

Corey A. Hoelscher

PERSONAL INFORMATION

Department of Mathematics
Rutgers University
110 Frelinghuysen Road
Piscataway, New Jersey 08854-8019

Phone: 732-445-2390 ext. 5935
Fax: 732-445-5530
www.math.rutgers.edu/~coreyah

Born: 1979

Citizenship: USA

RESEARCH INTERESTS

Riemannian Geometry. Specifically, non-negative sectional curvature, Lie group actions and cohomogeneity one manifolds.

EDUCATION

University of Pennsylvania, Philadelphia, PA

Ph.D. in Mathematics, 2007.

- Thesis: Classification of cohomogeneity one manifolds in low dimensions
- Adviser: Wolfgang Ziller

M.A. in Mathematics, 2004.

- Thesis: Spaces of constant curvature

New York University, New York, NY

B.A. in Mathematics, 2002.

- Minors in Physics and Computer Science
 - Honors in Mathematics
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EMPLOYMENT

Rutgers University, New Brunswick/Piscataway, NJ

Fall 2007 - Present.

Hill Assistant Professor: A research and teaching post-doc.

University of Pennsylvania, Philadelphia, PA

Fall 2002 - Spring 2007.

Teaching Assistant, Research Fellow.

HONORS AND AWARDS

Project NExT Fellow, Mathematical Association of America, academic year 2008 - 2009.

Good Teaching Award, Department of Mathematics, University of Pennsylvania, Fall 2004.

Baccalaureate Latin Honor: *summa cum laude*, New York University, 2002.

Sidney Goldwater Roth Prize, for promise in mathematics and service to the department, Mathematics Department, New York University, 2002.

Phi Beta Kappa membership, 2002.

The Mathematics Prize, for excellence in mathematics and service to the department, Mathematics Department, New York University, 2001.

PAPERS AND
PUBLICATIONS

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- C. A. Hoelscher, *Classification of cohomogeneity one manifolds in low dimensions*, to appear in Pacific Journal of Mathematics.
- C. A. Hoelscher, *Diffeomorphism type of 6-dimensional cohomogeneity one manifolds*, to appear in Annals of Global Analysis and Geometry.
- C. A. Hoelscher, *On the homology of low dimensional cohomogeneity one manifolds*, to appear in Transformation Groups.
- C. A. Hoelscher, *Classification of cohomogeneity one manifolds in low dimensions*, Ph.D. Thesis, University of Pennsylvania, 2007.

TEACHING
EXPERIENCE

Rutgers University, New Brunswick/Piscataway, NJ

Assistant Professor

Fall 2007 - present

Responsible for every aspect of the course, including: making and grading exams, giving homework and quizzes, overseeing student graders, and managing the syllabus.

- *Introduction to Applied Mathematics*, Fall 2009.
- *Introduction to Linear Algebra*, Fall 2009.
- *Multivariable Calculus*, Fall 2009.
- *Introduction to the Theory of a Complex Variable*, Spring 2009.
- *Undergraduate Mathematics Seminar - Matrix Groups*, Spring 2009.
- *Introduction to Linear Algebra*, Fall 2008.
- *Multivariable Calculus*, Fall 2008.
- *Linear Algebra*, Spring 2008.
- *Introduction to Linear Algebra*, Fall 2007.

University of Pennsylvania, Philadelphia, PA

Instructor

Summer 2003 and 2004

Responsible for every aspect of the course, including: giving all the lectures, making and grading exams, homework and quizzes, and adhering to a prescribed syllabus.

- *Calculus II with Probability*, Summer 2004.
- *Calculus II*, Summer 2003.

Teaching Assistant

Fall 2002 - Spring 2005, Fall 2006 - Spring 2007

Responsible for running recitations, making quizzes, and grading homework, quizzes and some exams.

- *Calculus I, II, III* and *Calculus II with Probability*.
- *Ideas in Mathematics*, for non-majors.
- *Advanced Analysis*, a master's level course.

Other Jobs

Spring 2005

Grading for a master's level course on Curves and Surfaces.

New York University, New York, NY

Mathematics Department Tutor

Fall 2000 - Spring 2002

Responsible for tutoring undergraduates with all the beginning math courses.

Other Teaching Experiences

Instructor of English as a Second Language

Summer 2000 and 2002

Responsible for every aspect of two summer English courses abroad.

- Jiaying, China. Taught a one month course, 2002.
- San Salvador, El Salvador. Taught a ten week course, 2000.

