

Christopher H. Cashen

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Research Interests

Geometry and Topology, Geometric Group Theory.

MSC2010: 20Exx, 20Fxx, 57Mxx

- Group splittings and quasi-isometry classification of graphs of groups
- Automorphisms of free groups
- Isoperimetric functions

Education

- 2007 **Ph.D.**, *University of Illinois*, Chicago, IL.
Mathematics
Thesis “Quasi-isometries Among Tubular Groups”
Advisor Kevin Whyte
- 2001 **M.S.**, *University of Illinois*, Chicago, IL.
Mathematics
- 2000 **B.S.**, *Loyola University*, Chicago, IL, *Magna Cum Laude*.
Mathematics

Employment

- 2008–present **VIGRE Postdoctoral Fellow**, *University of Utah*, Salt Lake City, UT.
- Fall 2007 **Postdoctoral Fellow**, *Mathematical Sciences Research Institute*, Berkeley, CA.
Program in Geometric Group Theory
- Spring and Fall 2006 **Coordinator, Mathematical Sciences Learning Center**, *University of Illinois*, Chicago. IL.
- Trained, scheduled, and supervised undergraduate Mathematics Tutors and Peer Study Group Leaders
 - Led study groups for advanced undergraduate math classes
- 2000–2007 **Graduate Student**, *University of Illinois*, Chicago, IL.
3 years VIGRE Graduate Student Fellow
2 years Teaching Assistant
1 year Research Assistant

Publications

Christopher H. Cashen, *Quasi-isometries between tubular groups*, Groups, Geometry and Dynamics, to appear, arXiv:0707.1502.

———, Ph.D. thesis, University of Illinois, Chicago, IL, 2007.

———, *Computing the maximum slope invariant in tubular groups*, preprint, 2009, <http://www.math.utah.edu/~cashen/Research/Slope.pdf>.

Christopher H. Cashen and Natasa Macura, *Line patterns in free groups*, Preliminary Version, 2009, <http://www.math.utah.edu/~cashen/Research/FreeGpPatterns.pdf>.

———, *Quasi-isometries of mapping tori of linearly growing free group automorphisms*, in preparation, 2009.

Teaching Experience

Graduate, *Riemannian Geometry (Spring 2010)*.

Advanced Undergraduate, *Real Analysis II, Partial Differential Equations for Engineers*.

Undergraduate, *Trigonometry, Calculus I-III, Introduction to Differential Equations*.

Outreach Activities

November 2009 **Organizer, Calculus Carnival**, *University of Utah*, Salt Lake City, UT.

300 undergraduate students play games modeled on board games with Calculus questions

October 2009 **Undergraduate Math Majors Seminar**, *Trinity University*, San Antonio, TX, “Introduction to Geometric Group Theory”.

September 2009 **Undergraduate Colloquium**, *University of Utah*, Salt Lake City, UT, “Introduction to Geometric Group Theory”.

November 2008 **Organizer, Calculus Carnival**, *University of Utah*, Salt Lake City, UT.

180 undergraduate students play games modeled on TV game shows with Calculus questions

Professional Service

- Referee for New York Journal of Mathematics

Professional Memberships

- American Mathematical Society

Invited Talks

- November 2009 **AMS Sectional Meeting, Special Session on Lattices, Coxeter Groups and Buildings**, *Florida Atlantic University*, Boca Raton, FL, “Line Patterns in Free Groups and Quasi-isometries of Mapping Tori of Linearly Growing Free Group Automorphisms”.
- October 2009 **Mathematics Department Colloquium**, *Trinity University*, San Antonio, TX, “Whitehead’s Algorithm and Geometric Generalizations”.
- September 2009 **Max Dehn Seminar**, *University of Utah*, Salt Lake City, UT, “Line Patterns in Free Groups and Quasi-isometries of Mapping Tori of Linearly Growing Free Group Automorphisms”.
- September 2008 **Karcher Special Lecture**, *University of Oklahoma*, Norman, OK, “Quasi-isometries Between Tubular Groups”.
- September 2008 **Karcher Colloquium**, *University of Oklahoma*, Norman, OK, “The Geometry of Groups Acting on Trees”.
- April 2008 **Geometric Topology Seminar**, *Columbia University*, New York, NY, “Quasi-isometries Between Tubular Groups”.
- March 2008 **AMS Sectional Meeting, Special Session on Geometric Group Theory**, *Louisiana State University*, Baton Rouge, LA, “Quasi-isometries Between Tubular Groups”.
- January 2008 **Max Dehn Seminar**, *University of Utah*, Salt Lake City, UT, “Quasi-isometries Between Tubular Groups”.
- October 2006 **Geometry, Topology, and Dynamics Seminar**, *University of Illinois*, Chicago, IL, “Quasi-isometries Between Tubular Groups”.