

Scott Zimmerman, PhD

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Associate Professor of Mathematics

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Academic Appointments

Associate Professor Department of Mathematics The Ohio State University, Marion and Columbus, Ohio	2025–present
Assistant Professor Department of Mathematics The Ohio State University, Marion and Columbus, Ohio	2020–2025
Assistant Research Professor Department of Mathematics University of Connecticut, Storrs, Connecticut	2017–2020
Visiting Instructor Department of Mathematics and Computer Science John Carroll University, University Heights, Ohio	2010–2011

Education

Ph.D. in Mathematics University of Pittsburgh, Pittsburgh, Pennsylvania Advisor: Piotr Hajłasz Dissertation: <i>Analysis and Geometry in Metric Spaces: Sobolev Mappings, the Heisenberg Group, and the Whitney Extension Theorem</i>	2017
M.S. in Mathematics John Carroll University, University Heights, Ohio Advisor: Patrick B. Chen Thesis: <i>A Characterization of Banach Spaces via the Complemented Subspace Problem</i>	2010
B.S. in Mathematics John Carroll University, University Heights, Ohio	2008

Publications

Peer-Reviewed Publications in Mathematics

- Speight, G.; **Zimmerman, S.**, “Directional pliability, Whitney extension, and Lusin approximation for curves in Carnot groups,” *Ann. Fenn. Math.* **50** (2025), no. 2, 665–684.
- Zimmerman, S.**, “On the equivalence of derivatives for maps between Carnot groups,” *Commun. Pure Appl. Anal.* **24** (2025), no. 10, 1962–1972.
- Pinamonti, A.; Speight, G.; **Zimmerman, S.**, “Higher order Whitney extension and Lusin approximation for horizontal curves in the Heisenberg group,” *J. Math. Pures Appl.* **188** (2024), 320–344.
- Honeycutt, J.; Vellis, V.; **Zimmerman, S.**, “Bi-Lipschitz arcs in metric spaces with controlled geometry,” *Rev. Mat. Iberoam.* **40** (2024), no. 5, 1887–1916.
- Badger, M.; Li, S.; **Zimmerman, S.**, “Identifying 1-rectifiable measures in Carnot groups,” *Anal. Geom. Metr. Spaces* **11** (2023), no. 1, Paper No. 20230102, 40 pp.
- Speight, G.; **Zimmerman, S.**, “A $C^{m,\omega}$ Whitney extension theorem for horizontal curves in the Heisenberg group,” *J. Geom. Anal.* **33** (2023), no. 6, Paper No. 182, 24 pp.
- Zimmerman, S.**, “Whitney’s extension theorem and the finiteness principle for curves in the Heisenberg group,” *Rev. Mat. Iberoam.* **39** (2023), no. 2, 539–562.

8. **Zimmerman, S.**, “Singular integrals on $C_w^{1,\alpha}$ regular curves in Banach duals,” *Ann. Funct. Anal.* **13** (2022), no. 2, Paper No. 32, 24 pp.
9. Chousionis, V.; Li, S.; **Zimmerman, S.**, “Singular integrals on $C^{1,\alpha}$ regular curves in Carnot groups,” *J. Anal. Math.* **146** (2022), no. 1, 299–326.
10. Chousionis, V.; Li, S.; Vellis, V.; **Zimmerman, S.**, “Bi-Lipschitz embeddings of Heisenberg submanifolds into Euclidean spaces,” *Ann. Acad. Sci. Fenn. Math.* **45** (2020), no. 2, 931–955.
11. Hajłasz, P.; **Zimmerman, S.**, “An implicit function theorem for Lipschitz mappings into metric space,” *Indiana Univ. Math. J.* **69** (2020), no. 1, 205–228.
12. Pinamonti, A.; Speight, G.; **Zimmerman, S.**, “A C^m Whitney extension theorem for horizontal curves in the Heisenberg group,” *Trans. Amer. Math. Soc.* **371** (2019), no. 12, 8971–8992.
13. **Zimmerman, S.**, “Sobolev extensions of Lipschitz mappings into metric spaces,” *Int. Math. Res. Not. IMRN* (2019), no. 8, 2241–2265.
14. Chousionis, V.; Li, S.; **Zimmerman, S.**, “The traveling salesman theorem in Carnot groups,” *Calc. Var. Partial Differential Equations* **58** (2019), no. 1, Paper No. 14, 35 pp.
15. Hajłasz, P.; Malekzadeh, S.; **Zimmerman, S.**, “Weak BLD mappings and Hausdorff measure,” *Nonlinear Anal.* **177** (2018), 524–531.
16. **Zimmerman, S.**, “The Whitney extension theorem for C^1 horizontal curves in the Heisenberg group,” *J. Geom. Anal.* **28** (2018), no. 1, 61–83.
17. Hajłasz, P.; **Zimmerman, S.**, “The Heisenberg groups,” in *Function Spaces–Embeddings and Extrapolation X*, Lecture Notes Paseky Spring Schools in Analysis (2017), J. Lukeš and L. Pick, eds., MatfyzPress, 93–155.
18. Hajłasz, P.; **Zimmerman, S.**, “The Dubovitskiĭ–Sard theorem in Sobolev spaces,” *Indiana Univ. Math. J.* **66** (2017), no. 2, 705–723.
19. Hajłasz, P.; **Zimmerman, S.**, “Geodesics in the Heisenberg group,” *Anal. Geom. Metr. Spaces* **3** (2015), no. 1, 325–337.

