

# Conrad Plaut

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## Education

PhD, Differential Geometry, University of Maryland, College Park, 1989

MS, Topology, University of Kentucky, Lexington, 1986

Fulbright Grant, University of Zagreb, 1983-4

BA, Mathematics and English, with honors, Guilford College, 1983

## Academic Positions

2005-present Director, UT Math Honors Program

2001-present Full Professor, University of Tennessee

2003-5 Undergraduate Associate Head, Mathematics, UT

2001 Visiting Researcher, Max Planck Institute for Math., Leipzig (2 months)

1999 Visiting Researcher, Swiss Federal Inst. of Tech., Zurich (2 months)

1999 Visiting Researcher, Max Planck Institute for Math., Leipzig (4 months)

1995-01 Associate Professor, University of Tennessee

1992-95 Assistant Professor, University of Tennessee

1990-2 Postdoctoral Instructor, Ohio State University

1989-90 Researcher, Max Planck Institute for Mathematics, Bonn

## Grants and Awards

2006-2009 \$88K, NSF, REU Site at University of Tennessee.

2005-2010 \$1.05 Million, NSF, Mentoring through Critical Transition Points (MCTP): UT Math Honors Program

2002-2006 \$309K, NSF: Appalachian Scholars in Computer Science and Mathematics

2001 \$3500, Max Planck Institute, Leipzig, Travel/Research Grant,

2000 \$5000, Tennessee Science Alliance Research Award

2000 \$10,000, (co-PI) NSF: UT Barrett Lectures

1999 \$12,000, Swiss Federal Inst. of Tech., Travel/Research Grant

1999 \$11,000, Max Planck Institute, Leipzig, Travel/Research Grant

1999 \$4000, UT Professional Development Research Award

1997 \$5000, Tennessee Science Alliance Research Award

1994-7 \$26,695, NSF: Geometry of Metric Spaces

1994 \$4800, UT Professional Development Research Award

**Research  
Publications**

1. with V.N. Berestovskii, "Covering R-trees", submitted  
[http://arxiv.org/PS\\_cache/arxiv/pdf/0707/0707.3609v2.pdf](http://arxiv.org/PS_cache/arxiv/pdf/0707/0707.3609v2.pdf)
2. "An equivalent condition for a uniform space to be coverable", to appear, *Top. and its Applications* 2008.
3. with Anthony E. English and Alan B. Moy, "A Riemannian manifold analysis of endothelial cell monolayer impedance parameter precision, *J. Math. Biol.* (2007) no. 5-6, 721-743.
4. with V. N. Berestovskii, "Generalized universal covers of uniform spaces, *Top. and its Applications* 154 (2007), no. 8, 1748-1777.
5. "Quotients of uniform spaces", *Top. and its Applications* 153 (2006) 2430-2444.
6. with V. N. Berestovskii, "The universal cover of the quotient of a locally defined group," *Topology. Proc.* 28 (2004) 1-9.
7. with V. N. Berestovskii, "Embedding Lattices in  $L^2([0,1],Z)$ ", *J. Geometry* 75 (2002) 27-45.
8. "Metric spaces of curvature  $\geq k$ ," Chapter 16, *Handbook of Geometric Topology*, Elsevier Scientific, 2002.
9. with U. Lang, "Bilipschitz embeddings of metric spaces into space forms," *Geom. Dedicata* 87 (2001) 285-307.
10. with V. N. Berestovskii, "Covering group theory for compact groups," *J. of Pure and Applied Algebra* 161 (2001) 255-267.
11. with V. N. Berestovskii, "Covering group theory for locally compact groups," *Top. and Its Applications* 114 (2001) 187-199.
12. with V. N. Berestovskii, "Covering group theory for topological groups," *Top. and Its Applications* 114 (2001) 141-186.
13. with V. N. Berestovskii, "Homogeneous spaces of curvature bounded below," *J.*

Geom. Analysis 9 (1999) 203-219.

