

PETER D. HORN

Department of Mathematics - MS 136
Rice University
P.O. Box 1892
Houston, TX 77251-1892

(713) 446-3377
phorn@rice.edu
<http://math.rice.edu/~phorn>

EDUCATION

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|-----------|---|-------------|
| 2004-2009 | Rice University | Houston, TX |
| | <ul style="list-style-type: none">• Doctor of Philosophy, Mathematics, May 2009.• Master of Arts, Mathematics, May 2006.• Thesis advisor: Tim Cochran | |
| 2001-2004 | Hendrix College | Conway, AR |
| | <ul style="list-style-type: none">• Bachelor of Arts, Mathematics, May 2004, Summa Cum Laude.• Thesis advisor: Duff Campbell | |

RESEARCH INTERESTS

Low-dimensional topology, particularly the theory of knots and links and the group theory pertaining thereto.
Thesis title: *Higher-order analogues to genus and slice genus of classical knots.*

PUBLICATIONS AND PREPRINTS

A higher-order genus invariant and knot Floer homology, in preparation.
Higher-order signature cocycles for mapping class groups and homology cylinders, with Tim Cochran and Shelly Harvey, in preparation.
Higher-order genera of knots, submitted, <http://arxiv.org/abs/0807.0434>.
The non-triviality of the Grope filtrations of the knot and link concordance groups, submitted, <http://arxiv.org/abs/0804.2661>.
The first-order genus of a knot, *Mathematical Proceedings of the Cambridge Philosophical Society*, in press, <http://arxiv.org/abs/0712.1010>.
Modeling the impact of forest fragmentation on predator-prey populations, with Ryan Westbrook, *Pi Mu Epsilon Journal*, **12** (2004), no. 1.

RESEARCH TALKS

Higher-order genera of knots. Special Session in Low-dimensional Topology, Wesleyan University. 11 October 2008.
The Grope filtration and higher-order genera of knots. Fifty Years Since Fox and Milnor, a Conference in Honor of Jerry Levine, Brandeis University. 3 June 2008.
Higher-order genera of knots. Special Session in Knot and 3-manifold Invariants, AMS Sectional Meeting, Louisiana State University. 28 March 2008.
Non-triviality in the Grope filtration of the knot concordance group. Third Annual Louisiana-Texas Topology Retreat, Rice University. 9 February 2008.
Algebraic knot invariants. Undergraduate Mathematics Seminar, Trinity University. 8 February 2007.
Polynomials from topology, with Andrew Elliot and Shelly Harvey. Algebraic Geometry: a Conference for Undergraduate Mathematics Majors, Rice University. 11 February 2006.
Bipolar plots. Hendrix-Rhodes-Sewanee Undergraduate Mathematics Symposium, Rhodes College. 10 April 2004.
Bipolar plots. The Mathematical Association of America's MathFest, University of Colorado at Boulder. 31 July 2003.
Modeling the impact of forest fragmentation on predator-prey populations. REU-VIGRE Student Conference, Texas A&M University. 22 July 2003.

FELLOWSHIPS AND AWARDS

Lodieska Stockbridge Vaughn Fellowship, Rice University, 2008-2009. Awarded to a graduate student at Rice University who exhibits outstanding achievement and promise.

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NSF VIGRE Fellowship, Vertical Integration of Research and Education in Mathematical Sciences, Rice University, 2006-2008.

Graduate Fellowship, Rice University, 2004-2006.

Richard V. Andree Award, *Pi Mu Epsilon Journal*, 2004. Given to the authors of the best papers appearing in the *Journal*.

Walter E. Hogan Award, Hendrix College, 2004. Given to the senior mathematics major with high achievement in upper-level mathematics courses and with active participation in department activities.

Phillip E. Parker Undergraduate Research Award, Hendrix College, 2004. Given to a senior mathematics major for outstanding undergraduate research culminating in publication or presentation at a regional or national research conference.

Barry M. Goldwater Scholarship, 2003. Awarded to mathematics and science majors for high achievement in undergraduate research.

Elizabeth McHenry and Harry I. Lane Award, Hendrix College, 2002. Given to the freshman student with the highest achievement in the calculus sequence.

TEACHING

Instructor, Rice University

- Linear Algebra, Summer 2007.
- Ordinary Differential Equations and Linear Algebra, Summer 2006.
- Multivariable Calculus, Spring 2006
- Multivariable Calculus, Summer 2005.

Teaching Assistant, Rice University

- Geometric Topology, Fall 2008.
- General Topology, Spring 2008.
- Differential Geometry, Fall 2007.
- Algebraic Topology, Spring 2007.
- Honors Linear Algebra, Fall 2006.
- Ordinary Differential Equations, Fall 2005.
- Multivariable Calculus, Spring 2005.
- Single Variable Calculus, Fall 2004.

PROFESSIONAL DEVELOPMENT

Graduate Teaching Seminar, Department of Mathematics, Rice University, Fall 2004-Spring 2006.

Rice University Mathematical Institute for Young Women, Summer 2008. Purchased supplies and food as well as handle logistical considerations.

SERVICE

Graduate Student Liaison, Department of Mathematics, Rice University, 2005-present.

Oversee teaching assistant assignments, meet with Graduate Committee.

Peer Academic Mentor, Hendrix College, 2002-2003. Mentor a dozen freshman students regarding their personal, academic and extracurricular endeavors.

REFERENCES

Professor Tim Cochran

cochran@rice.edu

Professor Shelly Harvey

shelly@rice.edu

Professor John Hempel

hempel@rice.edu

Professor Kent Orr

korr@indiana.edu

Professor Robert Hardt (teaching)

hardt@rice.edu