Peer-Reviewed Publication in Education

1. Orban, C. M.; **Zimmerman, S.**; Kulp, J. T.; Boughton, J.; Perrico, Z.; Rapp, B.; Teeling-Smith, R., “Methods to simplify object tracking in video data,” *Phys. Teach.* **61** (2023), no. 7, 576–579.

Submitted

1. Speight, G.; **Zimmerman, S.**, “A Lipschitz curve in a Carnot group that is purely unrectifiable by smooth horizontal curves,” submitted (2026).

In Preparation

1. Hajłasz, P.; **Zimmerman, S.**, “Sobolev extensions of maps into metric spaces.”
2. Speight, G.; **Zimmerman, S.**, “Total non-pleiability of free Carnot groups.”

Awards and Grants

Marion Campus Teaching Award	2025
Honors regular faculty members annually for excellence in teaching at the Marion campus	
Ohio State Energy Partners Academic Collaboration Award	2025
\$20,000 grant for “The STEMcoding Data Science High School Curriculum Initiative”	
The Ohio State University Outreach and Engagement Award	2024
For scholarship and community impact produced through the STEMcoding High School Data Science Curriculum	
American Institute of Physics Meggers Award	2022
\$12,500 grant supporting high-school physics teaching improvements via STEMcoding Data Science Curriculum	
SET Teaching Excellence	2018, 2019, 2020
Recognition of consistently high Student Experience of Teaching scores	
Thomas C. Hales Distinguished Research Award	2018
Annual prize for best doctoral dissertation defended by a mathematics grad student at the University of Pittsburgh	

Andrew Mellon Predoctoral Fellowship	2015–2016
Awarded to doctoral students of exceptional ability and promise	
Mathematics Department Teaching Assistant Excellence	2015
Awarded for excellence in mathematics teaching at the University of Pittsburgh	

