

December, 2008

**VITAE**

Michael L. Mihalik

**PERSONAL**

**Born**

April 20, 1951 Brownsville, Pennsylvania

**Citizenship**

USA

**Address**

Department of Mathematics  
1326 Stevenson Center  
Vanderbilt University  
Nashville, TN 37240  
U. S. A.

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**ACADEMIC**

**Professional Experience**

Professor of Mathematics, Vanderbilt University, 1998-present

Chair, Department of Mathematics, Vanderbilt, 2000-2005

Associate Professor of Mathematics, Vanderbilt University, 1988 - 1998

Assistant Professor, Vanderbilt University, 1982 - 1988

Postdoctoral Instructor, University of Utah, 1979 - 1982

Teaching Assistant, SUNY Center at Binghamton, New York - 1975 - 1979

Teaching Assistant, University of Georgia 1973 - 1975

**Academic Degrees**

Doctor of Philosophy in Mathematics, SUNY Center at Binghamton New York, 1979

Masters SUNY Center at Binghamton New York, 1977

Bachelor of Science in Mathematics, California State College, California, Pennsylvania, 1973

**Grants**

National Science Foundation Research Grant MSC-8243691, The Strong Ends of a Group (7/1/82 - 6/30/84) Principal Investigator: M.L.Mihalik

Vanderbilt University Summer Research Fellowship, Summer 1985

Vanderbilt University Summer Research Fellowship, Summer 1987

National Science Foundation, International Research Experience for Graduate Students: Vanderbilt University Department of Mathematics and INRIA-Sophia Antipolis (12/15/03 - 12/14/06). Extended 12/15/06-12/14/09. Co-Investigator.

## Academic Leave

Vanderbilt University 1/96 - 5/96

Centre de Recerca Mathematica Institut. D'Estudis Catanans, Spain 11/92

Mathematical Science Research Institute - Berkeley Calif., 1/89 - 5/89

Vanderbilt University 9/05 - 9/06

## Specialization

Geometric Group Theory

Algebraic Topology

Low Dimensional Topology

Non-Positively Curved Geometry

Coxeter Groups

## Conferences organized:

10<sup>th</sup>-Annual International Shanks Conference, 1994.

13<sup>th</sup>-Annual International Shanks Conference, 1998.

2004 Southeast Regional Meeting of the American Mathematical Society

Special Session (with Mark Sapir)- Topological aspects of group theory.

21<sup>st</sup>-Annual International Shanks Conference, 2006.

Appointed to the Organizational Committee for the 43<sup>rd</sup> Spring Topology and Dynamical Systems Conference

## Abstracts of Papers

### Presented to the AMS

1. 'The proper homotopy and end theory of non-trivial group extensions'. Issue 5, (1980), 499.
2. 'The proper homotopy of non-trivial group extensions'. Issue 13, (1981), 557.
3. 'The strong ends of a group'. Annual meeting of the AMS, Cincinnati OH. Issue 15, (1982), 106.
4. 'Free abelian homology of groups' (with R. Geoghegan). Annual meeting of the AMS, Cincinnati OH. Issue 15, (1982), 105.
5. 'Normal subgroups and semistability at  $\infty$  of finitely presented groups'. Issue 23, (1983), 214.
6. 'Ends of finitely presented groups'. Joint summer research conference in the mathematical sciences. Bowdin College, Brunswick Maine. Issue 35, (1984), 427.
7. 'End invariants of finitely presented groups'. Regional meeting of the AMS, San Antonio TX. Issue 48 (1987), 39.

