

Anton Kaul

Curriculum Vita

Mathematics Department	(805) 756-1678
California Polytechnic State University	akaul@calpoly.edu
San Luis Obispo, CA 93407-0403	http://www.calpoly.edu/~akaul

1. Educational Preparation

Ph. D. Mathematics, Oregon State University, June 2000
M. S. Mathematics, Oregon State University, November 1996
B. S. Mathematics, University of California, Davis, June 1994
University of Utah (1998-1999 academic year)

Ph. D. Dissertation: Rigidity for a class of Coxeter groups

Advisor: William A. Bogley

Defense date: May 3, 2000

2. Employment

Assistant Professor, Cal Poly, 2003-present

Assistant Professor, Tufts University, 2001-2003 (post-doctoral)

Instructor, University of South Florida, 2000-2001

Adjunct Instructor, Hillsborough Community College, Spring 2001

Graduate Teaching Assistant, Oregon State University, 1994-1998, 1999-2000

Graduate Teaching Fellow, University of Utah, 1998-1999

3. Teaching Related Activities

COURSES TAUGHT, CAL POLY

MATH 141 Differential Calculus: Winter 2005, Winter 2006, Summer 2006,
Fall 2006

MATH 142 Integral Calculus: Winter 2004, Fall 2004, Summer 2006,
Winter 2007, Spring 2007, Winter 2008,
Fall 2008

MATH 143 Series & Sequences: Fall 2003, Fall 2005

MATH 206 Linear Algebra I: Fall 2006

MATH 241 Multivariable Calculus: Fall 2003, Spring 2005, Summer 2006

MATH 244 Linear Analysis I: Winter 2007

MATH 248 Methods of Proof: Spring 2006

MATH 306 Linear Algebra II: Winter 2004, Fall 2008

MATH 406 Linear Algebra III: Spring 2004

MATH 440/540 Topology I: Winter 2008

MATH 441/541 Topology II: Spring 2008

MATH 459 Senior Seminar: Spring 2004, Spring 2005, Fall 2007, Spring 2008

MATH 481 Abstract Algebra I: Fall 2004, Fall 2005

MATH 482 Abstract Algebra II: Winter 2005, Winter 2006

COURSES TAUGHT, TUFTS UNIVERSITY

Differential Calculus: Fall 2001
 Integral Calculus: Spring 2002
 Multivariable Calculus: Fall 2001, Fall 2002
 Linear Algebra: Spring 2002, Spring 2003
 Discrete Mathematics: Fall 2002, Spring 2003

COURSES TAUGHT, UNIVERSITY OF SOUTH FLORIDA

Finite Mathematics: Fall 2000, Spring 2001
 Business Calculus: Spring 2001
 Vector Calculus: Spring 2001
 Number Theory: Summer 2001

COURSES TAUGHT, HILLSBOROUGH COMMUNITY COLLEGE

Intermediate Algebra: Spring 2001

COURSES TAUGHT, OREGON STATE UNIVERSITY

Differential Calculus: Spring 1995, Spring 1996, Spring 1997,
 Spring 1998, Spring 2000
 Business Calculus: Summer 1996
 Integral Calculus: Fall 1997, Winter 1998
 Multivariable Calculus and Linear Algebra: Fall 1999, Winter 1999

COURSES TAUGHT, UNIVERSITY OF UTAH

Differential Calculus: Fall 1998, Spring 1999

CAL POLY SENIOR THESIS STUDENTS

Robert Boele, completed Winter 2005
 Topic: Statistics and Major League Baseball
 Deborah Osborne, completed Spring 2005
 Topic: Algebraic topology and category theory
 Eduardo Barajas, completed Spring 2005
 Topic: Knot theory (algorithmic implementation of the Jones polynomial)
 Jacob Vigil, completed Winter 2006
 Topic: Simple groups
 Rosanna Haut, completed Spring 2006
 Topic: Knot theory
 Joaquin Castillo, completed Spring 2008
 Topic: Dehn functions of hyperbolic groups
 Jennifer Harrison, completed Spring 2008
 Topic: Dehn functions of CAT(0) groups
 Mark Gabaya, Winter 2009 (expected completion date)
 Topic: Dehn functions of right-angled Coxeter groups

TUFTS UNIVERSITY SENIOR THESIS STUDENT

Jeffrey Ryan
 Title: Automorphisms of Coxeter groups of type K_n .
 Defense: April 2003

STUDENT RESEARCH

Advisor, NSF REU program at Cal Poly, Summer 2006

Project: The geometry of Coxeter groups and their automorphisms

Students: Arthur Patterson and D. Peter Overholser

Advisor, Cal Poly Math Department Summer Research Program, Summer 2007

Project: Classification of the symmetric automorphism group of a right-angled Coxeter group

Students: Jennifer Harrison, Steven Strand, and Michael Watts

Advisor, Cal Poly Math Department Summer Research Program, Summer 2008

Project: The Dehn function of the automorphism group of a right-angled Coxeter group

Students: Mark Gabaya, Sam Saiki, and Paul Sinz

4. Professional Development Activities

PUBLICATIONS

1. A class of rigid Coxeter groups, *J. London Math. Soc.* (2) **66** (2002) no. 3, 592-604. MR1934294 (2003i:20061)
2. Automorphisms of right-angled Coxeter groups, *Int. J. Math. Math. Sci.* **2008**, Art. ID 976390, 10 pp. (An MR-number has not yet been assigned.)

