

Curriculum Vitae

Personal information

Surname, Given Names **Kropholler, Robert Peter**
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Nationality British
Date of Birth 5 October 1989

Employment History

2017 - Present
Title Norbert Wiener Assistant Professor
Employer Department of Mathematics, Tufts University
2016 - 2017
Title Postdoctoral Researcher
Employer Mathematical Sciences Research Institute

Education

Postgraduate Studies 2012 - 2016
DPhil. in Mathematics, St Edmund Hall, University of Oxford
Advisor Prof. Martin Bridson
Research Topic “*Finiteness Properties and $CAT(0)$ Groups*”
Support EPSRC DTA Award
Undergraduate Studies 2008 - 2012
MMath, First Class, University of Nottingham
Dissertation “*Cyclically Presented Groups*”

Academic Interests

Current Interests Hyperbolic groups and their subgroups, $CAT(0)$ geometry, Decision problems in group theory, 4-manifolds.

Teaching experience

Period 2017 - Present
Employer Tufts University
Description Spring 2017: Lecturer for Calculus I (30 Students) and Algebraic Topology (7 Students).
Fall 2017: Lecturer for Grad Algebra I (6 Students) and recitation leader for Calculus 1 (120 Students).

	Spring 2018: Lecturer for Grad Algebra II (4 Students) and Algebraic Topology (12 Students).
	Fall 2018: Lecturer for 2 courses of Abstract Algebra I (46 Students).
	Spring 2019: Lecturer for Calculus II (78 Students), Abstract Algebra II (31 Students) and Special topics in Topology (9 Students).
	Fall 2019: Lecturer for Algebraic Topology (19 Students).
	Project supervision: two summer projects and one senior honors thesis.
	Examiner: four PhD candidates and one masters thesis.
Period	2014 - 2015
Employer	Stipendiary Lecturer, Keble College
Description	Tutor for first year courses: Groups and Group Actions, Complex Numbers, Linear Algebra, Introduction to University Mathematics, and Optimization. Tutor for second year courses: Algebra I: Linear Algebra and Algebra III: Group Theory.
Period	2013 - 2016
Employer	Mathematics Tutor at University College, St Catherine's College, Somerville College, St Edmund Hall and Keble College
Description	Tutoring Prelims and Part A Mathematics at the above colleges as well as one to one classes with visiting students.
Period	2013 - 2015
Employer	Class Tutor, University of Oxford
Description	Topology and Groups for Part B student classes.
Period	2012 - 2015
Employer	Teaching assistant, University of Oxford
Description	Marking coursework in Part B Topology and Groups, Group Theory and Introduction to Character Theory, and Part C Geometric Group Theory, and Infinite Groups.

Publications

2019	N. Brady, R. Kropholler, I. Soroko <i>Homological filling functions of groups of type FP_2</i> In preparation
2019	R. Kropholler, C. O'Donnell <i>Groups with arbitrary cubical dimension gap</i> https://arxiv.org/abs/1912.05055
2019	R. Kropholler, G. Walsh <i>Incoherence of many free-by-free groups</i> https://arxiv.org/abs/1910.09601
2019	M. Benzvi, R. Kropholler <i>Boundaries of various right angled Artin groups</i> https://arxiv.org/abs/1910.07560
2018	R. Kropholler <i>Hyperbolic groups with almost finitely presented subgroups</i> https://arxiv.org/abs/1809.10594
2018	R. Kropholler <i>Hyperbolic Groups with finitely presented subgroups not of type F_3</i>

- <https://arxiv.org/abs/1808.09505>
- 2018 B. Gilman, R. Kropholler, S. Schleimer
Groups whose word problem are not semilinear
Groups. Complexity. Cryptology. 10 (2018), no. 2, 53–63
- 2017 R. Kropholler, F. Vigolo
A new construction of $CAT(0)$ cube complexes
<https://arxiv.org/abs/1802.01885>
- 2017 R. Kropholler
Almost hyperbolic groups with almost finitely presented subgroups
<https://arxiv.org/abs/1712.05826>
- 2017 R. Kropholler, I. Leary, I. Soroko
Uncountably many quasi isometry classes of FP groups
To appear in **Am. J. Math.**
- 2017 A. Bar-Natan, M. Duchin, R. Kropholler
Medium-scale curvature for Cayley graphs
<https://arxiv.org/abs/1712.02484>
- 2017 R. Kropholler, D. Spriano
The class of MCF groups is closed under free products
Groups. Complexity. Cryptology. 11 (2019), no. 1, 1-16
- 2017 R. Kropholler
Special cube complexes (based on lectures of Piotr Przytycki)
Geometric and Cohomological Group Theory (London Mathematical Society Lecture Note Series 444, pp. 46-66).
- 2016 R. Kropholler, G. Wilkes
Profinite properties of RAAGs and special groups
Bull. Lond. Math. Soc. 48 (2016), no. 6, 1001–1007
- 2016 J. Button, R. Kropholler
Non Hyperbolic Free-By-Cyclic and One-Relator Groups
New York J. Math. 22 (2016), 755–774