8. 'Ends and group cohomology of amalgamated products and HNN-extensions' (with S. Tschantz). Regional meeting of the AMS, Salt Lake City UT. Issue 52, (1987), 334.
9. 'End invariants and cohomology of finitely presented groups'. Regional meeting of the AMS, University of Maryland, College Park MD. Issue 57, (1988), 246.
10. 'Ends and cohomology of amalgamated products and HNN-extensions' (with S. Tschantz). Regional meeting of the AMS, Los Angeles CA. Issue 65, (1989), 387.
11. 'Compactifying certain covers of 3-manifolds'. International joint mathematics meeting, Vancouver BC, Canada. Issue 89, (1993), 468.
12. 'Compactifying covers of 3-manifolds'. Regional meeting of the AMS, Lexington KY. Issue 93, (1994), 261.
13. 'Normal subgroups and end invariants of groups'. Regional meeting of the AMS, Greensboro NC. Issue 102, (1995), 831.
14. 'Local connectivity of certain amalgamated products' (with K. Ruane). Regional meeting of the AMS, Greensboro NC. Issue 102, (1995), 832.
15. 'Tame combings of groups'. Regional meeting of the AMS, LSU, Baton Rouge LA. Issue 104, (1996), 413.
16. 'CAT(0) groups with non-locally connected boundary' (with K. Ruane). Regional meeting of the AMS, Chattanooga TN. Issue 105 (1996).
17. 'Non-locally connected boundaries of Artin and Coxeter Groups and Extensions of  $F_2$  by  $Z$ ' (with K. Ruane). Regional meeting of the AMS, Milwaukee WI. Issue 110 (1997).
18. 'Visual decompositions of Coxeter groups' (with S. Tschantz), Special session AMS Meeting, Las Vegas, Nevada, April (1999)
19. 'JSJ decompositions of Coxeter groups' (with S. Tschantz), Special session AMS Annual Meeting, New Orleans, LA (January 2001)
20. 'Maximal FA subgroups of Coxeter groups', Special session AMS Annual Meeting, Las Vegas, Nevada (April 2001)
21. 'A Classification of the Even Rigid Coxeter Groups' Special session AMS regional meeting, Atlanta Ga. (March 2002)
22. 'The Even Isomorphism Theorem for Coxeter Groups' Special session AMS meeting, SUNY Center at Binghamton, NY. (October 2003)
23. 'JSJ Decompositons of Coxeter Groups' Special session AMS meeting, Bowling Green, Ky. (March 2005)
24. 'Minimal Splittings of Coxeter Groups' Special session AMS meeting, Lincoln, Nebraska (October 2005)

## Bibliography

1. ‘Ends of fundamental groups in shape and proper homotopy’, *Pac. J. Math.(2)* **90**(1980), 431-458.
2. ‘Semi-stability at the end of a group extension’, *Trans. Amer. Math. Soc.* **277** (1983), 307-321.
3. ‘Free Abelian Cohomology of groups and ends of universal covers’ (with R. Geoghegan), *J. Pure Appl. Algebra* **36**(1985), 123-137.
4. ‘Ends of groups with integers as a quotient’, *J. Pure Appl. Algebra* **35**(1985), 305-320.
5. ‘Ends of double extension groups’, *Topology* **25**(1986), 45-53.
6. ‘Semistability of finitely generate groups and solvable groups’, *Topology Appl.* **24**(1986), 259-269.
7. ‘A note on the vanishing of  $H^n(G; ZG)$ ’ (with R. Geoghegan), *J. Pure Appl. Algebra* **39**(1986), 301-304.
8. ‘Solvable groups that are simply connected at  $\infty$ ’, *Math. Zeit.* **195**(1987) 79-87.
9. ‘Semistability at  $\infty$ ,  $\infty$ -ended groups and group cohomology’, *Trans. Amer. Math. Soc.(2)* **303**(1987), 479-485.
10. ‘Notes on negatively curved groups’ (with J.M. Alonso, T. Brady, D. Cooper, V. Ferlini, M. Lustig, M. Shapiro, H. Short (editor)), In proceedings of the workshop of *Group Theory from a Geometrical Viewpoint- ICIP*, Trieste, Italy (1991), *World Scientific*, edited by A. Haefliger, E. Ghys and A. Verjovsky, 3-63.
11. ‘Ends of amalgamated products and HNN extensions’ (with S. Tschantz), *Mem. Amer. Math. Soc. (# 471)* **98**(1992).
12. ‘One relator groups are semistable at  $\infty$ ’ (with S. Tschantz), *Topology (4)* **31**(1992), 801-804.
13. ‘Semistability of amalgamated products, HNN-extensions and all one relator groups’ (with S. Tschantz), *Bull. Amer. Math. Soc.(1)* **26**(1992), 131-136.
14. ‘Quasiconvex subgroups of hyperbolic groups’ (with W. Towle), *J. Pure Appl. Algebra* **95**(1994), 297-301.
15. ‘Group extensions are QSF’ (with S. Brick), *Bull. Austral. Math. Soc.(1)* **50**(1994), 21-28.
16. ‘The QSF property for groups and spaces’ (with S. Brick), *Math. Zeit.(2)* **220**(1995), 207-218.
17. ‘Semistability of Artin and Coxeter groups’, *J. Pure Appl. Algebra* **111**(1996), 205-211.
18. ‘The fundamental group at infinity’ (with R. Geoghegan), *Topology(3)* **35**(1996), 665-669.

