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Conrad Plaut

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

2012-present	UT Mathematics Department Head
2005-2012	Director, UT Math Honors Program
2003-5	Undergraduate Associate Head, Mathematics, UT
2001-present	Full Professor, University of Tennessee
2001	Visit. Researcher, Max Planck Institute for Math., Leipzig (2 months)
1999	Visit. Researcher, Swiss Federal Inst. of Tech., Zurich (2 months)
1999	Visit. 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	Postdoctoral Researcher, Max Planck Institute for Mathematics, Bonn

Grants and Awards

2016 $38K, NSF, Smoky Great Plains Geometry Conference (PI)

2015 $31.5K, NSF, Smoky Great Plains Geometry Conference (co-PI)

2014 $2000, Pro2Serve, grant to study UT/Pro2Serve contest participation (PI)

2014 $33K, NSF, Smoky Cascade Geometry Conference (co-PI)

2013 $16.5K, NSF, 2013 Barrett Lectures (PI)

2005-2012 $1.05 Million, NSF, Mentoring through Critical Transition Points: UT

Math Honors Program (PI)

2011 $25K, NSF, 2011 Barrett Lectures (Co-PI)

2007-2011 $177K, NSF: REU Site at University of Tennessee (PI)

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

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

2000 $5000, Tennessee Science Alliance Research Award

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

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 (PI)

1994 $4800, UT Professional Development Research Award

Research Publications	1. with Jay Wlkins, Essential circles and Gromov-Hausdorff convergence of covers, J. Analysis and Topology, 8 (2016), no. 1, 89–115.

2. with Jim Conant, Victoria Curnutte, Corey Jones, Kristen Pueschel, Maria Walpole and Jay Wilkins, Discrete homotopy theory and critical values of metric spaces, Fund. Math. 227 (2014), no. 2, 97–128.

3. with Jay Wilkins, Discrete homotopies and the fundamental group. Adv. Math. 232 (2013), 271–294

4. with V.N. Berestovskii, "Covering R-trees, R-free groups, and dendrites". Adv. Math. 224 (2010), no. 5, 1765–1783.

5. "An equivalent condition for a uniform space to be coverable", Topology and its Applications 156 (2009), 594-600.

6. 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.

7. with V. N. Berestovskii, "Generalized universal covers of uniform spaces, Top. and its Applications 154 (2007), no. 8, 1748-1777.

8. "Quotients of uniform spaces", Top. and its Applications 153 (2006) 2430-2444.

9. with V. N. Berestovskii, "The universal cover of the quotient of a locally defined group," Topology. Proc. 28 (2004) 1-9.

10. with V. N. Berestovskii, "Embedding Lattices in L²([0,1],Z)", J. Geometry 75 (2002) 27-45.

11. "Metric spaces of curvature ≥k," Chapter 16, *Handbook of Geometric Topology*, Elsevier Scientific, 2002.

12. with U. Lang, "Bilipschitz embeddings of metric spaces into space forms," Geom. Dedicata 87 (2001) 285-307.

13. with V. N. Berestovskii, "Covering group theory for compact groups," J. of Pure and Applied Algebra 161 (2001) 255-267.

14. with V. N. Berestovskii, "Covering group theory for locally compact groups," Top. and Its Applications 114 (2001) 187-199.

15. with V. N. Berestovskii, "Covering group theory for topological groups," Top. and Its Applications 114 (2001) 141-186.

16. with V. N. Berestovskii, "Homogeneous spaces of curvature bounded below," J. Geom. Analysis 9 (1999) 203-219.

17. with V. N. Berestovskii and C. Stallman, "Geometric groups I," Trans. AMS 351 (1999) 1403-1422.

18. "Geometry on groups," in Analysis on Infinite Lie Groups and Algebras, H. Heyer and J. Marion, ed., World Scientific (1998) 368-375.

19. "Geometrizing locally compact, infinite dimensional groups," Trans. AMS 348 (1996) 941-962.

20. "Spaces of Wald-Berestovskii curvature bounded below," J. Geom. Analysis 6 (1996) 113-133.

21. "Metric pinching of locally symmetric spaces," Duke Math J. 73 (1994) 155-162.

22. "Metric curvature, convergence, and topological finiteness," Duke Math. J. 66 (1992) 43-57.

23. "A metric characterization of manifolds with boundary," Comp. Math. 81 (1992) 337-354.

24. "Almost Riemannian spaces," J. of Differential Geometry 34 (1991) 515-537.

