

Department of Mathematics  
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### Appointments

2015 – present Assistant Professor, University of Oklahoma.  
Spring 2016 Postdoc, Program on Differential Geometry, MSRI.  
2012 – 2015 RTG Visiting Assistant Professor, University of California, Santa Barbara.  
Mentor: Guofang Wei.

### Education

2012 Ph.D. in Mathematics, University of Pennsylvania.  
Advisor: Wolfgang Ziller.  
2011 – 2012 Visiting Student, IMPA, Rio de Janeiro, Brazil.  
2007 B.A., *summa cum laude* with distinction in mathematics, Kenyon College.

### External grants

2017 – 2020 NSF Research Grant, DMS-1708493, \$163,761.  
2014 – 2017 NSF Research Grant, DMS-1404670/DMS-1622541, \$81,264.

### Internal fellowships and awards

- Junior Faculty Fellowship 2017, \$7,000, Research Council, University of Oklahoma.
- University of Pennsylvania, School of Arts and Sciences
  - Dissertation Completion Fellowship, Fall 2011 – Spring 2012.
  - Dean’s Award for Distinguished Teaching by a Graduate Student, 2011.
  - Benjamin Franklin Fellowship, Fall 2007 – Spring 2011.
  - Presidential Prize Fellowship, Spring 2008.
- University of Pennsylvania, Department of Mathematics
  - Carlitz-Zippin Thesis Prize, Spring 2012.
  - Good Teaching Award for Math 114, Fall 2008.
- Kenyon College: Phi Beta Kappa (inducted May 2007), Franklin Miller Award for excellence in extracurricular research (2007), Solomon Kasper Prize (2007), J.A. Woolam Award (2006), Reginald B. Allen Award for excellence in mathematics (2006).
- AMS: Award for excellence in student exposition and research (2006).

## Publications

- (11) (with W. Wylie and D. Yeroshkin) The weighted connection and sectional curvature for manifolds with density.  
*submitted*, arXiv:1707.05376.
- (10) (with M. Amann) Positive curvature and symmetry in small dimensions, I.  
*submitted*, arXiv:1512.01302.
- (9) (with Z. Su) On dimensions supporting a rational projective plane.  
*J. Topol. Anal.*, to appear, arXiv:1702.07892.
- (8) Fundamental groups of manifolds with positive sectional curvature and torus symmetry.  
*J. Geom. Anal.*, 27:2894–2925, 2017.
- (7) (with M. Amann) On a generalized conjecture of Hopf with symmetry.  
*Compos. Math.*, 153:313–212, 2017.
- (6) (with W. Wylie) Positive weighted sectional curvature.  
*Indiana Univ. Math. J.*, 66(2):419–462, 2017.
- (5) (with M. Amann) Positive curvature and rational ellipticity.  
*Algebr. Geom. Topol.*, 15(4):2269–2301, 2015.
- (4) (with M. Amann) Topological properties of positively curved manifolds with symmetry.  
*Geom. Funct. Anal.*, 24(5):1377–1405, 2014.
- (3) On the Hopf conjecture with symmetry.  
*Geometry of Manifolds with non-negative sectional curvature*, Lecture Notes in Math. 2110:111–116, 2014.
- (2) Positively curved Riemannian metrics with logarithmic symmetry rank bounds.  
*Comment. Math. Helv.*, 89(4):937–962, 2014.
- (1) On the Hopf conjecture with symmetry.  
*Geom. Topol.*, 17(1):563–593, 2013.

## Publications with undergraduates (asterisk denotes student)

- (2) (with J. Rainone\*) Characterizations of the round two-dimensional sphere in terms of closed geodesics. *Involve*, 10(2):243–255, 2017.
- (1) (with J. Holdener, M. Zaremsky\*) Generalized Thue-Morse sequences and the von Koch curve. *Int. J. Pure Appl. Math.*, 47(3):397–403, 2008.

