EDUCATION

University of Wisconsin-Madison, Madison, WI Ph.D. - Mathematics Advisor: Laurentiu Maxim Thesis: Milnor Fiber Consistency via Flatness

Pomona College, Claremont, CA Bachelor of Arts, Magna Cum Laude - Double Major in Mathematics and Computer Science Advisor: Shahriar Shahriari Thesis: Chain Partitions of the Boolean Lattice

Research Interests

I study the geometry and topology of singular spaces and maps, with a particular focus on computations of topological invariants using ideas and techniques from algebraic geometry.

PAPERS AND PREPRINTS

- A. Hof, Milnor Fiber Consistency via Flatness, arXiv:2212.12807.
- 3 (2017) 159-168.

Awards and Honors

• Excellence in Mathematical Research Award (UW-Madison Math. Dept.)	Fall 2022	
An award for graduate students who make "significant and substantial contributions to research in pure or applied	l mathematics	
as part of their thesis work towards a PhD."		
Math Department TA Award (UW-Madison Math. Dept.)	Spring 2021	
An award for graduate students "who have demonstrated excellence in the classroom."		
Hugh J. Hamilton Prize (Pomona College Math. Dept.)	Spring 2018	
A prize "awarded annually to the outstanding senior majoring in Mathematics."		
Distinction in Senior Exercise (Pomona College Computer Science Dept.)	Spring 2018	
Given for a survey paper I wrote on analogues of deterministic finite automata in quantum computing as a senior project.		
 Bruce Jay Levy Prize in Mathematics (Pomona College Math. Dept.) 	Fall 2017	
A prize "awarded annually to a student chosen by the Mathematics Department faculty for excellence in the field of mathematics."		
• Other Pomona Honors: Phi Beta Kappa Membership (Fall 2017), Mudge Latin Prize (Fall 2017), Llewellyn Bixby Mathematics		
Prize (Fall 2016), Tileston Physics Prize (Fall 2015), Pomona College Scholar Status (Fall 2014 – Spring 2016, S	pring 2017).	

OUTREACH AND SERVICE

Graduate Program Committee Member (UW-Madison Math. Dept.)	Fall 2020 – Spring 2022
• Committee for TA Policies and Procedures Member (UW-Madison Math. Dept.)	Fall 2020 – Spring 2022
Mega Math Meet Problem Developer (UW-Madison Math. Dept.)	Spring 2022
Mega Math Meet Grader (UW-Madison Math. Dept.)	Spring 2019, Spring 2022
Math Department Pedagogy Reading Group Organizer	Summer 2021
Math Department Virtual Ice Cream Social Organizer	Fall 2020 – Spring 2021
• Graduate Peer Mentor Program Organizer (UW-Madison Math. Dept.)	Summer 2020
• Graduate Peer Mentor Program Mentor (UW-Madison Math. Dept.)	Fall 2019 – Fall 2022
• Graduate Representative Association for Mathematics Students Organizer	2019

TEACHING EXPERIENCE

• Geometry/Topology SEP (Qual Prep Course) Teacher (UW-Madison)	Summer 2021, Summer 2023
• Linear Algebra and Differential Equations Teaching Assistant (UW-Madison)	Spring 2023
College Algebra Instructor of Record (UW-Madison)	Fall 2022
• Undergraduate Directed Reading Program (Tropical Geometry) Mentor (UW-Madison)	Spring 2022
Mega Math Meet Problem Developer (UW-Madison)	Spring 2022

December 2023

May 2018

Alex Hof

• A. Hof, J. Shade, W. Whiting, Solvable Leibniz algebras with quasi-filiform split Lie nilradical, Uzbek Mathematical Journal No.

• Mega Math Meet Grader (UW-Madison) Spring 2019, Spring 2022 • Math Department Pedagogy Reading Group Organizer **Summer 2021** • Graduate Peer Mentor Program Organizer (UW-Madison) Summer 2020 • Graduate Peer Mentor Program Mentor (UW-Madison) Fall 2019 – Fall 2022 • Calculus III Teaching Assistant (UW-Madison) Spring 2019 - Spring 2021 • **Calculus II** Teaching Assistant (UW-Madison) Fall 2018 • Discrete Mathematics and Functional Programming Teaching Assistant (Pomona College) Spring 2018 • **Discrete Mathematics** Head Teaching Assistant (Pomona College) Spring 2017

