

Daniel Allcock

12 March 2010

Research Interests

Group theory, Lie theory, algebraic geometry.

Education

- 1996 University of California, Berkeley: Ph.D., Mathematics
Dissertation: *The Leech Lattice and Hyperbolic Geometry*
Thesis advisor: Richard Borcherds
- 1991 University of Texas, Austin: B.S.(special honors), Mathematics
- 1991 University of Texas, Austin: B.S.(honors), Physics

Employment

- 2010– Professor, U.T. Austin math department
- 2002–2010 Associate Professor (tenured), U.T. Austin math department
- 1999–2002 Assistant Professor (not tenure-track), Harvard University
- 1998–1999 Postdoctoral Fellow, Harvard University
- 1996–1998 Instructor, University of Utah
- 1995–1996 Research Assistant, U.C. Berkeley math department
- 1995 Teaching Assistant, U.C. Berkeley math department
- 1995 Teaching Assistant, U.C. Berkeley physics department
- 1991 Geophysicist, Shell Offshore Inc., New Orleans
- 1990 Research Assistant, Los Alamos National Laboratory
- 1989 Research Assistant, U.T. Austin physics department

Visiting Positions

- 2010–2011 Kyoto University, fellow of the Japan Society for Promotion of Science
- 5–6/2010 Max Planck Institut für Mathematik (Bonn), Member (funded)
- spring 2008 Institute for Advanced Study, Member (funded)
- fall 2007 University of Michigan, Visiting Scholar
- 7–8/2002 Research Scientist, U.T. Austin
- 6/2000 E.T.H.-Zurich, Switzerland

External Grants

- 2007–2010 NSF Research Training Group grant DMS-0636557
(U.T. math department geometry group; Dan Freed is P.I.)
- 2006–2010 National Science Foundation grant DMS-0600112
- 2004 Educational Advancement Foundation
- 2003–2007 National Science Foundation grant DMS-0245120
- 2000–2004 National Science Foundation grant DMS-0070930/0231585
- 1996–1999 National Science Foundation Postdoctoral Fellowship
- 1992–1995 National Science Foundation Graduate Fellowship
- 1991–1992 National Need Graduate Fellowship

Other Awards

2007–2008 Faculty Research Assignment, U.T. Austin
2005–2007 President’s Associates Centennial Teaching Fellowship, U.T. Austin
2001 Certificate of Distinction in Teaching, Harvard University
1998 Instructorship award, University of Utah mathematics department
Jun 1994 First place, 1st international dots & boxes tournament,
Combinatorial game theory conference, MSRI (\$500 cash prize)

Membership in professional organizations

1995– American Mathematical Society
2003– $\Sigma\Xi$ (Scientific research society)

Address

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1 University Station C1200
Austin TX 78712-1082

(512)471-1120
allcock@math.utexas.edu
http://www.math.utexas.edu/~allcock

Administrative Committee Service (since joining U.T.)

2002–present Math Dept. Budget Comm. (all tenured faculty are members)
2002–present Math Dept. Graduate Studies Comm. (all tenured faculty are members)

Jan 2010 Algebra Preliminary Exam Comm.
2009–2010 Postdoctoral Hiring Comm.
2009–2010 Faculty Grievance Hearing Pool (university-wide)
2009–2010 Admin. Subcomm. of the Graduate Studies Comm.
2009–2010 Colloquium Comm. (chair)
Aug 2009 Algebra Preliminary Exam Comm. (chair)

2008–2009 Postdoctoral Hiring Comm.
2008–2009 Faculty Grievance Hearing Pool (university-wide)
2008–2009 Assistant Graduate Advisor
2008–2009 Admin. Subcomm. of the Graduate Studies Comm.
2008–2009 Colloquium Comm. (chair)
Aug 2008 Algebra Preliminary Exam Comm.

2007-2008 (on leave)

2006–2007 Assistant Prof. Hiring Comm.
2006–2007 Colloquium Comm. (chair)
Aug 2006 Topology Preliminary Exam Comm.
Jan 2007 Topology Preliminary Exam Comm.

2005–2006 Assistant Prof. Hiring Comm.
2005–2006 Colloquium Comm. (co-chair)
Jan 2006 Topology Preliminary Exam Comm.

2004–2005 Assistant Prof. Hiring Comm.
2004–2005 Colloquium Comm.
Aug 2004 Algebra Preliminary Exam Comm. (chair)
Jan 2005 Algebra Preliminary Exam Comm.

2003–2004 Assistant Prof. Hiring Comm.