## Invited research talks

- 2018 Jan. JMM Special Session, San Diego, CA.
- 2017 Nov. AMS Sectional Meeting, University of California, Riverside.  
Oct. Colloquium, Texas Christian University.  
Oct. Geometry & Topology Seminar, University of Toronto.  
Jul. Workshop on Curvature and Global Shape, University of Münster, Germany.  
Jun. Lie Group Actions in Riemannian Geometry Conference, Dartmouth College  
Feb. Geometric Analysis Seminar, University of Notre Dame  
Feb. Topology-Geometry Seminar, Indiana University
- 2016 Feb. Postdoc Seminar, MSRI.

- 2015 Jul. Workshop on Curvature and Global Shape, University of Münster, Germany.  
 Jul. Geometry and Topology Seminar, KIT, Karlsruhe, Germany.  
 Mar. Smoky Great Plains Geometry Conference, Wichita State University.
- 2014 Dec. Differential Geometry Seminar, Rutgers University.  
 Nov. Differential Geometry/Topology Seminar, Ohio State University.  
 Oct. Lecture Series in the Mathematical Sciences and the Differential Geometry Seminar, Wichita State University.  
 Apr. Cascade Topology Seminar, Oregon State University.  
 Jan. Differential Geometry Seminar, University of California, Irvine.
- 2013 Nov. AMS Sectional Meeting, University of California, Riverside.  
 Oct. Felix Klein Seminar, University of Notre Dame.  
 Oct. Geometry Seminar, Indiana University.  
 Jul. Geometry and Topology Seminar, KIT, Karlsruhe, Germany.  
 Jul. Topology Seminar, University of Fribourg, Switzerland.
- 2012 Oct. AMS Sectional meeting, University of Arizona.  
 Sep. Karcher Colloquium and Geometry and Topology Seminar, University of Oklahoma.  
 Jun. Differential Geometry Seminar, University of California, Santa Barbara.  
 Jan. Mini-Workshop on Manifolds with Lower Curvature Bounds, MFO, Oberwolfach, Germany.
- 2011 Nov. Differential Geometry Seminar, IMPA, Rio de Janeiro, Brazil.  
 July Workshop on Curvature and Global Shape, University of Münster, Germany.
- 2010 Dec. Mini-encuentro de geometría diferencial, CIMAT, Guanajuato, Mexico.

### Graduate advising

- Elahe Khalili Samani.
  - Graduate Reading Course (OU Math 5900), Fall 2016.
  - Ph.D. student, Spring 2017 – present.
- Jonathan Merlini.
  - Graduate Reading Course (OU Math 5900), Fall 2016.
  - Ph.D. student, Spring 2017 – present.
- Andrew Lutz, Informal graduate reading course, Fall 2016 and Spring 2017.

### Undergraduate advising

- Adam Rose (UCSB, went on to UC, Davis, as a Ph.D. student)
  - Student talk, Pacific Coast Undergraduate Math Conference, March 14, 2015.
  - Honors senior thesis, given distinction in the major, Winter 2015 – Spring 2015.
- Yevgeniya Tarasova (UCSB, went on to Purdue University as Ph.D. student)
  - Student talk, MAA SoCal–Nevada Section, Fall Meeting, November 1, 2014.
  - Honors senior thesis, given distinction in the major, Fall 2014 – Winter 2015.
  - Undergraduate RTG summer research fellowship, Summer 2014.

- Jordan Rainone (UCSB, went on to SISSA, Trieste, Italy, as master's student and then Stony Brook University as a Ph.D. student)
  - Co-authored publication in *Involve* (see Publications).
  - CCS senior thesis, Fall 2013 – Spring 2014 (see [ccs.math.ucsb.edu/Senior-thesis.html](http://ccs.math.ucsb.edu/Senior-thesis.html)).
  - CCS Summer Undergraduate Research Fellowship, Summer 2013.
- Harrison Algra (UCSB, went on to University of Southern California as Ph.D. student)
  - Honors Contract, Math 147B, Spring 2014.
- Monte Mishkin (UCSB)
  - Honors Contract for Math 147A, Winter 2014.
- Eric Ling (UCSB, went on to University of Miami as Ph.D. student)
  - Undergraduate RTG summer research fellowship, with Xianzhe Dai, 2013.