19. ‘Semistability at infinity, simple connectivity at infinity and normal subgroups’, *Topology Appl.*(3) **72**(1996), 273-281.
20. ‘Compactifying covers of 3-manifolds’. *Comment. Math. Helv.* **71**(1996), 362-372.
21. ‘Tame combings for groups’ (with S. Tschantz). *Trans. Amer. Math. Soc.* **349** No. 10(1997) 4251-4264.
22. ‘Group extensions, HNN-extensions and tame pairs’, *Trans. Amer. Math. Soc.* **381**, No. 2(1999) 1095-1107.
23. ‘CAT(0) groups with non-locally connected boundary’ (with K. Ruane) *J. London Math. Soc. (2)* **60**(1999) 757-770.
24. ‘CAT(0) HNN-extensions with non-locally connected boundary’ (with K. Ruane) *Topology Appl.* **100**(2001) 83-98.
25. ‘Ascending HNN extensions of finitely generated free groups are Hopfian’ (with R. Geoghegan, M. Sapir and D. Wise), *Proc. London Math. Soc.* **33**(2001) 292-298.
26. ‘Reflection independence in even Coxeter groups’ (with P. Bahls) *Geom. Dedicata* **110**(2005) 63-80.
27. ‘Homotopy of ends and boundaries of CAT(0)-groups’ (with G. Conner and S. Tschantz), *Geom. Dedicata* **120**(2006) 1-17.
28. ‘The even isomorphism theorem for Coxeter groups’ *Trans. Amer. Math. Soc.* **359**, No. 9(2007) 4297-4324.
29. ‘Locally connected of right-angled Coxeter groups boundaries’ ( joint with K. Ruane and S. Tschantz), *J. Group Theory* **10**, No. 4(2007) 531-560.
30. ‘Matching theorems for systems of a finitely generated Coxeter group’ (with J. Ratcliffe and S. Tschantz), *Algebr. Geom. Topol.* **7** (2007) 919-956.
31. ‘Quotient isomorphism invariants of a finitely generate Coxeter group’ (with J. Ratcliffe and S. Tschantz), In - *Aspects of Infinite Groups*, Ed. B. Fine, G. Rosenberger, and D. Spellman, *Algebra Discrete Math.* **1** (2008), 16pp. World Sci. Publ., Hackensack NJ.
32. ‘On the rank of a Coxeter group’ (with J. Ratcliffe), *J. Group Theory*, 16pp. (accepted 6/6/08).
33. ‘Visual decompositions of Coxeter groups’ (with S. Tschantz), *Groups, Geometry, and Dynamics*, (accepted 8/8/08).

Submitted-  
Work in Progress

1. ‘Centralizers of elements in right-angled Coxeter groups’ (with S. Tschantz) (Preprint)
2. ‘JSJ decompositions of Coxeter groups over virtually abelian splittings’ (Submitted)
3. ‘Minimal splittings of Coxeter groups’ (with S. Tschantz) (Preprint)

## Recent talks

4. ‘Geodesically tracking quasi-geodesic paths for Coxeter groups’ (with K. Ruane and S. Tschantz) (Preprint)

University of Maryland, Special session in geometric methods in group theory, April 1988.

MSRI, Automatic-hyperbolic groups seminar. March 1989.

MSRI, Automatic-hyperbolic groups seminar. April 1989.

UCLA, Topology seminar, April 1989.

MSRI, Automatic-hyperbolic groups seminar, May 1989.

Math. Inst. Oberwolfach, Federal Republic of Germany, Topological methods in group theory, October 1989.

UCLA, Special session on geometric methods in group theory, Nov. 1989.

Tennessee Tech., Tennessee Topology Conference, Dec. 1990.

SUNY, Albany, Conference on topology and group theory, Oct. 1991.

SUNY, Binghamton, Colloquium, Jan. 1992.

Cornell Univ., Group theory seminar, Jan. 1992.

Math. Inst. Oberwolfach, Germany, Geometric methods in group theory, Apr. 1992.