2002–2003 Postdoctoral Hiring Comm.
2003 Tenure file comm. (for Jeff Brock)

Postdoctoral and Dissertation Supervising

Postdoctoral Fellow Supervised

2006–2008 Ken Chu

Ph.D. Students Currently Supervising

Cody Patterson (advanced to candidacy 2005; Ph.D. expected 5/2010)
Mark Norfleet (advanced to candidacy 2008)

Masters Student Supervised

Josh Mercer (M.A. 2006)

Undergraduate Honors Theses Supervised

2008 Michael Kelly

Student Candidacy and Dissertation Committees

2005 Kathleen Petersen (diss.)
2006 Allison Moore (undergraduate honors thesis reader)
2006 Eric Chesebro (diss.)
2006 Richard Kent (diss.; candidacy committee 2003)
2006 Ryan Deby-Talbot (diss.; candidacy committee 2003)
2006 David McReynolds (diss.; candidacy committee 2003)
2006 Betsygail Rand (diss.)
2008 Mark Luxton (diss.; candidacy committee 2004)
2008 John Hammond (diss.)
2008 Sean Bowman (cand.)
2008 Michael Kelly (undergraduate honors thesis supervisor)
pending Eric Katerman (diss.)
pending Matthew Stover (diss.; candidacy committee 2005)
pending Brian Katz (diss.; candidacy committee 2005)
pending Parker Lowrey (diss.; candidacy committee 2006)
pending David Jensen (diss.)
pending Brandy Guntel (diss.)
pending Grant Lakeland (diss.)
pending Zachary Miner (diss.)
pending Mark Norfleet (Ph.D. supervisor; candidacy committee 2008)
pending Andrew Gillette (diss.)
pending Cody Patterson (Ph.D. supervisor; candidacy committee 2005)
pending Yuan Yao (diss.)
pending Mike Williams (diss.; candidacy committee 2008)
pending Samuel Aaron Ballas (diss.)
pending Braxton Collier (diss.; candidacy committee 2009)

Classes Taught

U.T. Austin

spring 2010	M408L (calculus II) M390C (graduate topics course: finite group theory)
fall 2009	M408D (calculus II)
spring 2009	M427K (vector calculus) M362K (probability)
fall 2008	M380C (graduate abstract algebra I) undergraduate honors thesis supervision (Michael Kelly)
summer 2008	graduate conference course (Mark Norfleet)
spring 2007	M390C (graduate topics course: linear algebraic groups)
fall 2006	M408D (calculus II) M325K (discrete math; Moore method)
spring 2006	M361 (complex analysis)
fall 2005	M382C (graduate topology I) M408K (calculus I)
summer 2005	graduate conference course (Josh Mercer)
spring 2005	M392C (graduate topics course: geometry of groups)
fall 2004	M408C (calculus I; special Moore method section)
spring 2004	M380D (graduate abstract algebra II)
fall 2003	M408C (calculus I), graduate conference course (Suzette Emberton)
summer 2003	graduate conference course (Laura Hitt)
spring 2003	M328K (elementary number theory; special Moore method section)
fall 2002	M408C (calculus I)

Harvard

spring 2002	m137 (undergraduate algebraic geometry)
fall 2001	m20 (linear algebra and multivariable calculus) m1b (calculus II)
spring 2001	m21b (multivariable calculus II)
fall 2000	m124 (elementary number theory) m21a (multivariable calculus I)
spring 2000	m21a (multivariable calculus I)
fall 1999	m112 (real analysis) m272a (graduate algebraic topology)

U. Utah

fall 1997	M106 (precalculus II) M251 (advanced engineering math)
spring 1997	M327 (proof-based calculus)
winter 1997	M106 (precalculus II; 2 sections)
fall 1996	M105 (precalculus I)

U.C. Berkeley

spring 1995	PHYS 7A (TA; physics for scientists and engineers)
fall 1995	M1B (TA; calculus II)

Publications

Daniel Allcock

12 March 2010

All papers are available electronically at <http://www.math.utexas.edu/~allcock>.

An asterisk (*) indicates a submission/acceptance/publication in the last year.

Refereed articles in collections/proceedings.

- *[31] A monstrous proposal
in *Groups and Symmetries*,
eds. J. Harnad, P. Winternitz, CRM Proceedings and Lec. Notes 47 (2009) 17–24
- [30] Hyperbolic geometry and the moduli space of real binary sextics
in *Algebra and Geometry around Hypergeometric Functions*,
eds. R.P. Holzapfel, A.M. Uludag, M. Yoshida, Birkhauser, 2005, 1–22
(joint with James Carlson and Domingo Toledo)
- [29] Orthogonal complex hyperbolic arrangements
Symposium in Honor of C. H. Clemens, *Contemp. Math.* 312 (2002) 1-8
(joint with James Carlson and Domingo Toledo)

Refereed articles in journals.