Invited and Contributed Presentations

Mathematical Meetings

1. **An introduction to Carnot Groups** June 12, 2026
Workshop in Geometric Analysis
Mathematical Institute of the Polish Academy of Sciences, Warsaw, Poland
2. **Extending curves in metric spaces II: bi-Lipschitz arcs** June 5, 2026
Simons Semester in Geometric Analysis
Mathematical Institute of the Polish Academy of Sciences, Warsaw, Poland
3. **Extending curves in metric spaces I: smooth curves in Carnot groups** June 1, 2026
Simons Semester in Geometric Analysis
Mathematical Institute of the Polish Academy of Sciences, Warsaw, Poland
4. **Bi-Lipschitz segments in metric spaces** Oct. 25, 2025
Advances and Connections of Modern Geometric Function Theory Conference
University of Michigan, Ann Arbor, MI
5. **Sobolev extensions of maps into metric spaces** Oct. 5, 2025
Special Session on Quantitative Topology and Analysis
AMS Sectional Meeting, New Orleans, LA
6. **Sobolev extensions of maps into metric spaces** Oct. 20, 2024
Special Session on Harmonic Analysis, Theory of Function Spaces and Their Applications
AMS Sectional Meeting, Albany, NY
7. **Unif. conv. of Pansu difference quotients for C^1 horizontal maps between Carnot groups** Oct. 19, 2024
Special Session on Nonsmooth Analysis and Geometry
AMS Sectional Meeting, Albany, NY
8. **Singular integrals on regular, smooth curves in Carnot groups and Banach duals** May 2023
Great Plains Operator Theory Symposium
The Ohio State University, Columbus, OH
9. **Differentiation of Lipschitz mappings into metric spaces** Apr. 2023
Special Sess. on Interactions b/w Analysis, PDE, and Probability in Non-smooth Spaces
AMS Sectional Meeting, Cincinnati, OH
10. **Differentiation of Lipschitz mappings into metric spaces** Jan. 2023
Special Session on Analysis and Differential Equations at Undergraduate Institutions
Joint Mathematics Meetings, Boston, MA
11. **Differentiation of Lipschitz mappings into metric spaces** Oct. 2022
Special Session on Nonsmooth Analysis and Geometry
AMS Sectional Meeting, Amherst, MA
12. **Whitney's extension theorem for curves in the Heisenberg group** June 2022
51st John H. Barrett Memorial Lectures
University of Tennessee, Knoxville, TN
13. **Whitney's extension theorem for curves in the Heisenberg group** Apr. 2022
Ohio River Analysis Meeting
University of Kentucky, Lexington, KY
14. **Identifying 1-rectifiable measures in Carnot groups** Mar. 2022
Special Session on Geometry of Measures and Metric Spaces
AMS Sectional Meeting, virtual
15. **Whitney's extension theorem for curves in the Heisenberg group** Mar. 2022
Special Session on Analysis and Probability in Sub-Riemannian Geometry

- AMS Sectional Meeting, virtual
16. **What is the Heisenberg group?** Oct. 2021
Special Session on Analysis and Differential Equations at Undergraduate Institutions
AMS Sectional Meeting, virtual
 17. **Whitney's extension theorem for curves in the Heisenberg group** July 2021
14th Whitney Problems Workshop
Virtual
 18. **Singular integrals on regular, smooth curves in Carnot groups and Banach duals** Apr. 2021
Special Session on Nonsmooth Analysis and Geometry
AMS Sectional Meeting, virtual
 19. **Singular integrals on regular, smooth curves in Carnot groups and Banach duals** Mar. 2021
Ohio River Analysis Meeting
Virtual
 20. **Singular integrals on regular, smooth curves in Carnot groups and Banach duals** Mar. 2021
Special Session on Metric Techniques in Analysis
AMS Sectional Meeting, virtual
 21. **Whitney extensions for curves in the Heisenberg group** Jan. 2021
Special Session on Analysis and Differential Equations at Undergraduate Institutions
Joint Mathematics Meetings, virtual
 22. **The Heisenberg group** Oct. 2020
Mathematics Continued: A Conference for Undergraduate Students
University of Connecticut, virtual
 23. **Whitney extension theorems in the Heisenberg group** Sept. 2019
Northeast Analysis Network
University of Connecticut, Storrs, CT
 24. **Bi-Lipschitz embeddings of Heisenberg submanifolds into Euclidean space** Sept. 2019
Special Session on Analysis and Probability on Metric Spaces and Fractals
AMS Sectional Meeting, Madison, WI
 25. **The Whitney extension theorem in the Heisenberg group** Apr. 2019
Dynamics, Measures and Dimensions
Bedlewo, Poland
 26. **Bi-Lipschitz embeddings of Heisenberg submanifolds into Euclidean space** Mar. 2019
Ohio River Analysis Meeting
University of Cincinnati, Cincinnati, OH
 27. **The traveling salesman theorem in Carnot groups** Sept. 2018
Special Session on Modern Quasiconformal Analysis and Geometric Function Theory
AMS Sectional Meeting, Newark, DE
 28. **Applications of a change of variables for Lipschitz mappings into metric spaces** Apr. 2018
Special Session on Analysis and Geometry in Non-smooth Spaces
AMS Sectional Meeting, Boston, MA
 29. **Applications of a change of variables for Lipschitz mappings into metric spaces** Feb. 2018
Subriemannian Geometry and Beyond
University of Jyväskylä, Finland
 30. **Geometry and analysis in the Heisenberg group** Nov. 2017
Nonsmooth Analysis: A Workshop for Postdocs
University of Connecticut, Storrs, CT
 31. **Sobolev extensions of Lipschitz mappings into metric spaces** Mar. 2017
Analysis on Metric Spaces
University of Pittsburgh, Pittsburgh, PA
 32. **Sobolev extensions of Lipschitz mappings into metric spaces** Mar. 2017
Ohio River Analysis Meeting
University of Cincinnati, Cincinnati, OH

