Ying Hu

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Personal Information

- Chinese Citizen
- U.S. Permanent Resident

Academic Appointment

2018/08 - present	Assistant professor University of Nebraska Omaha
2015/08 - 2017/12	CIRGET postdoctoral fellow Université du Québec à Montréal/McGill University, Montréal, Canada

Visiting Position

2018 Spring	Department of Mathematics, University of Georgia, Athens, GA

Education

08/2015	Ph.D. in Mathematics, Louisiana State University, U.S. Thesis Adviser: Oliver Dasbach Thesis: Left-orderability, Cyclic Branched Covers and Representations of the Knot Group
05/2010	M.S. in Mathematics, Louisiana State University, U.S.
06/2008	B.S. in Math & Applied Math, Beijing Normal University, Beijing, China

RESEARCH

Research Interests

Low-dimensional Topology:

- Foliations, flows and contact structures on 3-manifolds
- Dynamics of group actions on 1-manifolds and left-orderability of groups
- Representations of 3-manifold groups

Publications and preprint

1 *Euler class of taut foliations and Dehn filling*,
  25 pgs, 2019. preprint. arXiv:1912.01645

2 *Taut foliations in branched cyclic covers and left-orderable groups*,
  (with Steve Boyer), Transactions of the AMS 372 (2019), no. 11, 7921 - 7957.

3 *Left-orderability and cyclic branched coverings*,
  Algebr. Geom. Topol. 15 (2015), no. 1, 399-413.

Works in preparation

4 *On the ADE Conjecture*, 2020
  (with Steve Boyer, Cameron Gordon), In preparation.

5 *Slope detection and toroidal 3-manifolds*, 2020
  (with Steve Boyer, Cameron Gordon), In preparation.

Grants/Awards/Honor

2021	NSF-AWM Mentoring Travel Grant
Fall 2020	University of Nebraska Online Course Development Grant
2014-2015	VIGRE Traineeship, Louisiana State University
01/2014	Distinguished Graduate Student Talk in Knots in Washington XXXVII
2008-2012	Graduate School Enhancement Award, Louisiana State University
2008-2012	Graduate School Supplement Award, Louisiana State University

Invited Talks

- Geometry and Topology Seminar, Washington University in St. Louis, April 2021.
- Geometry and Topology Online Seminar, Warwick, UK, December 2020.
- Nearly Carbon Neutral Geometric Topology Conference, online, June 2020.
- Topology Seminar, University of Iowa, Iowa city, February 2020.
- Groups Semigroups and Topology Seminar, University of Nebraska, Lincoln, December 2019.
- Geometry and Topology Seminar, Washington University in St. Louis, October 2019.
- Conference "Phenomenon of Codimension 1 in Topology in Low Dimensions", CRM50 Thematic Program in Low-Dimensional Topology, Montreal, September 2019.
- BIRS-CMO Conference "Ordered Groups and Rigidity in Dynamics and Topology", June 2019
- Conference "Georgia Topology Conference", Athens, Georgia, May 2019
- GEAR/GGD seminar, University of Illinois Urbana-Champaign, February 2019
- Groups Semigroups and Topology Seminar, University of Nebraska, Lincoln, October 2018
- Conference "Perspectives on bordered Heegaard Floer theory", Montreal, Canada, May 2018
- Topology Seminar, University of Texas at Austin, TX, April 2018
- Topology Seminar, University of Georgia joint with Georgia Tech, Athens, GA, February, 2018
- American Mathematical Society Joint Meeting, San Diego, January 2018
- Canadian Mathematical Society Winter Meeting, University of Waterloo, December 2017
- Geometric Group Theory Seminar, McGill University, November 2017
- CIRGET Geometry and Topology Seminar, UQAM, November 2017
- Mathematical Congress of the Americas, Montreal, July 2017
- Canadian Mathematics Society Winter Meeting, Niagara Falls, December 2016
- Geometry and Topology Seminar, University of Georgia, February 2016
- Canadian Mathematics Society Winter Meeting, Montreal, December 2015
- Geometric Group Theory Seminar, McGill University, November 2015
- Diffeomorphism Groups: algebra, topology, homology, UC Berkeley, June 2015
- Graduate Student Conference in Algebra, Geometry and Topology, Temple University, May 2015
- Geometry and Topology Seminar, Tulane University, March 2015
- Central Spring Sectional Meeting, Michigan State University, East Lansing, MI, March 2015
- Spring Eastern Sectional Meeting Georgetown University, Washington, DC, March 2015
- Conference on Knot Theory and Its Applications to Physics and Quantum Computing: 60th birthday of Józef H Przytycki, University of Texas at Dallas, Jan 2015
- Topology Students Workshop, Georgia Institute of Technology, June 2014
- Distinguished graduate student talk at Knots in Washington XXXVII, January 2014
- AMS Sectional Meeting, University of South Florida, March 2011

Expository Talks

- *On the AJ conjecture*, VIR Seminar on Knot theory, LSU, Fall 2013.
- *Examples of 3-dimensional manifolds*, G.E.A.U.X. Program, LSU, August 2013.
- *Volume of hyperbolic alternating link complements*, VIR Seminar on Algorithms and computations in Knot Theory, LSU, Spring 2013.
- *The A-polynomial and its computation*, Alpha-Math Workshop, LSU, May 2012.
- *Twisted Alexander polynomials and the Reidemeister torsion*, Junior topology seminar, LSU, Spring 2012.
- *Topology of Surfaces*, G.E.A.U.X. Program, LSU, August 2009.