U. Tenn., Cohomological dimension, May 1992.

U. Tenn., Conference on low-dimensional topology, May 1992.

Center de Recerca Matematica, Barcelona, Spain, Geometric methods in group theory, Nov.-Dec. 1992 (Two talks).

Florida State Univ., Colloquium Talk, Feb. 1993.

Vancouver British Columbia, Joint AMS, Canadian Math. Soc. meeting, special session on geometric group theory, August 1993.

Lexington Kentucky, AMS Conference, special session on negatively curved groups, March 1994.

U. of South Ala., Colloquium, March 1994.

Georgia Tech Univ., Colloquium, Oct. 1994.

SUNY at Albany, Conference on group theory and topology, Oct. 1994.

University of Stockholm, Sweden, Colloquium, Jan. 1995.

Greensboro N.C., AMS regional conference, Topological methods in group theory, Nov. 1995.

Math. Inst. Oberwolfach, Germany, Topological methods in group theory, Dec. 1995.

Baton Rouge La., AMS regional conference, Topological methods in group theory, April 1996.

Chattanooga, Tn., AMS regional conference, Geometric Topology, Oct. 1996.

Milwaukee, Wi. AMS regional conference, Low dimensional topology and geometric group theory, October 1997.

University of South Alabama, Mobile Al., Group theory conference, March 1998.

Vanderbilt University, Nashville Tn. Conference on geometry, topology and group theory, May 1998.

SUNY Albany, Geometric Group Theory Conference, November, 1998.

University of Nevada Las Vegas, Special Session AMS Meeting, April 1999.

University of South Alabama, Mobile Al., Group theory conference, April 1999.

University of South Alabama, Mobile Al., Group theory conference, March 2000.

University of Nebraska, Lincoln NE., Group theory conference, May 2000.

University of Haifa (Technion), Israel, Group theory conference, June 2000.

Special session AMS Annual meeting, New Orleans, LA January 2001.

Special session AMS meeting, Las Vegas, Nevada, April 2001.

SUNY Albany group theory conference, October 2001.

Special session on low dimensional topology, AMS sectional meeting Atlanta, March 2002.

University of Florida Workshop on geometric topology, March 2002.

$G^3$ -Conference in Pensacola, Florida, November 2002.

Colloquium SUNY Center at Binghamton, March 2003.

Conference on geometric group theory, Texas Tech University, March 2003.

International group theory conference in Gaeta, Italy, June 2003.

Special session of geometric group theory, AMS sectional meeting SUNY Center at Binghamton, NY, October 2003.

Workshop on Geometric Group Theory, Bedlewo (Poland), Conference Center, April 2004.

Special session of geometric group theory, AMS sectional meeting Bowling Green, Ky, March 2005.

Special session of geometric group theory, AMS sectional meeting, Lincoln Nebraska, October 2005.

SUNY Binghamton, two hour-long seminar addresses, February 23 and 24, 2006.

21<sup>st</sup> Annual Shanks Conference, Nashville Tennessee, May 2006.

2007  $G^3$  Conference, New Orleans, La. Jan. 2007.

Spring Topology and Dynamical Systems Conference, Rolla Missouri, March 2007.

## University Service

42<sup>nd</sup> Spring Topology & Dynamical Systems Conf., Milwaukee, Wi. March 2008.

Analysis of Groups Conference, San Juan - Puerto Rico, March 2008.

Faculty Senate, 1985.

Colloquium Chairman, 1984-86, 1995-96.

Freshman advisor, 1987, 1993-97.

Subcommittee for natural sciences, 1988-93.

Vanderbilt summer research proposal review committee, 1993-95.

Premajor Advisor 1995-.

Committee on Publicity, 1994-95.

Head organizer for April 1994 Shanks lectures and conference.

Committee on graduate student teaching, 1996-.

Graduate Committee, 1997-.

Organized first Vanderbilt topology teleconference. Joint with SUNY-Binghamton and Lafayette College, 1998.

Head organizer for May 1998 Shanks lectures and conference.

Graduate Faculty Council, 1998-2000.

Faculty Senate 1999-2002.

Preliminary Examination Committee 1999-.

Chair, Mathematics Department 2000-2005.

2000-02 Vanderbilt Community Giving Campaign Allocations Committee

Strategic Academic Planning Committee (SAPCAS) 2001-02

Search committee for chair in Physics department 2002-03.