33. **Sobolev extensions of Lipschitz mappings into metric spaces** Aug. 2016
Harmonic Analysis, Complex Analysis, Spectral Theory and All That
Bedlewo, Poland
34. **The Whitney extension theorem for C^1 horizontal curves in $\mathbb{H}^n$** Jan. 2016
Special Session on Analysis and Geometry in Nonsmooth Metric Measure Spaces
Joint Mathematics Meetings, Seattle, WA
35. **Whitney's extension theorem for curves in the Heisenberg group $\mathbb{H}^n$** June 2015
Workshop on Analysis and Geometry in Metric Spaces
ICMAT, Madrid, Spain
36. **Geodesics in the Heisenberg group $\mathbb{H}^n$** May 2015
Seminar, Research Term on Analysis and Geometry in Metric Spaces
ICMAT, Madrid, Spain
37. **Dubovitskiĭ-Sard theorem for Sobolev mappings** Mar. 2014
Poster, Advances in Nonlinear Analysis International Workshop
University of Pittsburgh, Pittsburgh, PA
38. **A characterization of Banach spaces via the complemented subspace problem** Aug. 2010
Poster, MathFest
Pittsburgh, PA
39. **The decimal expansion of $1/2007$** 2007
Presentations
Miami University; Pi Mu Epsilon Regional Conference; Ohio Section Meeting of the MAA

University Seminars and Colloquia

1. **What is the Heisenberg group?** Apr. 2, 2026
Radical Pi Undergraduate Math Seminar | The Ohio State University, Columbus, OH
2. **Bi-Lipschitz arcs in metric spaces** Nov. 20, 2025
Analysis and Operator Theory Seminar | The Ohio State University, Columbus, OH
3. **Sobolev extensions of maps into metric spaces** Mar. 27, 2025
Analysis Seminar | University of Tennessee, Knoxville, TN
4. **Bi-Lipschitz arcs in metric spaces** Oct. 10, 2024
Colloquium | University of Cincinnati, Cincinnati, OH
5. **Bi-Lipschitz curves in metric spaces** Mar. 2024
Geometry MMA Seminar | George Mason University, Fairfax, VA
6. **Whitney's extension theorem for curves in the Heisenberg group** Feb. 2023
Analysis and Operator Theory Seminar | The Ohio State University, Columbus, OH
7. **The Heisenberg group** Nov. 2021
Colloquium | Augustana University, Sioux Falls, SD
8. **Whitney's extension theorem for curves in the Heisenberg group** Oct. 2021
Analysis and Operator Theory Seminar | The Ohio State University, Columbus, OH
9. **Analysis and geometry in Carnot groups** Sept. 2020
Invitations to Mathematics | The Ohio State University, Columbus, OH
10. **Analysis on curves in Carnot groups** Feb. 2020
Job talk | The Ohio State University, Columbus, OH
11. **The Heisenberg group** Jan. 2020
Invited talk | Rose-Hulman Institute of Technology, Terre Haute, IN
12. **Analysis on curves in Carnot groups** Jan. 2020
Invited talk | DePaul University, Chicago, IL
13. **Whitney extension theorems in the Heisenberg group** Oct. 2019
Colloquium | Ball State University, Muncie, IN
14. **The Whitney extension theorem** Sept. 2019
Data Blitz Competition | University of Connecticut, Storrs, CT

