 - Foundations of Mathematical Proof (Fall 2020)
 - 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)
 - 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)
 - 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

- Beibei Liu (Georgia Tech, 2020-2022)
Siddhi Krishna (Georgia Tech, 2020-2021)
Miriam Kuzbary (Georgia Tech, 2019-present; NSF postdoc, 2021-present)
JungHwan Park (Georgia Tech, 2018-2020)
Linh Truong (Columbia University, 2017-2019)
Yajing Liu (Georgia Tech, 2016)

Graduate Supervision

Graduate Students

- Sean McNally (Georgia Tech, 2021-2022)
Santana Afton (co-advised by Daniel Litt; Georgia Tech, 2020-present)

Weizhe Shen (Georgia Tech, 2020–present)
Sarah (Sally) Collins (Georgia Tech, 2018–2023)
Hongyi (Hugo) Zhou (Georgia Tech, 2018–2023)

PhD Defense Committees

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) • 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

- 2023– Editorial Board, Transactions and Memoirs of the American Mathematical Society
2019– Editorial Board, Michigan Mathematical Journal

Referee

Algebraic & Geometric Topology • *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, CAREER, MSPRF, 5x), 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

2023-2025 Salary and Awards Committee, Georgia Tech

2023-2025 Junior Promotion and Tenure Committee, Georgia Tech

2020-2022 Communications, Development, and Outreach Committee, Georgia Tech

2020-2021 Hiring Plan Task Force, Georgia Tech

2018-2019, 2021 Comprehensive Exam Committee: Topology, Georgia Tech

2018-2020 Postdoctoral Committee, Georgia Tech

2017-2021 Election Committee, Georgia Tech

2016-2017 Postdoctoral Committee, Georgia Tech

Seminar and Conference Organization

2016– Co-organizer of Geometry-Topology Seminar, Georgia Tech

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

- Dec. 2017, 2018, 2019, 2020, 2021 Co-organizer of Tech Topology Conference, Georgia Tech
- 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
- 2018-2020 AWM Faculty Advisor, Georgia Tech AWM Student Chapter
- 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
- 2022-2023 Atlanta Undergraduate Research Mathematics Seminar (AURMS), Faculty liaison
- Aug. 2017, 2019 Co-organizer of Southeastern Undergraduate Mathematics Workshop, Georgia Institute of Technology
- Summers 2013-2014 REU co-organizer, Columbia University
- Summers 2011-2014 REU leader, Columbia University. Supervised a total of 17 undergraduates.
- 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