Advisory Committee to the Chair (Mathematics) 2005-.

Departmental space committee chair 2005-06.

Associate Director of Graduate Studies 2007-08.

Department Search Committees for Both Tenure Track and Non-tenure Track 2007-08.

College of Arts and Sciences Dean Search Committee 2008-09.

Chair Department Faculty Search Committee. 2008-09.

## Hiring Committees

Committee for the deposition of statistics positions.

Committees for filling tenure track positions in topology resulting in the hiring of:

*J. Ratcliffe*

*B. Hughes*

*M. Baker*

*E. Prassidis*

*G. Yu*

Committees for filling 2-3 year post-doc. positions resulting in the hiring of:

*D. Rohm*

*J. Roberts*

*B. Speiler*

*P. Ontaneda*

*K. Ruane*

*B. Okun*

Committee for hiring Stevenson Professor of Mathematics (L. Schumaker)

Committee for filling a Senior Position in Algebra (M. Sapir)

## Hires while Chair

Centennial Professor E. DiBenedetto

Professor E. Saff

Professor D. Bisch

Professor G. Kasparov

Distinguished Professor A. Connes

Assistant Professor D. Manoussaki

Assistant Professor A. Powell

## Renegotiated Contracts

Professor G. Yu

Centennial Professor M. Sapir

Professor A. Aldroubi

## Ph.D. Students

Joseph Profio, Dissertation Title: Group extensions that are simply connected at  $\infty$ . Ph.D. awarded Spring 1988. Currently employed at the Naval Research Lab. in Washington, D.C.

Patrick Bahls Dissertation Title: Even rigidity in Coxeter groups. Ph.D. awarded Spring 2002. Employed as a VIGRE post-doc at University of Ill. Urbana-Champaign 2002-05. Currently Associate Professor of Mathematics University of North Carolina (Asheville).

Nikolay Silkin Dissertation Title: On Connectivity at Infinity of Extended Lamplighter Groups. Ph.D. awarded Summer 2003. Currently employed as Assistant Professor at University of Northern Iowa.

## Ph.D Committees

*M. Weippert* (Physics -Current)

*A. Muranov* (2006)

*S. Borodachov* (2006)

*D. Sonkin* (2005)

*A. Minasyan* (2005)

*N. Silkin* (2003)

*M. Maroti* (2002)

*P. Bahls* (2002)

*D. Jennings* (2002)

*A. Alewine* (2001)

*K. Grambling* (2001)

*K. Blount* (2000)

*T. Morton* (2000)

*C. Timar* (1999)

*A. Beshears* (1997)

*J. Rickert* (1995)

*J. Ramey* (1994)

*A. Al-Khayer* (1993)

*M. Freed* (1993)

*W. Towle* (1993)

*T. Bass* (1992)

*L. Brewer* (1992)

*T. Haynes* (1991)

Professional Service

*B. Lyon* (1991)  
*A. Aluthige* (1990)  
*J. Jones* (1990)  
*B. Rosa* (1989)  
*J. Profio* (1988)

**Journal articles and books recently reviewed for Math. Reviews:**

MR 2409178 Natalia Kopteva and Gerald Williams *The Tits alternative for non-spherical Pride groups* Bull. London Math. Soc 40 (2008)57-64.

MR 2391638 Seong Kun Kim *On the asphericity of length-6 relative presentations with torsion-free coefficients*. Proceedings of the Edinburgh Math. Soc. 51 (2008)201-214.

MR 2358968 Moon-Ok Wang *On a family of balanced groups*, J. Korean Math. Soc. 44 No. 6 (2007)1469-1477.

MR2298855 Lafont, Jean-Francois *Diagram rigidity for geometric amalgamations of free groups*. J. Pure and Appl. Algebra 209 (2007)771-780. 20F65 (57M20)

MR2319456 Osajda, Damian *Connectedness at infinity of systolic complexes and groups*. Groups Geom. Dyn 1 (2007), 183-203. 20F65 (57M07).

1 709 311 Feighn, Mark and Handel, Michael *Mapping tori of free group automorphisms are coherent*. Annals of Math. 149 (1999) 1061-1077.

1 703 216 Hermiller, Susan and Shapiro, Michael *Rewriting Systems and Geometric Three-Manifolds* Geometriae Dedicata 76 (1999) 211-228.