Invited External Lectures

- 07/10/2019 Bielefeld University
Title Boundaries of right angled Artin groups
- 05/10/2019 WWU Münster
Title Groups acting uniformly properly on hyperbolic spaces
- 11/04/2019 “Cohomological Methods”, IMPAN, Warsaw
Title Almost finitely presented subgroups of hyperbolic groups
- 04/03/2019 University at Buffalo
Title Multiple context free groups
- 11/12/2018 Tufts University
Title An introduction to medium scale curvature
- 30/11/2018 “Geometry and Groups in the South East”, Southampton
Title Almost finitely presented subgroups of hyperbolic groups
- 19/07/2018 “Summer Conference on Topology and its Applications”, Bowling Green

Title	Almost finitely presented subgroups of hyperbolic groups
19/04/2018	Cornell University
Title	Almost finitely presented subgroups of hyperbolic groups
11/04/2018	University of Oklahoma
Title	Almost finitely presented subgroups of hyperbolic groups
09/04/2018	Rice University
Title	Uncountably many QI type of groups of type FP
29/03/2018	SUNY at Albany
Title	Branched Covers and Groups of Type FP
17/03/2018	“ <i>Spring Topology and Dynamics</i> ”, Auburn
Title	Groups of type FP_2
13/01/2018	“ <i>Joint Math Meetings</i> ”, San Diego
Title	Dimensions of discrete groups
12/10/2017	Binghampton University
Title	Uncountably many QI classes of groups of type FP
19/09/2017	Brandeis University
Title	Uncountably many QI classes of groups of type FP
21/06/2017	ETH Zurich
Title	An arbitrary cubical dimension gap
11/04/2017	Tufts University
Title	Subgroups of Hyperbolic Groups
11/04/2017	Tufts University
Title	Subgroups of Hyperbolic Groups
08/03/2017	“ <i>Spring Topology and Dynamics</i> ”, New Jersey City University
Title	Some constructions of hyperbolic groups
10/01/2017	“ <i>Non-positive curvature, group actions and cohomology</i> ”, Isaac Newton Institute, Cambridge
Title	Hyperbolic groups and their subgroups
22/11/2016	University of California Santa Barbara
Title	Finiteness properties and free abelian subgroups
25/04/2016	Oxford University
Title	Finiteness properties and free abelian subgroups
9/12/2015	“ <i>5th meeting of Groups and Geometry</i> ”, Birkbeck, London
Title	Almost Finitely Presented Subgroups of Hyperbolic Groups
14/07/2015	Freie Universität Berlin
Title	Free-by-Cyclic groups and $CAT(0)$ spaces
11/06/2015	“ <i>ECSTATIC</i> ”, Imperial College, London
Title	Free-by-Cyclic Groups
30/06/2014	“ <i>Young Researcher in Mathematics</i> ”, Warwick
Title	$CAT(0)$ structures on Free-by-Cyclic Groups

Conference Participation

2019	“ <i>Young Geometric Group Theory VIII</i> ”, Bilbao
2019	“ <i>Aspects of negative and non-positive curvature</i> ”, CIRM, Luminy

2019	“ <i>Boundaries of Random Walks</i> ”, Bowdoin College, Brunswick
2019	“ <i>Working group on coherence</i> ”, IAS, Princeton
2018	“ <i>Structure of 3-manifolds</i> ”, Luminy
2017	“ <i>Homological Algebra and Topological Groups</i> ”, Southampton
2017	“ <i>Geometric Structures in Group Theory</i> ”, Oberwolfach
2017	“ <i>GAGTA</i> ”, Bilbao
2017	“ <i>Young Geometric Group Theory VI</i> ”, ‘c
2016	“ <i>Beyond Hyperbolicity</i> ”, Cambridge
2016	“ <i>Boundaries of CAT(0) cube complexes</i> ”, Nice
2016	“ <i>Topological and Homological Methods in Group Theory</i> ”, Bielefeld
2015	“ <i>Geometric Topology</i> ”, Oberwolfach
2014	“ <i>Cube Complexes and Groups</i> ”, Copenhagen
2013	“ <i>Geometry and Group after Thurston</i> ”, Dublin
2013	“ <i>Geometric and Cohomological Group Theory</i> ”, Durham
2013	“ <i>Young Researchers in Mathematics</i> ”, Edinburgh
2013	“ <i>Summer School on Geometry of Outer Space</i> ”, Marseille
2013	“ <i>Young Topology Meeting UK 2013</i> ”, Imperial College London
2013	“ <i>British Mathematical Colloquium</i> ”, Sheffield

Organisational Duties

2020	“ <i>Subgroups in Nonpositive Curvature</i> ”, AMS Sectional Meeting, Tufts
2019	“ <i>Topics around groups at Tufts</i> ”, Tufts
2019	“ <i>Geometric Group Theory Session</i> ”, Spring Topology and Dynamics, Birmingham
2017 - Present	“ <i>GGTT Seminar</i> ”, Tufts
2016	“ <i>Postdoctoral Seminar</i> ”, MSRI
2015	“ <i>Young Researchers in Mathematics</i> ”, Oxford
2015-2016	“ <i>Kinderseminar</i> ”, Oxford
2014-2015	“ <i>Poincaré Seminar</i> ”, Oxford
2013-2014	“ <i>Junior Topology and Group Theory Seminar</i> ”, Oxford
2013	“ <i>Topology Advanced Class</i> ”, Oxford