14. with V. N. Berestovskii and C. Stallman, "Geometric groups I," Trans. AMS 351 (1999) 1403-1422.
15. "Geometry on groups," in Analysis on Infinite Lie Groups and Algebras, H. Heyer and J. Marion, ed., World Scientific (1998) 368-375.
16. "Geometrizing locally compact, infinite dimensional groups," Trans. AMS 348 (1996) 941-962.
17. "Spaces of Wald-Berestovskii curvature bounded below," J. Geom. Analysis 6 (1996) 113-133.
18. "Metric pinching of locally symmetric spaces," Duke Math J. 73 (1994) 155-162.
19. "Metric curvature, convergence, and topological finiteness," Duke Math. J. 66 (1992) 43-57.
20. "A metric characterization of manifolds with boundary," Comp. Math. 81 (1992) 337-354.
21. "Almost Riemannian spaces," J. of Differential Geometry 34 (1991) 515-537.

Invited Research Talks

**Seminar and  
Conference  
Presentations**

- "Generalized Universal Covers of Topologically Bad Spaces", University of Notre Dame (2008)
- "Covering R-trees", AMS conference, Middletown, CT (2008)
- "Generalized Universal Covers of Topologically Bad Spaces", University of Connecticut (2008)
- "Homotopy Critical Values and the UU-cover," Southeastern Geometry Conference, Columbia, SC (2008)
- "Generalized universal covers of uniform spaces," Topology and Applications Summer Conference, Statesboro, GA (2006)
- "Generalized universal covers of metric spaces," Southeastern Geometry Conference, Charleston, SC (2006)
- "Universal covers of uniform spaces," AMS conference, Bowling Green, KY (2005)
- "Universal covers of uniform spaces," Southeastern Geometry Conference, Columbia, SC (2005)
- "Bilipschitz embeddings of metric spaces in Euclidean space," AMS conference, Boulder CO (2003)
- "Schreier groups and their applications," Summer Conference on Topology and its

Applications, Washington DC (2003)

“Finitely presented groups arising from Schreier groups, Southeastern Geometry Conference, Birmingham (2003)

“Geometry of the groups  $L^p([0,1],Z)$ ,” Southeastern Geometry Conference (2002)

“Bilipschitz embeddings of metric spaces into space forms,” Colloquium, UTK (2000)

“Covering topologically uncooperative groups,” Colloquium, Indiana U. (2000)

“Bilipschitz embeddings of metric spaces into space forms,” Geometry Seminar, Indiana U. (2000)

“Bilipschitz embeddings and immersions of metric spaces into Euclidean spaces,” Geometry and Applications, devoted to the 70<sup>th</sup> birthday of Professor V.A.Toponogov, Novosibirsk, Russia (2000)

“Bilipschitz embeddings of metric spaces into Euclidean spaces,” Southeastern Geometry Conference, Charleston, SC (2000)

“Universal covers of groups with unpleasant topologies,” Geometry of Singular Spaces Workshop, ETH Zurich (1999)

“Geometric groups,” colloquium, Max Planck Institute, Leipzig (1999)

“Alexandrov spaces of curvature  $\geq k$ ,” two talks, Max Planck Institute, Leipzig (1999)

“Geometry and groups,” Geometrie, MF Oberwolfach, Germany (1998)

“The current state of Alexandrov spaces,” Southeastern Geometry Conference, University of Georgia (1998)

“Geometric Groups,” German-Russian Geometry Conference in Honor of A.D. Alexandrov, Euler Institute, St. Petersburg, Russia (1997)

“Geometries on Groups,” Conference on Analysis on Infinite Dimensional Lie Groups and Algebras, CIRM (Luminy), Marseille (1997)

“The stratified structure of Alexandrov spaces,” AMS meeting, Memphis (1997)

“Why Convexity?” U. of Rochester, Math/Physics Seminar, (1996)

“Survey of Alexandrov’s Spaces of Curvature Bounded Below,” International Geometrical School in Memory of N. V. Efimov, Abrau-Dorso, Russia (1996)

“Metric Groups,” Seminar, Vanderbilt University (1994)

“Non-negatively curved metrics on compact, infinite dimensional groups,” Western Workshop in Geometric Topology, Park City, Utah (1994)

“Geometry of infinite dimensional groups,” AMS meeting in Lexington, KY (1994)

“Associativity and the local version of Hilbert’s Fifth Problem,” seminar, University of Maryland (1993)

“Metric Geometry,” guest lecture, University of Maryland (1993)

“Beginnings of metric geometry in infinite dimensions,” Differential Geometry in the Large Conference, Mathematics Research Institute, Oberwolfach, Germany (1993)

“Metric geometry in infinite dimensions,” Differential Geometry Mini-workshop, Fields Institute, Waterloo, Canada (1993)

