

## Academic Appointment

- 2018/08     Assistant professor  
- present   University of Nebraska Omaha
- 2015/08     CIRGET postdoctoral fellow  
- 2018/05   McGill University and Université du Québec à Montréal, 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

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### Research Interests

Geometric topology:

- Foliations and flows on 3-manifolds
- Dynamics of group actions on dimension-1 spaces and left-orderability of groups
- Mapping class groups and dynamics on surfaces
- Knots, links and braids

### Publications and preprints

- 1 (with S. Boyer and C. Gordon) JSJ decompositions of knot exteriors, Dehn surgery and the L-space conjecture, 25 pgs, 2023, submitted. preprint: <https://arxiv.org/abs/2307.06815>
- 2 (with S. Boyer and C. Gordon) Recalibrating  $\mathbb{R}$ -order trees and  $\text{Homeo}_+(S^1)$ -Representations of link groups, 43 pgs, 2023, submitted. preprint: <https://arxiv.org/abs/2306.10357>
- 3 (with S. Boyer and C. Gordon) Slope detection and toroidal 3-manifolds, 60 pgs, 2021, submitted. preprint: <https://arxiv.org/abs/2106.14378>
- 4 (with J. Baldwin and S. Sivek) Khovanov homology and the cinquefoil, 21 pgs, 2021, Journal of the European Mathematical Society, to appear preprint: <https://arxiv.org/abs/2105.12102>
- 5 *Euler class of taut foliations and Dehn filling*, 25 pgs, 2019, Communications in Analysis and Geometry, to appear. preprint: <https://arxiv.org/abs/1912.01645>.
- 6 (with S. Boyer) *Taut foliations in branched cyclic covers and left-orderable groups*, Transactions of the American Mathematical Society, 372 (2019), no. 11, 7921 - 7957. preprint: <https://arxiv.org/abs/1711.04578v3>

7 *Left-orderability and cyclic branched coverings*,  
Algebraic & Geometric Topology 15 (2015), no. 1, 399-413.  
preprint: <https://arxiv.org/abs/1311.3291>

## Recent Invited Talks

- St. Louis Topology Conference, Saint Louis, May 2024.
- Spring Reddub Topology Conference, Oklahoma State University, April 2024.
- Topology seminar, East China Normal University, Shanghai (Online), December 2023.
- Groups Semigroups Topology seminar, University of Nebraska-Lincoln, November 2023.
- Geometric Topology seminar, Columbia University, New York, November 2023.
- Geometric Topology seminar, Boston College, Boston, November 2023.
- Geometry and Topology seminar, Brown University, Providence, October 2023.
- “Progress in low dimensional topology”, the AWM Research Symposium, Atlanta, September 2023.
- Jiu Zhang Mathematical Forum, Lanzhou University, Lanzhou, August 2023.
- Topology seminar, Department of Mathematics, Peking University, Beijing, June 2023.
- Topology seminar, Morningside Mathematics Center, Chinese Academy of Sciences, Beijing, June 2023.
- Topology seminar, Yau Mathematical Sciences Center, Tsinghua University, Beijing, June 2023.
- CIRGET Topology working group, UQAM, Montreal, May 2023.
- Geometry and Topology Seminar, Louisiana State University, April, 2023.
- AWM Research Symposium at The University of Minnesota, June 2022.
- Topology and Geometry Seminar, Rutgers University - New Brunswick, March 2022.
- The 55th Annual Spring Topology and Dynamical Systems Conference, Waco, TX, March 2022.
- Groups Semigroups and Topology Seminar, University of Nebraska, Lincoln, December 2021.
- Canadian Mathematical Society Summer Meeting, June 2021.
- 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

## Grants/Awards/Honor

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|-------------|--|
| 2021 - 2023 | Co-PI, University of Nebraska Collaboration Initiative Grant<br>with S. Ryu (PI), Mechanical and Materials Engineering (UNL),<br>S. Kim (Co-PI), Civil and Environmental Engineering (UNL) |
| 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   |

## TEACHING AND MENTORING

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### Teaching Experience

University of Nebraska Omaha

- Applied Topology (Spring 2021)
- Introduction to Abstract Mathematics (Spring 2022)
- Introduction to Analysis (Fall 2019 - 2023)
- Advanced Linear Algebra (Spring 2020 - 2023)
- Calculus I (Fall 2018 - 2023)
- Calculus II (Spring 2019 - 2020, 2022 - 2023)

McGill University

- Calculus I (Fall 2015 - 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

- UN Collaboration Grant Project, with Sangjin Ryu (UNL) and Seunghee Kim (UNL), (2021 - 2023)

Mentee: Jacob White

Research project: In vitro models of insect wing vein networks for studying insect blood circulation

- UNO Course Mentoring Program (Fall 2021)

Mentee: Cole Long

- Kerrigan Undergraduate Research Program, UNO (Summer 2019)

Mentee: Gage Hoefler

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 SERVICES

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### Conferences Organized

- Co-organizer of the special session "Foliations, flows and groups" at the AMS Fall Central Section Meeting, Creighton University, October 7-8, 2023.
- Co-organizer of the session "Foliations, flows, and dynamics in 3-manifolds" at the NCNGT Conference, June 14-25, 2021.
- Co-organizer of the special session "Developments in Knot Theory and Low-dimensional Topology" at the AMS Fall Central Section Meeting, Creighton University, October 9-10, 2021.
- Co-organizer of "CIRGET working group in Low dimensional topology," Spring 2016, Fall 2017
- Co-organizer of the special session "Geometric group theory and topology in low dimensions" at Canadian Mathematics Society Winter Meeting, Niagara Falls, 2016.

### Referee Request Journal List

- Advances in Mathematics
- Algebraic Geometric Topology
- Journal of the London Mathematical Society
- Journal of Knot Theory and its Ramifications
- Proceedings of the American Mathematical Society
- Transactions of the American Mathematical Society

### Departmental Services

- 2023 - present, Member of the Core Curriculum Committee, Department of Mathematical and Statistical Sciences, UNO
- 2018 - 2023, Member of the Upper Curriculum Committee, Department of Mathematical and Statistical Sciences, UNO

### 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.

## OTHER SKILLS

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### Program and Computational Software

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

### Languages

Proficient in Chinese and English; Working knowledge in French