99k:20075 Miller, Charles F., III; Shapiro, Michael *Solvable Baumslag-Solitar groups are not almost convex*. Geom. Dedicata 72 (1998), no. 2, 123-127.

1 675 166 Brady, Noel; Meier, John *Connectivity at infinity for right angled Artin groups*. Trans. Amer. Math. Soc.

1 639 541 Scott, Peter *Correction to: The symmetry of Intersection Numbers in Group Theory*. Geometry and Topology (1998).

Scott, Peter *The symmetry of Intersection Numbers in Group Theory*. Geometry and Topology 2 (1998) 11-29.

98h:20060 Pittet, Christopher *Isoperimetric inequalities in nilpotent groups*. J. London Math. Soc. (2) 55 (1997), no. 3, 588-600. 20F32 (53C23 57M07)

98h:20059 Mosher, Lee *Central quotients of biautomatic groups*. Comment. Math. Helv. 72 (1997), no. 1, 16-29. 20F32 (57M07)

98g:20058 Cannon, J. W.; Floyd, W. J.; Parry, W. R. *Introductory notes on Richard Thompson's groups*. Enseign. Math. (2) 42 (1996), no. 3-4, 215-256. 20F32 (57M07)

98f:57035 Hillman, Jonathan A. *On  $L^2$ -homology and asphericity*. Israel J. Math. 99 (1997), 271-283. 57N13 (57M07 57M20 57Q45 57R20)

- 98f:20016 Wise, Daniel T. *Incoherent negatively curved groups*. Proc. Amer. Math. Soc. 126 (1998), no. 4, 957–964. 20F06 (20F32 57M07)
- 98d:20041 Kharlampovich, O.; Myasnikov, A. *Hyperbolic groups and free constructions*. Trans. Amer. Math. Soc. 350 (1998), no. 2, 571–613. 20F32 (20E06)
- 98b:57003 Meier, John; Meinert, Holger; VanWyk, Leonard *Finiteness properties and abelian quotients of graph groups*. Math. Res. Lett. 3 (1996), no. 6, 779–785. 57M07 (20F36)
- 97h:20049 Meier, John *Geometric invariants for Artin groups*. Proc. London Math. Soc. (3) 74 (1997), no. 1, 151–173. 20F36 (20E07)
- 97b:20031 Meier, John *The geometry of  $\mathrm{PSL}(2, \mathbf{Z}[\omega])$  automorphisms*. Infinite groups and group rings (Tuscaloosa, AL, 1992), 69–76, Ser. Algebra, 1, World Sci. Publishing, River Edge, NJ, 1993. 20E06 (20F32)
- 96k:20073 Gersten, S. M. *Finiteness properties of asynchronously automatic groups*. Geometric group theory (Columbus, OH, 1992), 121–133, Ohio State Univ. Math. Res. Inst. Publ., 3, de Gruyter, Berlin, 1995. 20F32 (57M07)
- 96k:20072 Conner, Gregory R. *Isoperimetric functions for central extensions*. Geometric group theory (Columbus, OH, 1992), 73–77, Ohio State Univ. Math. Res. Inst. Publ., 3, de Gruyter, Berlin, 1995. 20F32
- 96h:20069 Bowditch, B. H. *Minkowskian subspaces of non-positively curved metric spaces*. Bull. London Math. Soc. 27 (1995), no. 6, 575–584. 20F32 (53C70)
- 96h:20068 Vogtmann, Karen *End invariants of the group of outer automorphisms of a free group*. Topology 34 (1995), no. 3, 533–545. 20F28 (20E05 57M07)
- 96g:20052 Bowers, Philip L.; Ruane, Kim *Fixed points in boundaries of negatively curved groups*. Proc. Amer. Math. Soc. 124 (1996), no. 4, 1311–1313. 20F32 (20F10)
- 96e:20056 Brady, Thomas *Complexes of nonpositive curvature for extensions of  $F_2$  by  $\mathbf{Z}$* . Topology Appl. 63 (1995), no. 3, 267–275. 20F32 (20E05 57M20)
- 96c:20064 Brick, Stephen G. *Quasi-isometries and amalgamations of tame com-  
bale groups*. Internat. J. Algebra Comput. 5 (1995), no. 2, 199–204. 20F32 (57M10 57M20)
- 96a:20045 Reeves, Lawrence *Rational subgroups of cubed 3-manifold groups*. Michigan Math. J. 42 (1995), no. 1, 109–126. 20F10 (20F32 57M07 57N10)
- 95i:20057 Meier, John *The topology of graph products of groups*. Proc. Edinburgh Math. Soc. (2) 37 (1994), no. 3, 539–544. 20F32 (20E06 20F10)
- 95g:20044 Brady, T. *Automatic structures on  $\mathrm{Aut}(F_2)$* . Arch. Math. (Basel) 63 (1994), no. 2, 97–102. 20F32 (20F28 20F34)
- 95c:20044 Bridson, M. R.; Pittet, Ch. *Isoperimetric inequalities for the fundamental groups of torus bundles over the circle*. Geom. Dedicata 49 (1994), no. 2, 203–219. 20F10 (20F18 57M07)
- 95a:57023 Mosher, Lee *Mapping class groups are automatic*. Math. Res. Lett. 1 (1994), no. 2, 249–255. 57N05 (20F10 20F32 57M07)