RESEARCH EXPERIENCE

• Research Fellowship (Rényi Institute)	Spring 2024 – Summer 2024
Research Assistantship (UW-Madison)	Fall 2021 – Spring 2022
• IRES in Leibniz Algebras (Inst. of Math. of the Uzbekistan Acad. of Sci., CSU-Fullerton)	Summer 2017
Mathematics Research Circle in Combinatorics (Pomona College)	Spring 2016
• SURP in Microwave Spectroscopy (Leibniz Universität Hannover, Pomona College)	Summer 2015

TALKS AND POSTERS

- "Ideal-Theoretic Study of Critical Points," Rényi Institute Algebraic Geometry and Differential Topology Seminar, Budapest (April 2024), 1 hr.
- "Milnor Fiber Consistency via Flatness," IberoSing International Workshop II, Granada (November 2023), poster.
- "Why Does Normalization Resolve Singularities in Codimension 1?" UW-Madison Graduate Algebraic Geometry Seminar, Madison (October 2023), 1 hr.
- "Milnor Fiber Consistency via Flatness," 10th Congress of Romanian Mathematicians, Pitești (July 2023), 25 min.
- "Milnor Fiber Consistency via Flatness," Singularities and Applications Research School, Lille (June 2023), 25 min.
- "Milnor Fiber Consistency via Flatness," 115AM: Algebraic and Topological Interplay of Algebraic Varieties, Jaca (June 2023), poster.
- "Milnor Fiber Consistency via Flatness," Singularities in the Midwest VIII, Madison (March 2023), 1 hr.
- "Normal Cones in Algebraic Geometry," UW-Madison Graduate Algebraic Geometry Seminar, Madison (February 2023), 1 hr.
- "Smooth Fibers, Critical Points, and Flatness," UA-Madrid Algebraic Geometry Seminar, Madrid (October 2022), 1 hr.
- "Milnor Fiber Consistency via Flatness," IberoSing International Workshop, Madrid (October 2022), poster.
- "Revenge of the Classical Topology," UW-Madison Graduate Algebraic Geometry Seminar, Madison (October 2022), 1 hr.
- "Milnor Fiber Consistency for Deformations of Arbitrarily-Singular Hypersurfaces," CIMPA Research School on Singularities and Applications, São Carlos (July 2022), 30 min.
- "Milnor Fiber Consistency for Non-Isolated Singularities via Flatness," Algebraic Geometry and Singularities Learning Workshop & Conference, Seattle (June 2022), 10 min.
- "Milnor Fiber Consistency via Flatness," Iberoamerican Webminar of Young Researchers in Singularity Theory, Madrid (June 2022), 1 hr.
- "Consistency of Milnor Fibers for Deformations of Arbitrary-Dimensional Hypersurface Singularities," UW-Madison Topology and Singularities Seminar, Madison (May 2022), 1 hr.
- "Geometric Intuitions for Flatness," UW-Madison Graduate Algebraic Geometry Seminar, Madison (April 2022), 1 hr.
- "An Introduction to the Deformation Theory of Complete Intersection Singularities," UW-Madison Graduate Algebraic Geometry Seminar, Madison (March 2021), 1 hr.
- "Embrace the Singularity: An Introduction to Stratified Morse Theory," UW-Madison Graduate Algebraic Geometry Seminar, Madison (April 2020), 1 hr.
- "Tropicalization Blues," UW-Madison Graduate Algebraic Geometry Seminar, Madison (November 2019), 1 hr.
- "Kindergarten GAGA," UW-Madison Graduate Algebraic Geometry Seminar, Madison (April 2019), 1 hr.
- "Classification of solvable Leibniz algebras with naturally graded, quasifiliform Lie nilradicals," special session, Amer. Math. Soc., Riverside (November 2017), 20 min.
- "Special Chain Partitions of the Normalized Matching Posets," The Algebra/Number Theory/Combinatorics Seminar of the Claremont Colleges, Claremont (November 2017), 40 min.
- "Electron Penetration and the Hyperfine Spectra of Alkali Halides & YbF," (with David Sharfi, Carson Witte, Andreas Biekert, Zachary Glassman, Richard Mawhorter, and Jens-Uwe Grabow) European Symposium on Gas-Phase Electron Diffraction, Frauenchiemsee (June 2015), poster.