

# Theron James Hitchman

---

## Work Address:

Department of Mathematics and Statistics  
Williams College  
Williamstown, MA 01267  
(413)597-2196  
theron.j.hitchman@williams.edu  
<http://www.williams.edu/Mathematics/thitchma>

## Home Address:

7 Chapin Court  
Williamstown, MA 01267  
(413)884-2044  
theronhitchman@gmail.com

## Employment

### History

#### **Visiting Assistant Professor of Mathematics.**

Williams College, Williamstown, Massachusetts, July 2006—present.

#### **VIGRE Lovett Instructor of Mathematics.**

William Marsh Rice University, Houston, Texas, August 2003—June 2006.

## Education

**University of Michigan**, Ann Arbor, Michigan. Ph.D. in Mathematics, August, 2003.

Dissertation: *Rigidity theorems for large dynamical systems with hyperbolic behavior.*

Advisor: Prof. Ralf Spatzier.

**The Ohio State University**, Columbus, Ohio. Bachelor of Science summa cum laude with Honors in the Liberal Arts and with Distinction in Mathematics, June, 1997.

## Research

### Interests

Differential geometry, smooth dynamical systems, and Lie theory, especially rigidity of dynamical systems, discrete subgroups of Lie groups and homogeneous spaces.

Modeling developmental processes in biological systems.

## Papers

**Regularity of Conjugacies of Algebraic Actions of Zariski Dense Groups** *with Alexander Gorodnik and Ralf Spatzier*, in preparation.

**Local Rigidity of Group Actions via Vanishing Cohomology** *with David Fisher*, in preparation.

**Harmonic maps into infinite dimensional manifolds and cocycle superrigidity** *with David Fisher*, in preparation.

**Strengthening Kazhdan's Property (T) by Bochner Methods** *with David Fisher*, submitted, preprint available at arXiv.

**A Robust and Stable Two-protein Switch: a Model for the Bicoid-Hunchback System in the Developing *Drosophila* embryo** *with Timothy Burke, Robin Forman, Heather Hardway, and Diane Shao*, in preparation.

**Cocycle superrigidity and harmonic maps with infinite dimensional targets** *with David Fisher*, International Mathematics Research Notices, Volume 2006, Article ID 72405, Pages 1-19.

**Deformation rigidity for toral actions of lattices in rank one Lie groups**, submitted, preprint available at arXiv.

## Awards and

### Prizes

**Outstanding Graduate Student Instructor Award** University of Michigan, 2002-2003.

**Allen Shields Memorial Fellow** University of Michigan, 2002.

**VIGRE Fellow** University of Michigan, 2000-2002.

**Regents Fellow** University of Michigan, 1997-2000.

## Talks

- University of Massachusetts at Amherst** Valley Geometry Seminar, *Rigidity of Discrete Subgroups of Lie Groups: Dynamics*, October 20, 2006.
- Williams College** Faculty Seminar, *Rigidity of Discrete Subgroups of Lie Groups: an Overview*, September 29, 2006.
- University of Hawaii at Manoa** Workshop on Group Actions and Rigidity, *Harmonic Maps and Cocycle Superrigidity*, March 22, 2006.
- University of Michigan** Geometry Seminar, *Harmonic Maps and Cocycle Superrigidity*, March 13, 2006
- Rice University** *Harmonic maps with infinite dimensional targets and geometric cocycle superrigidity*, March 8, 2006.
- Sam Houston State University** Colloquium, *Rigidity for Lattices in Semisimple Lie groups and their Lattices: Representations, Dynamics and Geometry* February 22, 2006.
- Williams College** Colloquium, *Having a Lot of Symmetry is Difficult* February 20, 2006.
- Furman University** Student Colloquium *Continued Fractions and Hyperbolic Geometry* February 6, 2006.
- University of Chicago** *Cohomology, cocycles and dynamical rigidity for lattices* Geometry Seminar, December 8, 2005.
- Ohio State University**, Topology Seminar, *Cohomology, cocycles and dynamical rigidity for lattices*, November 15, 2005.
- Indiana University Bloomington**, Differential Geometry Seminar, *Cohomology of locally symmetric spaces and rigidity of fundamental groups*, September 29, 2005.
- Banff International Research Station**, Rigidity, Dynamics and Group Actions Workshop, *A geometric approach to cocycle superrigidity*, July 13, 2005.
- City University of New York Graduate Center** Differential Geometry and Lie Groups Seminar, *Vanishing cohomology and cocycle superrigidity through geometry*, May 17, 2005.
- AMS Texas Section Meeting**, Special Session on Discrete Groups, Homogeneous Spaces, Rigidity, *Cocycle Superrigidity through geometry*, April 8, 2005.
- Texas Geometry and Topology Conference**, *Rigidity of weakly hyperbolic standard actions of lattices in rank one Lie groups on nilmanifolds*, February 29, 2004
- Rice University** Geometry and Analysis Seminar *Rigidity for rank one lattice actions* October 2003.
- AMS Eastern Section Meeting**, *Smoothness of small conjugacies and rigidity of standard actions of rank one lattices*, Special Session on Rigidity in Dynamics, Geometry and Group Theory, April 12, 2003.