Seminar and Conference Presentations

Invited Research Talks

"Essential Circles and their Applications," Workshop on Analysis and Probability, Texas A&M (2016)

"Applications of Discrete Homotopy Theory," Geometry and Geometric Topology Seminar, Karlsruhe Institute of Technology, Germany (2015)

"Applications of Discrete Homotopy Theory," Geometry Seminar, ETH-Zurich, Switzerland (2015)

"Convergence of Epsilon-Covers", Workshop on Analysis and Geometry on Metric Spaces, Madrid, Spain (2015)

"Discrete Homotopies and the Fundamental Group", Cornell Fractals 5 Conference, Ithaca, NY (2014)

"Introduction to Gromov-Hausdorff Convergence", CUNY Graduate School Workshop on Gromov-Hausdorff convergence (2014)

"Gromov-Hausdorff Convergence of epsilon-covers", CUNY Graduate School Workshop on Gromov-Hausdorff convergence (2014)

"A new topological invariant and its relation to geometric structures," AMS Southeast Sectional Meeting, Knoxville, TN (2014)

"Applications of Discrete Homotopy Theory", Curvature and Global Shape Conference, Muenster, Germany (2013)

"Topology via Two Discrete Methods", Oregon State University Colloquium, Corvalis, Oregon (2012)

"Discrete Homotopies and the Fundamental Group", Cascade Topology Seminar, Eugene, Oregon (2012

"The Homotopy Critical Spectrum of a Metric Space I", 4th Cornell Conference on Analysis, Probability, and Mathematical Physics on Fractals (2011)

"The R-Tree is the Mother of all Geodesic Spaces" Topology of Wild Spaces and Fractals, Strobl, Austria (2011).

"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)

"UT CSEMS and Math Honors", AMS-CSEMS conference, Mississippi State University (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 70th 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 ≥k," two talks, Max Planck Institute, Lepzig (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 Instutute, 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 symmetic 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, Univeristy 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)

Invited Talks for Undergraduates and/or Public

"Don't Ask Marilyn!", Student/Faculty colloquium Augusta State University (2008)

"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)

Volunteered Talks for Undergraduates at UT

"Don't Ask Marilyn!", Junior Colloquium, U. Tennessee (2004, 2008)

"The Hadamard Matrix Conjecture", Junior Colloquium, UT (2003, 2008)

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

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

MS/PhD Students   Ellie Abernethy, PhD, expected 2016.

Jay Wilkins, PhD, 2011, UT (Postdoc, U. Conn., Asistant Prof., UC-Pembroke)

David Phillipi, PhD, 2007, M.S., 2003, UT (Adjunct, Maryville College)

Tamara Bouma, MS, UT, 2001 (Employed in Industry)

Craig Spencer, MS, U. of Rochester, 1996 (Physics PhD program, RPI)

Cornelius Stallman, PhD, UT, 1996 (Tenure-track, Augusta State University)

Service to Mathematical Community   Mathematical Reviews (over 40 reviews)

NSF Panelist (2005, 2006, 2007, 2009, 2011)

Reviewed proposals and papers for: NSF, J. Differential Geometry, Invent. Math, Transactions of the AMS, Proceedings of the AMS, Duke Math J., Mat. Zeitschrift,

Comm. Analysis and Geometry, J. Geometry, Archiv der Mathematik, Topology Proceedings

Organizer: Barrett Lectures, UTK, 2000 (with A. Freire and B. Guan) , 2010 (with F. Schwartz and A. Freire), 2013 (with F. Schwartz); Special session on metric geometry and topology, AMS Southeastern Sectional meeting 2014 (with Catherine Searle and Jay Wilkins); Co-organizer Smoky Cascade/Great Geometry Conference 2014-2016). Local organizer AMS regional conference, 2014.

Creator/manager: Geometry List, announcing geometry-related conferences at no cost to over 1500 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 (2005-12), Increase Undergraduate Enrollment (1998-00), Instructor Evaluation (2006), Junior Colloquium (chair) (2002-6) Tennessee Math Contest Organizer (1999-01), Undergraduate (1992-96, 1999-00, 2003-12)

University Service: Honors Curricular Committee (2004-5), Humanities Divisional Curriculum Committee (2003-5), Chancellor's Scholarship Committee (2003-6 and 2007-9), University Honors Selection Committee (2006), Goldwater Scholarship nomination committee (2007-9), Faculty Advisory Committee, Office of External Scholarships (2008-9). Faculty Senate (2009-10) Chancellor's Honors Steering Committee (2009-10) Hiring Committee, Arts and Sciences Associate Dean for Academic Programs (2010), Chair of Hiring Committee, Micro Head search (2015), Gen Ed Revision Task Force (2014-16)

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.