## Matthew Cordes

Contact Information	Department of Mathematics Heriot–Watt University Edinburgh EH14 4AS United Kingdom	Web: https://www.mcordes.com Email: m.cordes@hw.ac.uk
Research Interests	Geometric group theory; the geometric and topological aspects of infinite groups; approximate groups; generalizations of hyperbolicity; boundaries.	
Employment	Heriot–Watt University Assistant Professor January 2024–present	
	<b>ETH Zürich</b> Senior Assistant funded by a Swiss National Science Foundation Ambizione Fellowship September 2020–December 2023	
	ETH Zürich Postdoctoral Fellow September 2018–August 2020	
	<b>Technion–Israel Institute of Techn</b> Zuckerman STEM Leadership Postdoc September 2016–August 2018	<b>hology</b> toral Fellow
Education	<b>Brandeis University</b> , Ph.D. May 2016 Advisor: Ruth Charney Thesis title: Morse boundaries of geodesic metric spaces.	
	Carleton College, BA 2010	
	Budapest Semesters in Mathemat	ics, Fall 2009
PUBLICATIONS	Connectivity of Coxeter group Morse bo	<i>undaries</i> . (With Ivan Levcovitz) (arxiv:2503.14085)
	(Non-)existence of Cannon-Thurston maps for Morse boundaries. (With Ruth Charney, Antoine Goldsborough, Alessando Sisto, Stefanie Zbinden), Bulletin of the London Mathematical Society, 2024	
	Corrigendum to 'Morse boundaries of proper geodesic spaces'. (With Alessando Sisto, Stefanie Zbinden) Groups, Geometry, and Dynamics, 2024.	
	<i>Foundations of geometric approximate group theory</i> . (With Tobias Hartnick, Vera Tonić), To appear <b>Memoirs of the American Mathematical Society</b> .	
	<i>Regularity of Morse geodesics and gro</i> Davide Spriano, Abdul Zalloum) <b>Jour</b>	with of stable subgroups. (With Jacob Russell, nal of Topology, 2022.

An embedding of the Morse boundary in the Martin boundary. (With Matthieu Dussaule, Ilya Gekhtman) Algebraic & Geometric Topology, 2022.

*Complete topological descriptions of certain Morse boundaries*. (With Ruth Charney, Alessandro Sisto) **Groups, Geometry, and Dynamics**, 2023.

*Cannon–Thurston maps for* CAT(0) *groups with isolated flats* (With Benjamin Beeker, Giles Gardam, Radhika Gupta, Emily Stark) Mathematische Annalen, 2022.

A survey on Morse boundaries & stability. "Beyond Hyperbolicity" London Mathematical Society Lecture Note Series Book 454, 2019.

*Quasi-mobius homeomorphisms of the Morse boundary*. (With Ruth Charney, Devin Murray) Bulletin of the London Mathematical Society, 2019.

*Relatively hyperbolic groups with fixed peripherals*. (With David Hume) Israel Journal of Mathematics, 2019.

Boundary convex cocompactness and stability of subgroups of finitely generated groups. (With Matthew Gentry Durham) Int Math Res Notices, 2017.

Stability and the Morse boundary. (With David Hume) Journal of the London Mathematical Society, 2017.

*Morse boundaries of proper geodesic spaces*. Groups, Geometry, and Dynamics, 2017.

*Random nilpotent groups I*. (With Moon Duchin, Yen Duong, Meng-Che Ho, Ayla P. Sánchez) **Int Math Res Notices**, 2018.

## PhD Supervision Heriot-Watt University

- Talia Shlomovich 2024-

TEACHING Instructor

EXPERIENCE

Heriot-Watt University

– F17CA Calculus A – Fall 2024

## ETH Zürich

- Ethics in Mathematics Spring 2023, Fall 2024
- A Survey of Geometric Group Theory student seminar Spring 2022, Spring 2020
- Coxeter groups from a geometric viewpoint Fall 2021
- Fuchsian groups Spring 2019

Teaching fellow, Brandeis University, 2011–2016.