15. The traveling salesman theorem in Carnot groups Invited talk University of Cincinnati, Cincinnati, OH	Oct. 2018
16. The traveling salesman theorem in Carnot groups Analysis and Probability Seminar University of Connecticut, Storrs, CT	Sept. 2018
17. Solving the game of Nim Math Club Seminar University of Connecticut, Storrs, CT	Feb. 2018
18. Extension problems in the Heisenberg group Invited talk Worcester Polytechnic Institute, Worcester, MA	Dec. 2017
19. An introduction to analysis and geometry in the Heisenberg groups Invited talk Wesleyan University, Middletown, CT	Nov. 2017
20. An introduction to the Heisenberg group SIGMA Seminar University of Connecticut, Storrs, CT	Nov. 2017
21. Sobolev extensions of Lipschitz mappings into metric spaces Analysis Learning Seminar University of Connecticut, Storrs, CT	Sept. 2017
22. Whitney's extension theorem for curves in the Heisenberg group Analysis Learning Seminar University of Connecticut, Storrs, CT	Sept. 2017
23. Geodesics in the Heisenberg group $\mathbb{H}^n$ Analysis Learning Seminar University of Connecticut, Storrs, CT	Aug. 2017
24. Surface immersions in the Heisenberg group Geometric Analysis Seminar University of Pittsburgh, Pittsburgh, PA	May 2016
25. Sobolev extensions of Lipschitz mappings into metric spaces Invited talk University of Cincinnati, Cincinnati, OH	Apr. 2016
26. Lipschitz extensions in metric spaces Geometric Analysis Seminar University of Pittsburgh, Pittsburgh, PA	Apr. 2016
27. An introduction to the Heisenberg group Undergraduate Math Seminar University of Pittsburgh, Pittsburgh, PA	Jan. 2016
28. Sard in Sobolev space and curves in the Heisenberg group Graduate Student Seminar University of Pittsburgh, Pittsburgh, PA	Nov. 2015
29. Geodesics in the Heisenberg group Geometric Analysis Seminar University of Pittsburgh, Pittsburgh, PA	Dec. 2014
30. Properties of c_0, ℓ^1, and ℓ^∞ Graduate Functional Analysis Seminar University of Pittsburgh, Pittsburgh, PA	Feb. 2014
31. Lipschitz extensions of mappings into Lipschitz-connected metric spaces Geometric Analysis Seminar University of Pittsburgh, Pittsburgh, PA	Nov. 2013
32. The unrectifiability of $\mathbb{H}^n$ Geometric Analysis Seminar University of Pittsburgh, Pittsburgh, PA	Oct. 2013
33. Whitney extension theorem Geometric Analysis Seminar University of Pittsburgh, Pittsburgh, PA	Jan. 2013
34. The Sard theorem Geometric Analysis Seminar University of Pittsburgh, Pittsburgh, PA	Oct. 2012

Teaching

Teaching Endorsements

Evidence-Based Course Design for Higher Education Michael V. Drake Institute for Teaching and Learning	Feb. 2026
Teaching and Learning to Build AI Fluency Michael V. Drake Institute for Teaching and Learning	Feb. 2026

Courses Taught

The Ohio State University at Marion

Assistant/Associate Professor

- MATH 1075 Precollege Mathematics II; MATH 1149 Trigonometry; MATH 1151 Calculus I; MATH 1125 Mathematics for Elementary Teachers I; MATH 1126 Mathematics for Elementary Teachers II; MATH 1135 Number and Operations for Teachers; MATH 1136 Measurement and Geometry for Teachers; MATH 2138 Calculus and Its History for Teachers; MATH 3345 Foundations of Higher Mathematics

University of Connecticut

Assistant Research Professor

- MATH 2360 Geometry; MATH 2410 Elementary Differential Equations; MATH 2420 Honors Differential Equations; MATH 3150 Analysis I

University of Pittsburgh

TA Mentor and Teaching Assistant

- MATH 0120 Business Calculus; MATH 0220–0240 Calculus and Analytic Geometry I–III; MATH 0290 Differential Equations
- Mentored teaching assistants through classroom observations and performance assessment

John Carroll University

Visiting Instructor; Grader and Tutor

- MATH 120 Elementary Statistics I; MATH 167 Mathematics of Change and Chance
- Grader and tutor for undergraduate mathematics courses