Conferences and Workshops

- *Contact Structures, Laminations and Foliations*, LMU in Munich, Germany, September 5 - 9, 2016.
- *Advanced School on Geometric Group Theory and Low-Dimensional Topology*, ICTP, Trieste, Italy, May 23 - June 3, 2016.
- *Representations of 3-manifold groups, geometric structures and exact computations*, Institute de Mathématique de Jussieu, June 22 - 26, 2015.
- *Moab topology conference*, Utah State University, May 18 - 21, 2015.
- *52nd Texas geometry and topology conference*, UT Austin, November 14- 16, 2014.
- *Orderable groups*, Cajón del Maipo, Chile, September 1 - 5, 2014.
- *Wasatch topology conference*, Park City, Utah, August 22 - 24, 2014.
- *Geometric Structures and Discrete Groups*, UT Austin, May 2 - 4, 2014.
- *AMS Joint Meetings* & Six crash courses on Mapping Class Groups, Baltimore, January 14-18, 2014.
- *Geometric topology in Cortona*, Tuscany, Italy, June 3 - 7, 2013.
- *Cube complexes and 3-Manifolds*, University of Illinois at Chicago, May 20 - 30, 2013.
- *3-Manifolds: Heegaard splittings, the curve complex, and hyperbolic geometry*, Rice University, Houston, April 19 - 21, 2013.
- *Moab topology conference*, Utah State University, May 30 - June 1, 2012.
- *Faces of geometry: 3-manifolds, groups* & *singularities*, Columbia University, New York, June 6 -10, 2011.
- *Examples of geometries*, Ohio State University, Columbus, May 23 - 29, 2011.
- *AMS Joint Meetings*, New Orleans, January 6 - 9, 2011.
- *Knot in Poland III*, Stefan Banach Mathematical Center, Warsaw/Bedlewo, Poland, July 18 - August 04, 2010.
- *First National Forum of Young Topologists*, Tulane University, New Orleans, November 13 -15, 2009.

TEACHING AND MENTORING

Teaching Experience

University of Nebraska Omaha

- Introduction to Analysis (Fall 2019, Fall 2020)
- Advanced Linear Algebra (Spring 2020)
- Calculus I (Fall 2018, Fall 2019)
- Calculus II (Spring 2019, Spring 2020, Fall 2020)

McGill University

 - Calculus I (Fall 2015, Fall 2016, Fall 2017)

Louisiana State University

 - Calculus I (Summer 2013)
 - Co-instructor of Calculus recitations (Fall 2012, Fall 2013)
 - Pre-Calculus (Fall 2011)
 - Trigonometry (Spring 2010, Spring 2014)
 - Collage Algebra (Fall 2010)

Undergraduate Mentoring

 - Kerrigan Undergraduate Research Program, UNO (Summer 2019)

   Mentee: Gage Hoefer

   Research project: Visualizing hyperbolic structures on the once punctured torus.
 - Noyce Teacher Scholarship Program, UNO (Spring 2019)

   Mentee: Valeria Loza
 - Vertically Integrated Research (VIR) on Topology, LSU (2008-2015)

   Organized groups of senior undergraduate students on course projects, guided them in the learning of the materials, assisted them in solving problems and preparing presentations.

Teaching Workshops/Conferences

 - *IBL workshop*, Academy of Inquiry-based Learning, June 2019.
 - *National Council of Teachers of Mathematics Regional Conference and Exposition*, Kansas City, November 2018
 - *Teaching Techniques for Instructors Workshop*, McGill University, September 2017.
 - *Learning to Teach Day*, McGill University, November 2016.

PROFESSIONAL ACTIVITIES

Academic Services

 • Co-organizer of special session "Geometric group theory and topology in low dimensions" at Canadian Mathematics Society Winter Meeting, Niagara Falls, 2016.
 • Co-organizer of "CIRGET working group in Low dimensional topology," Spring 2016, Fall 2017
 • Referee: J. Lond. Math. Soc.; J. Knot Theory Ramifications; Trans. AMS

Synergistic Activities

 (1) *Treasurer of Association for Women in Mathematics LSU Student Chapter (2014-2015)*

   In charge of the finance of the student organization, helped organize (under)graduate student events, assisted in planning workshops and panel discussions to provide guidance for undergraduate students.
 (2) *G.E.A.U.X Program (2009, 2013)*

   Served as a committee member of this orientation program for incoming mathematics graduate students, participated in panel discussion on aspects of graduate study, gave and organized topology presentations.

Departmental Services

- Member of the Upper Curriculum Committee, University of Nebraska Omaha

OTHER SKILLS

Program and Computational Software

Python, C+, Mathematica, MATLAB, SnapPy, Sage, Singular, Gap

Languages

Proficient in Chinese and English; Working knowledge in French