Awards, fellowships, grants	<b>Ambizione Fellowship (SNSF)</b> (602,720 CHF), 2020–2024	
	ETH Zürich Postdoctoral Fellowship (229,600 CHF), 2018–2020	
	Zuckerman STEM Leadership postdoctoral fellowship (80,000 USD), 2016–2018 Jerome Levine Award for Best Dissertation	
	GAANN fellowship, 2011-2014	
Ethics of Mathematics Talks	(Crash Course) OURFA <sup>2</sup> M <sup>2</sup> : Online Undergraduate Resource Fair for the Advancement and Alliance of Marginalized Mathematicians — online (2025)	
	(Minicourse) International Max Planck Research School Combo Workshop — Leipzig, Germany (2024)	
Research Talks	University of Newcastle Algebra and Geometry seminar — Newcastle, England $(2024)$	
	Geometry and Groups in the South England seminar — Bristol, England (2024)	
	Univesity of Bristol Geometry and Topology seminar — Bristol, England (2024)	
	University of Glasgow Geometry & Topology seminar — Glasgow, Scotland (2024)	
	GAGTA 2023 - Groups and Dynamics — Vienna, Austria (2024)	
	Topology Oberseminar LMU München — Munich, Germany (2023)	
	CIMAT Applied Geometry and Topology Seminar (virtual) — Guanajuato, Mexico $\left(2022\right)$	
	ETHZ Geometry Graduate Colloquium — Zurich, Switzerland (2022)	
	Univ. of Austria Research Seminar in Geometry and Analysis on Groups (virtual) — Vienna, Austria (2021)	
	Texas A&M Groups and Dynamics Seminar (virtual) — College Station, Texas (2021)	
	Artin Groups, $CAT(0)$ Geometry, and Related Topics — Columbus, Ohio (2021)	
	Cambridge Geometric Group Theory Seminar (virtual) — Cambridge, UK (2021)	
	WWU Münster Geometric Group Theory Seminar (virtual) — Münster, Germany (2021)	
	Queens University Dynamics, Geometry, & Groups Seminar (virtual) — Kingston, Canada (2020)	
	The Ohio State Topology and Geometric Group Theory Seminar (virtual) — Columbus, Ohio $\left(2020\right)$	

LG&TBQ — Ann Arbor, Michigan (2019)

University of Nantes Geometry Seminar — Nantes, France (2018)

ETHZ Geometry Seminar — Zurich, Switzerland (2018)

Nonpositively Curved Groups on the Mediterranean — Nahsholim, Israel (2018)

UC Santa Barbara Topology Seminar — Santa Barbara, CA (2018)

Tufts Geometric Group Theory Seminar — Medford, MA (2018)

Technion Geometry & Topology Seminar — Haifa, Israel (2017)

Univ. of Austria Research Seminar in Geometry and Analysis on Groups — Vienna, Austria $\left(2017\right)$ 

Non-positively curved groups and spaces — Regensburg, Germany (2017)

Brandeis Topology Seminar — Waltham, MA (2017)

Workshop on Group Theory on the Occasion of Arye Juhasz' 70th Birthday — Haifa, Israel (2017)

Technion Geometry & Topology Seminar — Haifa, Israel (2016)

University of Haifa Geometry & Topology Seminar — Haifa, Israel (2016)

Invited participant to AIM workshop on Boundaries of Groups — San Jose, CA (2016)

Beyond Hyperbolicity — Cambridge, UK (2016)

Graduate Student Math Conference in Topology & Geometry — Providence, RI (2016)

CUNY Geometry & Topology Seminar — New York, NY (2016)

University of Michigan Topology Seminar — Ann Arbor, MI (2016)

Wesleyan University Topology et al. Seminar — Middletown, CT (2015)

McGill University Geometric Group Theory Seminar — Montréal, Canada (2015)

Tufts Geometric Group Theory Seminar — Medford, MA (2015)

Univ. of Wisconsin–Madison Geometry and Topology Seminar — Madison, WI (2015)

Univ. of Wisconsin–Milwaukee Topology Seminar — Milwaukee, WI (2015)