## Service

- Mathematical Conundrums** Williams College, Academic Year 2006-2007.  
Organized and set problems for College problem solving contest.
- VIGRE mathematical biology group** Rice University, 2003-2006.  
Post-doctoral advisor in working group on Mathematical Methods in Developmental Biology. Participated and later led investigations on modeling pattern formation in early development gene/protein networks. Advised and helped lead a group of graduate and undergraduate students in research.
- Colloquium Co-organizer** Rice Math Dept., Academic Year 2005-2006.
- Committee on Undergraduate Program** Rice Math Dept., Academic Year 2005-2006.
- Current Mathematics Seminar Co-organizer** Rice Math Dept., Spring Semester 2006.
- Academic Counseling** Rice University, Fall 2004-Spring 2006.  
Counsel freshman undergraduates from Baker College and Division of Natural Sciences on general course selection. Also counseled incoming students on the specifics of the mathematics program.
- Academic Counseling** University of Michigan, Summer 2001.  
Counseled incoming freshman undergraduates from College of Literature, Sciences and the Arts Honors program on mathematics course selection.

## Teaching Experience

**Visiting Assistant Professor** Williams College 2006-2007,  
Sophomore level courses in *Linear Algebra*, and *Discrete Mathematics*, and a Senior capstone course in *Geometric Ordinary Differential Equations*.

**Instructor** Rice University, 2003-2006,  
Primary instructor for classes at both the undergraduate and graduate level. Courses include: *Calculus I, II, III*, *Introduction to Ordinary Differential Equations and Linear algebra*, *Introduction to Partial Differential Equations*, and *Topics in Algebra: Introduction to Lie Groups and Lie algebras*. Supervised Reading courses for undergraduates: *Representation theory and particle physics*, Spring 2005, *Fuchsian Groups*, Fall 2005.

**Rice University Summer Institute**, Rice University, June-July 2005  
Instructor for Advanced Topics: Mathematics Instructed high school Advanced Placement and International Baccalaureate mathematics teachers in differential equations. Included lecturing on material beyond the high school curriculum, and discussion on bridging the gap between high school and college mathematics teaching and learning.

**Assistant Course Coordinator** University of Michigan, 2002-2003,  
Assistant Course Coordinator for Math 105, *Functions Modelling Change*.  
Responsible for training and mentoring new teachers, conducting observation and feedback visits for new instructors, maintenance of course website, writing exams for a large multi-section course, running weekly course meetings, and other duties which assist the course coordinator.

**Seminar Attendee** Center for Research on Learning and Teaching seminar: *Observing Classes*, *Collecting Midterm Student Feedback*, and *Giving Teaching Feedback to GSI's*, University of Michigan, September 2002.

**Graduate Student Instructor**, University of Michigan, 1998-2000  
Primary instructor for one section of a multi-section course. Responsible for all instruction, administration of quizzes and homework, office hours. Courses include: *Calculus I*, *Calculus II*, and *Functions Modelling Change*.