TALKS AND
PRESENTATIONS

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| <i>Low dimensional cohomogeneity one manifolds</i> (contributed) Joint Mathematics Meetings, San Francisco. | Winter 2010 |
| <i>Low dimensional cohomogeneity one manifolds</i> (invited) Dartmouth Geometry and Topology Research Seminar, Hanover, NH. | Spring 2009 |
| <i>The topology of low dimensional cohomogeneity one manifolds</i> (invited) Rutgers Geometry and Topology Seminar, Piscataway, NJ. | Spring 2009 |
| <i>The topology of low dimensional cohomogeneity one manifolds</i> (contributed) Joint Mathematics Meetings, Washington, D.C. | Winter 2009 |
| <i>Topology of low dimensional cohomogeneity one manifolds</i> (invited) Pacific Northwest Geometry Seminar, Oregon State University, Corvallis, OR. | Fall 2008 |
| <i>Nonnegative curvature on low dimensional cohomogeneity one manifolds</i> (invited) Geometry-Topology Seminar, University of Pennsylvania, Philadelphia, PA. | Spring 2008 |
| <i>Cohomogeneity one manifolds and nonnegative curvature</i> (invited) AMS Special Session on Geometric Structures on Manifolds, Albuquerque, NM. | Fall 2007 |
| <i>Cohomogeneity one manifolds and nonnegative curvature</i> (invited) Rutgers Geometry and Topology Seminar, Piscataway, NJ. | Fall 2007 |
| <i>Cohomogeneity one manifolds and nonnegative curvature</i> (invited) Workshop on Curvature and Global Shape, Münster, Germany. | Summer 2007 |
| <i>Cohomogeneity one manifolds and nonnegative sectional curvature</i> (invited) Mathematics Colloquium, University of Central Florida, Orlando, FL | Spring 2007 |
| <i>Cohomogeneity one manifolds and non-negative curvature</i> (contributed) Joint Mathematics Meetings, New Orleans. | Winter 2007 |
| <i>Group actions and non-negative curvature</i> (contributed) Special Riemannian Geometry Working Seminar, University of Pennsylvania. | Fall 2006 |
| <i>Positively curved 4-manifolds with S^1 actions</i> (contributed) Graduate Geometry-Topology Seminar, University of Pennsylvania. | Spring 2005 |
| <i>Cohomogeneity one and bundles over S^4 with nonnegative sectional curvature</i> (contributed) Graduate Geometry-Topology Seminar, University of Pennsylvania. | Spring 2005 |
| <i>The Banach-Tarski paradox</i> (contributed) Graduate Pizza Seminar, University of Pennsylvania. | Spring 2005 |
| <i>The soul theorem and Perelman's proof of the Cheeger-Gromoll conjecture</i> (contributed) Graduate Geometry-Topology Seminar, University of Pennsylvania. | Fall 2004 |
| <i>The classification of surfaces</i> (contributed) Graduate Pizza Seminar, University of Pennsylvania. | Spring 2004 |

ADMINISTRATIVE
RESPONSIBILITIES
AND SERVICE

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| Article Referee | |
| The American Mathematical Monthly, Notes. | |
| Project NExT Panel Organizer MathFest, Portland, OR. | Summer 2009 |
| Undergraduate Mathematics Seminar Organizer, Rutgers University. | Spring 2009 |
| Graduate Student Associations Council Mathematics Department Representative, University of Pennsylvania. | Spring 2005 |
| Graduate Student Pizza Seminar Organizer, University of Pennsylvania. | Fall 2004 |

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| PROFESSIONAL MEMBERSHIPS | American Mathematical Society | 2002-Present |
| | Phi Beta Kappa | 2002-Present |

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| CONFERENCES ATTENDED | Joint Mathematics Meetings San Francisco, California. | Winter 2010 |
| | MathFest and Project NExT Workshop Portland, Oregon. | Summer 2009 |
| | Joint Mathematics Meetings and Project NExT Workshop Washington, D.C. | Winter 2009 |
| | Pacific Northwest Geometry Seminar Oregon State University, Corvallis, OR. | Fall 2008 |
| | MathFest and Project NExT Workshop University of Wisconsin, Madison WI. | Summer 2008 |
| | AMS Special Session on Geometric Structures on Manifolds University of New Mexico, Albuquerque, NM. | Fall 2007 |
| | Workshop on Manifolds with Nonnegative Sectional Curvature American Institute of Mathematics, Palo Alto, CA. | Fall 2007 |
| | Workshop on Curvature and Global Shape University of Münster, Münster, Germany. | Summer 2007 |
| | Joint Mathematics Meetings New Orleans, Louisiana. | Winter 2007 |
| | Future Directions in Global Riemannian Geometry University of Maryland, College Park, MD. | Fall 2006 |
| | Workshop on Curvature and Global Shape University of Münster, Münster, Germany. | Summer 2005 |
| | Geometry Festival SUNY Stony Brook, Stony Brook, NY. | Spring 2005 |
| | Conference in Hyperbolic Geometry and Geometric Analysis Wesleyan University, Middletown, CT. | Fall 2004 |
| | Lehigh Geometry and Topology Conference Lehigh University, Bethlehem, PA. | 2004 |
| | Geometry Festival Courant Institute, New York, NY. | 2004 |

REFERENCES

Research:

- Wolfgang Ziller. University of Pennsylvania
- Xiaochun Rong. Rutgers University
- Karsten Grove. University of Notre Dame
- Christine Escher. Oregon State University

Teaching:

- Eugene Speer. Rutgers University
- Robert Powers. University of Pennsylvania