Geometric Group Theory (Januszkiewicz conference) — Wrocław, Poland (2015)

Université catholique de Louvain Group Theory Seminar — Louvain-la-Neuve, Belgium  $\left(2015\right)$ 

Brandeis Topology Seminar — Waltham, MA (2014)

SERVICE	<ul> <li>General Committee Member of Edinburgh Mathematical Society, 2024-present</li> <li>Spectra Board Member, 2022-present</li> <li>At large board member and member of the budget committee – The Association for LGBT Mathematicians.</li> <li>Panelist for Diversity, Equity, and Inclusion Panel, Young Geometric Group Theory X, 2021</li> <li>VMM Representative, ETH Zürich, 2021–2023</li> <li>Member of the Executive Board of the Association of the Mid-Level Faculty (doctoral students, post-docs, and senior scientists) in the Mathematics Department at ETHZ. I am the diversity representative for the Executive Board.</li> </ul>	
	Organizer of ETHZ Geometry seminar, ETH Zürich, 2020–2023	
Conferences	GAGTA 2023 – Groups and Dynamics (July 2023), Vienna, Austria	
	Counting problems (September 2021), Ventotene, Italy	
	Artin Groups, CAT(0) geometry and related topics (July 2021), Columbus, Ohio	
	Of coarse! Quasi-isometries and groups: rigidity and classification (September 2019), Ventotene, Italy	
	Groups with hyperbolic features (August 2019) Zürich, Switzerland	
	LG&TBQ (June 2019) Ann Arbor, Michigan	
	Groups, geometries, and spaces in honor of Alessandra Iozzi (January 2019) Zürich, Switzerland	
	Boundaries of Groups (June 2018) Luminy, France	
	3-manifolds and Geometric Group Theory (June 2018) Luminy, France	
	Nonpositively Curved Groups on the Mediterranean (May 2018) Nahsholim, Israel	
	Young Geometric Group Theory VII (March 2018) Les Diablerets, Switzerland	
	Structure of 3-manifold groups (February 2018) Luminy, France	
	Manifolds & Groups (September 2017) Regensburg, Germany	
	Non-positively curved groups and spaces (September 2017) Regensburg, Germany	
	Moduli Spaces (September 2017) Ventotene, Italy	
	Thematic School on quasi-isometric rigidity (July 2017) Toulouse, France	
	Young Geometric Group Theory VI (March 2017) Oxford, United Kingdom	

Workshop on Group Theory on the Occasion of Arye Juhasz' 70th Birthday (January 2017) Haifa, Israel

MSRI workshop on geometry of mapping class groups and Out(Fn) (October 2016) Berkeley, CA

AIM workshop on Boundaries of Groups (October 2016) San Jose, CA

Beyond Hyperbolicity (June 2016) Cambridge, United Kingdom

Geometry of Groups in Montevideo (April 2016) Montevideo, Uruguay

Young Geometric Group Theory V (February 2016) Karlsruhe Institute of Technology

Impacts of Geometric Group Theory (Levitt & Lustig conference) (July 2015) CIRM, Luminy

Geometric Group Theory (Januszkiewicz conference) (June 2015) Wrocław, Poland

Workshop on Mapping Class Group and  $Out(F_n)$  (May 2015) Austin, TX

Young Geometric Group Theory IV (January 2015) Spa, Belgium

Geometry on Groups and Spaces, ICM Satellite Conference on Geometric Group Theory and Geometric Structures (August 2014) Daejeon, Korea

Third Young Geometric Group Theory Meeting (January 2014) Luminy, France

Introductory School of the IHP Trimester on Random Walks and Asymptotic Geometry of Groups (January 2014) Luminy, France

AMS Mathematics Research Communities in Geometric Group Theory (June 2013) Snowbird, UT

Cube Complexes and 3-Manifolds (May 2013) University of Illinois at Chicago

Graduate Student Topology & Geometry Conference (April 2013) University of Notre Dame

*RTG Graduate Workshop on Geometric Group Theory* (June 2012) University of California—Berkeley