Katherine M. Goldman

CONTACT
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RESEARCH
INTERESTS
Geometric group theory, negative curvature of cell complexes and metric spaces, esp. in regards to Coxeter groups, Artin groups, complex reflection groups, and other related groups.

EDUCATION
The Ohio State University

Ph.D. in Mathematics (Current)
Advisors: Jingyin Huang and Mike Davis

The University of California, Los Angeles

B.S. in Mathematics, *Cum Laude* (September 2018)

Fullerton College

Transferred (June 2016)

PUBLICATIONS
CAT(0) *and cubulated Shephard groups* (Oct 2023; preprint) [PDF] [arXiv]

Simplicial pseudohyperplane arrangements give weak Garside groups (Oct 2023; preprint) [PDF] [arXiv]

The $K(\pi,1)$ conjecture and acylindrical hyperbolicity for relatively extra-large Artin groups, accepted to Algebraic & Geometric Topology. (November 2021) [PDF] [arXiv]

NOTES
The CAT(0) cube complex associated to a Euclidean Coxeter group, in preparation.

Buildings for generalized braid groups, an english translation of P. Deligne's "Les immeubles des groupes de tresses généralisés" [PDF]

OSU minicourse on nonpositive curvature, complexes of groups, Artin groups, and Coxeter groups [PDF]

OTHER PAPERS
Quaternionic Analysis and Comparison to Complex Analysis, Project for UCLA Honors Collegium on Structure, Patterns, and Polyhedra. (Spring 2018)

How can the real Hamiltonian quaternions be used to study 3-dimensional symmetry groups?, Project for UCLA Honors Collegium on Structure, Patterns, and Polyhedra. (Spring 2018)

Borel Sets and Suslin's Theorem, Project for UCLA undergraduate Set Theory seminar. (Spring 2018)

What are the Bergman and Weighted Bergman spaces? (with D. Clahane), An introduction to graduate-level real analysis for beginning undergraduates. (Spring 2016)

INVITED
CONFERENCE/
SEMINAR TALKS
UC Santa Barbara Topology Seminar (April 2024)

Louisiana State University Topology Seminar (March 2024)

University of Buffalo Geometry and Topology Seminar (January 2024)

JMM/AMS special session on Geometric Group Theory (January 2024)

OSU Topology/Geometric Group Theory seminar (November 2023)

Lead OSU minicourse on nonpositive curvature, complexes of groups, Artin groups, and Coxeter groups (July 2022)

Young Geometric Group Theory X (July 2021)

Various lectures in OSU course on characteristic classes (Spring 2022)

UCLA Honors Collegium on Structure, Patterns, and Polyhedra (June 2018)

UCLA Undergraduate Set Theory Seminar (April 2018)

Pacific Coast Undergraduate Mathematics Conference (March 2015)

Southern California Conferences for Undergraduate Research (November 2014)

Pacific Coast Undergraduate Mathematics Conference (March 2014)

Fullerton College Math Colloquium (Multiple, 2013-2016)

CONFERENCES ORGANIZED	Conference in honor of the retirement of Mike Davis (Summer 2025)
	Spectra SMC 2024 at OSU, conference for early-career LGBTQ+ mathematicians (Summer 2024)

CONFERENCES ATTENDED	AIM workshop on the geometry and topology of Artin groups (Sept 2023)

Long-term visitor at CRM Thematic Semester in Geometric Group Theory, including

- Huge Groups (April/May 2023)
- Geometry of Subgroups (May/June 2023)
- Groups Around 3-Manifolds (June 2023)
- Cube Complexes and Combinatorial Geometry (June 2023)

Redbud Topology Conference, University of Oklahoma (April 2023)

Hyperbolic groups and their generalisations, Institut Henri Poincaré (June 2022)

Artin Groups, CAT(0) geometry and related topics, Ohio State University (July 2021)

Beyond Hyperbolicity, Ohio State University (June/July 2021)

OUTREACH	2022–Present	Co-founder and vice president, *OSU LGBTQ+ in Math Alliance*, a group focused on providing inclusive community for LGBTQ+ undergrads and grad students in math. Became official *Spectra* chapter in Oct 2023.
	2022	Mentor, *OSU Directed Reading Program*, guiding two students through graduate-level math topics on which they deliver a presentation

	2021–2024	Volunteer at various OSU community outreach events with *Buckeye Aha Math Moments (BAMM)*
	2015–2017	Co-organizer, *Fullerton College Math Colloquium*, an organization which gives underrepresented students opportunities to perform undergraduate math research
	2016	President, *Fullerton College Math Club*
HONORS AND AWARDS	Spring 2024	OSU Special Graduate Assignment
	Spring 2023	OSU Special Graduate Assignment via NSF RTG Grant
	Fall 2019– Spring 2020	OSU University Graduate Research Fellowship
	Fall 2020	OSU Math Department *Tibor Radó Research Semester* Fellowship
	2016	Fullerton College Putnam Award
	2015, 2016	Professional Math Communications Award
	2016	Mathematics Research Award
TEACHING/WORK EXPERIENCE	Fall 2022– Present	Organizer, OSU Student Seminar in GGT/Metric Geometry
	Fall 2021– Present	Co-organizer, Various learning seminars in GGT at OSU
	Fall 2023	Grader for "Introduction to proofs", OSU
	Fall 2022	TA for College Algebra for Business, OSU
	Spring 2022	TA for Calculus II, OSU
	Fall 2021	TA for Calculus I, OSU
	Spring 2021	Grader for "Introduction to Proofs", OSU
	Fall 2018	Grading assistant for large lecture class at CSU Long Beach
	Summer 2014– Summer 2015	Research intern in Fullerton College Math Department
	Fall 2013– Present	One-on-one tutoring in various levels of math, including middle school, high school, and college