94m:20081 Meier, John *Automorphisms of negatively curved polygonal amalgams*. Michigan Math. J. 41 (1994), no. 1, 121–134. 20F32 (20E06 20F34 20F55)

94k:20069 Huck, Gunther; Rosebrock, Stephan *A bicombing that implies a sub-exponential isoperimetric inequality*. Proc. Edinburgh Math. Soc. (2) 36 (1993), no. 3, 515–523. 20F32 (20F05 20F10)

94g:20039 Lustig, Martin; Moriah, Yoav *N-torsion and applications*. Geometric group theory, Vol. 1 (Sussex, 1991), 159–168, London Math. Soc. Lecture Note Ser., 181, Cambridge Univ. Press, Cambridge, 1993. 20F05 (57M07 57N10)

94d:58054 Coornaert, Michel; Papadopoulos, Athanase *Symbolic dynamics and hyperbolic groups*. Lecture Notes in Mathematics, 1539. Springer-Verlag, Berlin, 1993. viii+138 pp. ISBN: 3-540-56499-3 58F03 (20F32 53C23 57M50)

94b:20043 Brick, Stephen G. *Quasi-isometries and ends of groups*. J. Pure Appl. Algebra 86 (1993), no. 1, 23–33. 20F32 (57M07)

94b:20042 Gersten, Steve M. *Quasi-isometry invariance of cohomological dimension*. C. R. Acad. Sci. Paris Ser. I Math. 316 (1993), no. 5, 411–416. 20F32 (57M07)

93h:20035 Neumann, Walter D. *Asynchronous combings of groups*. Internat. J. Algebra Comput. 2 (1992), no. 2, 179–185. 20F10 (20F32)

**Journal articles recently refereed:**

*Topology Proceedings*

*Internat. J. Algebra Comp.*

*J. Pure Appl. Algebra*

*Pac. J. Math.*

*Proc. Amer. Math. Soc.*

*Topology and Appl.*

*J. Diff. Geom.*

*Transactions Amer. Math. Soc.*

Referee for NSF summer grants

Opponent for prospective Ph.D candidate Olav Bandmann, Stockholm Sweden  
Jan. 1995.

**Society Membership**

*American Mathematical Society, 1975-present*

**TEACHING**

**1982-present**

Vanderbilt University:

*Mathematics 150a,b - Analytic Geometry and Calculus*

*Mathematics 155a,b - Analytic Geometry and Calculus*

*Mathematics 165 - Honors Mathematics I*

*Mathematics 170a,b - Intermediate Calculus*

*Mathematics 175 - Analytic Geometry and Calculus*

*Mathematics 194 - Matrices and Linear Systems*  
*Mathematics 198 - Elementary Differential Equations*  
*Mathematics 205a - Honors Mathematics II*  
*Mathematics 204 - Linear Algebra*  
*Mathematics 208 - Introduction to Ordinary Differential Equations*  
*Mathematics 242 - Topology of Surfaces*  
*Mathematics 280 - Set Theory and Metric Spaces (Graduate)*  
*Mathematics 272a,b - Topology (Graduate)*  
*Mathematics 312 - Algebraic Topology (Graduate)*  
*Mathematics 372 - Seminar in Topology (Graduate)*  
*Mathematics 398 - Directed Study (Graduate)*