“Spaces of Wald Curvature bounded below,” seminar, University of Maryland (1992)

“Controlling topology using metric curvature,” colloquium, U. of Tennessee (1992)

“Metric Pinching of locally symmetric spaces,” AMS conf., Springfield, MO, 1992

“Spaces of Wald curvature bounded below,” conference on Classification of Manifolds, University of Tennessee (1992)

“Spaces with Wald curvature bounded below,” colloquium, University of South Carolina (1992)

“Almost symmetric spaces,” Geometry Seminar, University of South Carolina (1992)

“Controlling Topology via metric curvature,” Topology Seminar, University of Illinois (1991)

“Almost Riemannian Spaces,” Lehigh University Geometry and Topology Conference (1991)

“Inner Metric Spaces,” Journal of Undergraduate Mathematics Conference, Guilford College (1991)

“A metric proof of Toponogov’s Theorem”, seminar, Max Planck Institute (1990)

“How to do Riemannian Geometry if you don’t like tensors,” Harder-Hirzebruch-Zagier Seminar, Max Planck Institute (1989)

#### Other Invited Talks

“Don’t Ask Marilyn!”, Student/Faculty colloquium Augusta State University (2008)

“Don’t Ask Marilyn!”, Junior Colloquium, U. Tennessee (2008)

“The Hadamard Conjecture” Junior Colloquium, U. Tennessee (2008)

“What’s the point of studying surfaces that aren’t smooth?”, Junior Colloquium, U. Tennessee (2006)

“UT CSEMS and Math Honors”, AMS-CSEMS conference, Mississippi State University (2005).

“A pair of geometric inequalities”, Junior Colloquium, UT (2005)

“Don’t Ask Marilyn!”, Junior Colloquium, UT (2004)

“The Hadamard Matrix Conjecture”, Junior Colloquium, UT (2003)

“The Hadamard Matrix Conjecture”, Maryville College Math Club (2003)

“The Pythagorean Mistake,” Faith in the Future Lecture Series, Guilford Coll. (2002)

“Schreier groups,” MASS Undergraduate Research Sem., Penn State U. (1999)

“Don’t ask Marilyn!” Math Club, Maryville College, Maryville, TN (1998)

**MS/PhD Students** Jay Wilkins, beginning dissertation work.

David Phillippi, M.S., University of Tennessee, 2003, PhD, 2007.

Tamara Bouma, M.S., University of Tennessee, 2001

Craig Spencer, M.S., University of Rochester, 1996

Cornelius Stallman, Ph.D., University of Tennessee, 1996

**Service** Mathematical Reviews (over 40 reviews)

NSF Panelist (MCTP program, 2005, 2006, 2007)

Reviewer for: National Science Foundation (Geometric analysis and topology, MCTP), J. Diff. Geo., Invent. Math, Transactions American Mathematical Society, Proceedings AMS, Duke Math J., Mat. Zeitschrift, Comm. Analysis and Geometry, J. Geometry

Organizer: Barrett Lectures, UTK, 2000 (with A. Freire and B. Guan)

Creator/manager: Geometry Conference List, announcing conferences to 1100 mathematicians via e-mail

**Departmental Committees:** Advisory 1996-98, 2003-5, Associate Heads (2003-5), Bylaws revision (2005-6), CIS Honors (chair) (1999-00), Departmental Restructuring (co-chair) (2001-2), Geometry-Topology Prelim (2006-7); Graduate Advising (1998, chair 00-01), Graduate Recruiting (chair) (1999-00), Hiring (1995-96, 1999-00, 2006-7, 2007-8), Honors (2005-8), Increase Undergraduate Enrollment (1998-00), Instructor Evaluation (2006), Junior Colloquium (chair) (2002-6) Tennessee Math Contest (1999-01), Undergraduate (1992-96, 1999-00, 2003-

present)

**University Committees:** Honors Curricular Committee (2004-5), Humanities Divisional Curriculum Committee (2003-5), Chancellor's Scholarship Committee (2003-6 and 2007-8), University Honors Selection Committee (2006), Goldwater Scholarship nomination committee (2007), Faculty Advisory Committee, Office of External Scholarships (2008).

**Outreach**

Math Coach, Maryville High (2003-6); Science Olympiad volunteer (2002-3); Team manager, Destination Imagination (2001-2); volunteer, Maryville High Band and Orchestra; Math Ambassadors organizer; high school visits.