### Teaching Experience

- University of Oklahoma (instructor of record)
  - Math 2433: Calculus and Analysis Geometry III (two sections), Fall 2015.
  - Math 2924: Differential and Integral Calculus II (large section), Fall 2017.
  - Math 3113: Introduction to Ordinary Differential Equations (two sections), Fall 2016.
  - Math 6833: Topics in Topology, I (with Max Forester and Jing Tao), Spring 2017.
- University of California, Santa Barbara (instructor of record)
  - Math 5A: Differential equations and linear algebra 2, Winter 2013.
  - Math 8: Transition to higher mathematics, Spring 2015.
  - Math 113: Non-Euclidean geometry, Winter 2015, Fall 2012.
  - Math 147B: Elementary differential geometry, II, Spring 2014.
  - Math 147A: Elementary differential geometry, I, Winter 2014.
  - Math 260P: Topics in geometry and topology
    - \* Bundles, curvature, and anomalies, Fall 2014 (with David Morrison).
    - \* Fundamental groups and curvature bounds, Fall 2013 (with Guofang Wei).
    - \* Group actions in Riemannian geometry, Spring 2013 (with Xianzhe Dai).
- University of Pennsylvania
  - Instructor of record, Math 170: Ideas in Mathematics, Summer 2009 and 2011
  - Teaching assistant, Math 114: Calculus II, Fall 2008.
  - Teaching assistant, Math 260: Honors Calculus II, Spring 2010.
  - Teaching assistant, Math 509: Advanced Analysis II, Spring 2009.
  - Grader, Math 608: Graduate Analysis, Fall 2009.

### Professional service and outreach

- Conference and event organizing
  - OU Math Day Committee, Fall 2015 – present (Chair Fall 2016 – present)

- Student Competition Committee, MAA Oklahoma/Arkansas Section Meeting, University of Oklahoma, Norman, OK (April 6-8, 2017)
- Co-organizer, Representations of Riemannian Geometry Conference, Saint Joseph’s University, Philadelphia, PA (August 10-13, 2017)
- Seminar organizer
  - Riemannian Geometry Seminar, MSRI, Spring 2016.
  - Differential Geometry Seminar, UCSB, Fall 2014 – Spring 2015.
- Referee for *Advances in Mathematics*, *Geometriae Dedicata*, *Geometry & Topology*, *Journal of the London Mathematical Society*, *Proceedings of the American Mathematical Society*, and *Transformation Groups*.
- Reviewer for *Mathematical Reviews*.
- Master Teaching Assistant, TA Training Program, Department of Mathematics, University of Pennsylvania, Fall 2009 – Spring 2011.
- Invited talks and panels
  - Public lecture (part of Lie Group Actions in Riemannian Geometry conference), Dartmouth College, June 2017.
  - Pi Mu Epsilon Induction Ceremony, Kenyon College, April 2016.
  - Graduate student seminar, UCSB (April 2013, April 2014) and OU (November 2016, November 2017).
  - Hypatian seminar, UCSB (April 2013, February 2014, December 2014).
- Book reviews:
  - *Blind Spot* by William Byers, graduate student pre-publication review for Princeton University Press, 2009.
  - *How Mathematicians Think* by William Byers, in *Math Horizons*, 2008.
  - *Letters to a Young Mathematician* by Ian Stewart, in *Math Horizons*, 2007.

## Professional Development

- Member, AMS.
- LGBTQ Faculty Ally Training, University of Oklahoma, Fall 2016.
- New Faculty Seminar Series, University of Oklahoma, Fall 2015.