

Derrick Wigglesworth

CONTACT INFORMATION

University of Arkansas
Department of Mathematical Science
Fayetteville, AR 72701

mobile: (301) 802-1431
e-mail: drwiggle@uark.edu
website: www.drwiggle.com

RESEARCH INTERESTS

Geometric group theory, outer automorphism groups of free groups and RAAGs, mapping class groups, Farrell-Jones conjecture and other connections between topology and algebra. Commutative algebra; in particular, Betti numbers and syzygies of modules.

EDUCATION AND APPOINTMENTS

University of Arkansas, Fayetteville, Arkansas, USA [January 2019 – present]
Visiting Assistant Professor

Fields Institute, Toronto, Ontario, Canada [July – December 2018]
Postdoctoral Fellow

University of Utah, Salt Lake City, Utah, USA [August 2012 – May 2018]
Doctor of Philosophy, Advisor: Mladen Bestvina

University of Maryland, College Park, Maryland, USA [2009 – 2012]
Bachelor of Mathematics, Magna Cum Laude
Bachelor of Physics, Magna Cum Laude

HONORS AND AWARDS

Dept. of Mathematics Outstanding Graduate Student Award, University of Utah, 2017.
Dept. of Mathematics Outstanding Senior Award, University of Maryland, 2013.
Dept. of Mathematics Higginbotham Award, University of Maryland, 2012.

PUBLICATIONS

- D. Wigglesworth, “*Distortion for abelian subgroups of $Out(F_n)$* ”, Int. J. Algebr. Comput., Volume 28 (4): p. 573-603, 2018.
- R. Gupta and D. Wigglesworth, “*Loxodromics for the cyclic splitting complex and their centralizers*”, Pacific J. Math., Volume 301 (1): p. 107-142, 2019.
- A. Boucher and D. Wigglesworth, “*Large lower bounds for the betti numbers of graded modules with low regularity*”, accepted for publication Collectanea Mathematica, 2020.
- M. Bestvina and K. Fujiwara and D. Wigglesworth, “*Farrell-Jones conjecture for free-by-cyclic groups*”, arXiv:1906.00069 .

TALKS

- Redbud Virtual Topology Conference, Zoom Meeting
“*Algorithmic Detection of Geometric Free Group Automorphisms*” [November 2020]
- Topology Seminar, University of Arkansas
“*Farrell-Jones Conjecture for torsion-free hyperbolic-by-cyclic groups*” [October 2020]
- Topology Seminar, University of Oklahoma
“*Algorithmic Detection of Geometric Free Group Automorphisms*” [March 2020]
- Redbud Topology Conference, University of Arkansas
“*Algorithmic Detection of Geometric Free Group Automorphisms*” [March 2020]
- Commutative Algebra Seminar, University of Arkansas
“*Bounds on Betti numbers for some graded modules*” [October 2019]
- Topology Seminar, University of Arkansas
“*Farrell-Jones Conjecture for free-by-cyclic groups*” [September 2019]
- Spring Topology & Dynamical Systems Conf., Univ. of Alabama, Birmingham
“*Farrell-Jones Conjecture for free-by-cyclic groups*” [March 2019]

TALKS (CONT.)

- Topology Seminar, University of Arkansas
“*Relative hyperbolicity of free-by-cyclic groups*” [March 2019]
- Working Seminar, The Fields Institute
“*Relative hyperbolicity of free-by-cyclic groups*” [December 2018]
- AMS Fall Southeastern Sectional, University of Arkansas
“*Farrell-Jones Conjecture for free-by-cyclic groups*” [November 2018]
- Dynamics, Geometry, & Groups Seminar, Queens University
“*Groups Acting on Trees*” [August 2018]
- Ergodic Theory Seminar, University of Rennes 1
“*Loxodromics for the Cyclic Splitting Complex*” [March 2018]
- Topology Seminar, University of California Berkeley
“*Distortion for abelian subgroups of $Out(F_n)$* ” [February 2018]
- Joint Math Meetings, San Diego, CA
“*Loxodromics for the Cyclic Splitting Complex*” [January 2018]
- AMS Fall Western Sectional, University of California Riverside
“*Loxodromics for the Cyclic Splitting Complex*” [November 2017]
- Max Dehn Seminar, Univ. of Utah
“*Distortion for Abelian Subgroups of $Out(F_n)$* ” [February 2017]
- Topology Students Workshop, Georgia Tech
“*Distortion of Abelian Subgroups of $Out(F_n)$* ” [June 2016]

TEACHING EXPERIENCE

University of Arkansas, Fayetteville, AR, USA

- *Discrete Mathematics* [Summer 2020, Fall 2020, Spring 2021]
- *Calculus III* [Fall 2019, Spring 2020]
- *Introduction to Quantitative Reasoning* [Spring 2019]

University of Utah, Salt Lake City, Utah, USA

- *Introduction to Quantitative Analysis* [Fall 2012, Spring 2013, Spring 2014]
- *Trigonometry* [Fall 2013]
- *Calculus I* [Summer 2013, Summer 2016]
- *Calculus II* [Summer 2014]
- *Linear Algebra* [Fall 2015, Fall 2017]

PROGRAMMING

Python, Matlab, Sage, L^AT_EX 2_ε.

SERVICE AND OUTREACH

Service

- Directed reading with undergraduates [2020]
- Graduate Student Advisory Committee Cochair [2017-2018]
- College of Science Council [2017-2018]
- TA Training Facilitator [Fall 2017]
- Retention Promotion & Tenure Committee [2015-2016]
- Math Teacher’s Circle (Workshop for K12 educators) [Fall 2017]

Peer Reviewer

- Groups, Geometry, Dynamics [2019, 2020]
- Geometry & Topology [2019]
- Proceedings of the AMS [2020]

Outreach Talks/Events

- Graduate Student Seminar, University of Arkansas
“*Spheres and algorithms in free groups*” [October 2020]
- Celebration of Mind, University of Arkansas
“*Bridges of Königsberg,*” Volunteer [March 2019]

Outreach Talks/Events (contd.)

- Postdoc Seminar, University of Toronto
"Fun with Folding in free groups" [July 2018]
- Introductory Topology Seminar, University of California Berkeley
"Train Tracks for Free Group Automorphisms" [Feb 2018]
- Undergraduate Colloquium, University of Utah
"Games of No Chance" [Sept 2017]
- Graduate Colloquium, University of Utah
"Limitations of a Ruler & Compass" [Aug 2017]
- Graduate Colloquium, University of Utah
"Turing Machines and the Halting Problem" [Sep 2014]
- Graduate Colloquium, University of Utah
"Hilbert's Program & Gödel's Incompleteness Theorem" [Feb 2014]