MANUSCRIPTS SUBMITTED

1. Centralizers of Coxeter elements and inner automorphisms of right-angled Coxeter groups.

EDUCATIONAL MATERIALS

1. *Topics in Contemporary Mathematics*, 8th Expanded Edition
I. Bello, J. Britton, and A. Kaul ©2005 by Houghton Mifflin Co.
2. *Topics in Contemporary Mathematics*, 9th Edition
I. Bello, J. Britton, and A. Kaul ©2008 by Houghton Mifflin Co.

EXTERNAL PRESENTATIONS

1. Automorphisms of right-angled Coxeter groups, March 2007.
Special Session on Combinatorial and Geometric Group Theory
AMS Sectional Meeting, Oxford, OH.
2. Introduction to length structures, April 2004.
Topology Seminar, Oregon State University, Corvallis, OR.
3. The legacy of H. S. M. Coxeter in the arts and sciences, April 2004. Science Colloquium, Linfield College, McMinnville, OR.
4. Manifold-like behavior in the Coxeter diagram, February 2004.
Topology Seminar, UCSB.
5. Finite split extensions of right-angled Coxeter groups, June 2003.
Wasatch Topology Conference, Park City, UT.
6. Automorphisms of right-angled Coxeter groups, October 2002.
Special Session on Geometric Group Theory
AMS Sectional Meeting, Boston MA.

7. A class of rigid Coxeter groups, January 2001.
Special Session on Geometric Group Theory
Joint Mathematics Meetings, New Orleans, LA.
8. Rigidity of Coxeter systems, February 2000
Annual Meeting, Oregon Academy of Sciences, Newberg, OR.

CAL POLY PRESENTATIONS

1. Aspects of Serre's Theorem.
Cal Poly Topology Seminar, April 2007
2. Automorphisms of right-angled Coxeter groups.
Cal Poly Topology Seminar, March 2007
3. Products of hyperbolic metric spaces (series of four lectures).
Cal Poly Topology Seminar, November 2006 – January 2007
4. Detecting inner automorphisms of right-angled Coxeter groups.
Cal Poly Mathematics Department Colloquium, October 2006
5. Van Kampen diagrams and Dehn functions (series of two lectures).
Cal Poly Topology Seminar, March 2006
6. Decision problems in groups.
Cal Poly Topology Seminar, February 2006
7. CAT(K) spaces (series of three lectures).
Cal Poly Topology Seminar, April-May 2005
8. Topological aspects of shellability (series of two lectures).
Cal Poly Topology Seminar, February-March 2005
9. Coxeter groups (series of two lectures).
Cal Poly Topology Seminar, October-November 2004
10. Reflection groups.
Cal Poly Topology Seminar, October 2004
11. Cannon's *almost convexity* and finitely generated groups.
Cal Poly Topology Seminar, October 2004
12. The Cayley graph of a finitely generated group.
Cal Poly Topology Seminar, September 2004
13. Introduction to geometric group theory.
Cal Poly Mathematics Department Colloquium, May 2004
14. The geometry of length spaces (series of seven lectures). Cal Poly Topology
Seminar, January-March 2004

SEMINAR PRESENTATIONS PRIOR TO EMPLOYMENT AT CAL POLY

1. Extending virtual actions.
Tufts University Group Theory Seminar, October 2002
2. Rigidity in Coxeter groups (series of three lectures).
Tufts University Group Theory Seminar, October 2001
3. The rigidity question for Coxeter groups (series of three lectures).
University of South Florida Discrete Mathematics Seminar, November 2000
4. Introduction to Coxeter groups. University of South Florida Geometric Group
Theory Seminar, October 2000

5. The conjugacy problem for CAT(0) groups.
OSU/UO Joint Group Theory Seminar, April 2000
6. Introduction to CAT(0) spaces.
OSU/UO Joint Group Theory Seminar, March 2000
7. Reflection groups and Coxeter systems.
OSU Topological Group Theory Seminar, February 1999
8. Heegard splittings of 3-manifolds.
OSU Graduate Colloquium, Spring 1997
9. Decomposition of orientable 3-manifolds via Dehn surgery on S^3 .
OSU Topology Seminar, Fall 1996
10. The Poincaré homology sphere.
OSU Topology Seminar, Winter 1996

EXTERNAL GRANTS

1. NSF Research Experiences for Undergraduates (REU)
Co-PI with J. Borzellino
Submitted September 2007 – Initially recommended for funding, but eventually went unfunded due to budget cuts at NSF.
2. NSF Research Experiences for Undergraduates (REU)
Co-PI with J. Borzellino
Submitted August 2008 – application currently under review.

INTERNAL GRANTS

1. State Faculty Support Grant (Release time – Spring 2006)
Grant partially supported the work leading to the manuscript “Centralizers of Coxeter elements and inner automorphisms of right-angled Coxeter groups, which has been submitted for publication.
2. State Faculty Support Grant (Release time – Spring 2008)
Grant partially supported work related to the Dehn function of the automorphism of a right-angled Coxeter group.

PEER REVIEWS

Referee for Rocky Mountain Journal of Mathematics

5. Service

SOAR Advisor, Summer 2007
 Screening Committee, 2006-2007 tenure-track candidate recruitment
 Screening Committee, 2004-2005 tenure-track candidate recruitment
 Screening Committee, 2003-2004 tenure-track candidate recruitment
 Course Supervisor, MATH 221, 2004-present
 Textbook Selection Committee, MATH 221, Spring 2008
 Algebra Qualifying Exam Committee, 2004-present (currently committee chair)
 Faculty Associate, First Year Connection Program, 2005-2006

Cal Poly Mathematics Department Topology Seminar (see Cal Poly presentations above)

Colloquium Organizer, Fall 2008-present

Calculus Review Committee, 2008-2009

Curriculum Committee, 2008-2010

Assessment Committee, 2008-2009