Professional Service

Professional

Junior Leader, Simons Semester in Geometric Analysis

2026

Warsaw, Poland

Mentored graduate students, presented seminars, maintained presence at institute for one month

Scientific Committee, 48th Summer Symposium in Real Analysis

2025–2026

Real Analysis Exchange; St. Louis, Missouri

Selected and invited speakers for the conference

Organizing Committee, Modern Advances in Geometric Analysis

2025–2026

Conference honoring Piotr Hajłasz's 60th birthday; Bedlewo, Poland

Organized speakers, website, and communication prior; managed technology and logistics during conference

Ph.D. Dissertation Committee, Jacob Honeycutt

2025

University of Tennessee, Knoxville

SLMath (MSRI) Special Session Organizer

2024–2025

Joint Mathematics Meetings, Seattle

Ph.D. Dissertation Committee, Hyogo Shibahara

2023

University of Cincinnati

Summer Institute on Equity in the Academic Experience

2023

Team member, The Ohio State University

AMS Special Session Organizer

2022

Joint Mathematics Meetings, Seattle

Analysis and Probability Seminar Organizer

2019–2020

University of Connecticut

AMS Special Session Organizer

2019

AMS Spring Sectional Meeting, Hartford

MathSciNet Reviewer

2019–present

zbMATH Reviewer

2020–present

Journal Referee

2018–present

IMRN; Rev. Mat. Iberoam.; Osaka J. Math.; Anal. Math. Phys.; ESAIM: COCV; Calc. Var. PDE; J. London Math. Soc.; AIMS Press; J. Geom. Anal.; Mathematics Magazine

Department and Campus

Seminar in Geometric & Metric Analysis The Ohio State University Department of Mathematics Co-creator, organizer, and webmaster of department seminar	2026–present
Math Education Committee The Ohio State University Department of Mathematics	2026–present
Faculty Representative for Music Club Ohio State Marion Participate in and perform at Music Club events alongside undergraduates	2024–present
Social Committee Chair The Ohio State University Department of Mathematics Single-handedly organize annual department picnic, duties include reserving space, organizing catering, communicating with department members, and handling registration	2022–present
Postdoctoral Search Committee The Ohio State University Department of Mathematics Collected, evaluated, and recommended hirings for all postdoctoral positions in the department	2025–2026
Search Committees Ohio State Marion For positions of Executive Administrative Assistant and Senior Lecturer of Mathematics	2023–2024
Prairie Advisory Committee Ohio State Marion	2023–2024
Professional Development Committee Ohio State Marion	2022–2024
Social Affairs Committee Ohio State Marion	2022–2025
Officer and President, Mathematics Graduate Student Organization University of Pittsburgh	2011–2017
Graduate and Professional Student Government representative University of Pittsburgh	2015–2016
Arts & Sciences GSO representative University of Pittsburgh	2014–2016
University Planning & Budgeting Committee representative University of Pittsburgh	2014–2015

Community and Outreach

Board Member at Large, STEMcoding Education Ohio 501(c)(3) nonprofit organization	2024–present
Organizer and Volunteer, Marion High School Math Competition Ohio State Marion Organize, co-lead, and present at math competition for local high school student	2021–present
Organizer and Volunteer, Marion Middle School Math Competition Ohio State Marion Organize, co-lead, and present at math competition for local middle school student	2022–present
Organizer and Volunteer, BAMM Summer Camp Buckeye AHA! Math Moments, The Ohio State University	2022–present
Program Specialist, STEM Summer Camp for High School Students Ohio State Marion Led the “Cardboard Boat Regatta” education session, building, and race	2022–present

Program Specialist, Summer Engineering Camp for Middle School Students Ohio State Marion Led the “Cardboard Boat Regatta” education session, building, and race	2022–present
STEMcoding Project Ohio State Marion Activities include meetings with teachers and administration, leading professional development trainings, and mini courses in local high schools	2022–present
Volunteer, MATHCOUNTS Eastern Chapter University of Connecticut	2019
Volunteer, Math Kangaroo Competition University of Connecticut	2017

Professional Memberships

American Mathematical Society
|
Ohio Council of Teachers of Mathematics
|
The Association for Mathematical Research