- *[28] Monodromy groups of Hurwitz-type problems
to appear in *Advances in Math.*; available as arxiv:0803.0237 (15 pp.)
(joint with Chris Hall)
- *[27] A Banach Space determined by the Weil height
Acta Arithmetica 136 (2009), 279–298
(joint with Jeffrey Vaaler)
- *[26] On the Y_{555} complex reflection group
J. Alg. 322 (2009) 1454–1465
- *[25] A new approach to rank one linear algebraic groups
J. Alg. 321 (2009) 2540–2544
- *[24] The moduli space of cubic threefolds as a ball quotient
to appear in *Memoirs of the A.M.S.*; available as arxiv:math.AG/0608287 (98 pp.)
(joint with James Carlson and Domingo Toledo)
- [23] Non-arithmetic uniformization of some real moduli spaces
Geom. Dedicata 122 (2006) 159–171
(joint with James Carlson and Domingo Toledo)
- *[22] Hyperbolic geometry and moduli of real cubic surfaces
Ann. Sci. de L'É.N.S. 43 (2010) 69–115
(joint with James Carlson and Domingo Toledo)
- [21] Infinitely many hyperbolic Coxeter groups through dimension 19
Geometry & Topology 10 (2006) 737–758

- [20] Hyperbolic surfaces with prescribed infinite symmetry groups
Proc. Amer. Math. Soc. 134 (2006) 3057–3059
- [19] Orbits in the Leech lattice
Experimental Math. 14 (2005) 491–509
- [18] Real cubic surfaces and real hyperbolic geometry
CRAS 337 (2003) 185–188
(joint with James Carlson and Domingo Toledo)
- [17] The moduli space of cubic threefolds
J. Alg. Geom. 12 (2003) 201–223
- [16] The complex hyperbolic geometry of the moduli space of cubic surfaces
J. Alg. Geom. 11 (2002) 659–724
(joint with James Carlson and Domingo Toledo)
- [15] Braid pictures for Artin groups
Trans. Amer. Math. Soc. 354 (2002) 3455–3474
- [14] Cubic surfaces and Borchers products
Comm. Math. Helv. 77 (2002) 270–296
(joint with Eberhard Freitag)
- [13] Asphericity of moduli spaces via curvature
J. Diff. Geom. 55 (2002) 441–451
- [12] New complex- and quaternion-hyperbolic reflection groups
Duke Math. J. 103 (2000) 303–333
- [11] The Leech lattice and complex hyperbolic reflections
Invent. Math. 140 (2000) 283–301
- [10] The period lattice for Enriques surfaces
Math. Ann. 317 (2000) 483–488
- [9] Ideals in the integral octaves
J. Alg. 220 (1999) 396–400
- [8] Reflection groups on the octave hyperbolic plane
J. Alg. 213 (1999) 467–498
- [7] A homological characterization of hyperbolic groups
Invent. Math. 135 (1999) 723–742 (joint with Steve Gersten)
- [6] Spotting infinite groups
Math. Proc. Camb. Phil. Soc. 125 (1999) 39–42
- [5] A complex hyperbolic structure for moduli of cubic surfaces
C.R.A.S. 326 (1998) 49–54 (joint with James Carlson and Domingo Toledo)
- [4] An isoperimetric inequality for the Heisenberg groups
G.A.F.A. 8 (1998) 219–233
- [3] Identifying models of the octave projective plane
Geom. Dedicata 65 (1997) 215–217

Unrefereed article in proceedings volume.

- *[2] Complex hyperbolic geometry and the monster simple group (conjectural)
Oberwolfach Reports 5 Issue 4, 2008, pp. 2586-2588

Preprint.

- *[1] Triangles of Baumslag-Solitar groups
preprint, available as arxiv:*0808.0934* (11 pp.)

Service as Referee

NSF (Grant applications)
NSA (Grant applications)
Netherlands Organization for Scientific Research (Grant applications)
Annals of Math.
Inventiones Math.
Duke Math. J.
Topology
Geometry and Topology
J. Algebraic Geometry
J. Differential Geometry
Journal für die reine und angewandte Mathematik (Crelle)
Int. J. of Math.
Advances in Math.
Advances in Geometry
J. of Algebra
Geom. Dedicata
Int. Math. Res. Notices
Transactions of the A.M.S.
Proceedings of the A.M.S.
Manuscripta Mathematica
Mathematische Nachrichten
J. Number Theory
European J. Combinatorics
several conference proceedings volumes

Lectures

An asterisk (*) indicates outreach, a colloquium, or other special talk.

- * Feb 2010 *Hyperbolic Polyhedra and Lie Algebras*
Colloquium, U.T. Austin
- Oct 2009 *Monodromy groups of Hurwitz-type problems*
algebraic geometry seminar, Texas A&M
- Sep 2009 *On the classification of reflective Lorentzian lattices*
conference: Lie algebras, vertex algebras and automorphic forms (Edinburgh, UK)
- Jun 2009 *On the classification of reflective Lorentzian lattices*
conference: Moduli and discrete groups (Kyoto, Japan)
- June 2009 *Monodromy groups of Hurwitz-type problems*
algebraic geometry seminar, U. Nagoya (Japan)
- June 2009 *Monodromy groups of Hurwitz-type problems*
algebraic geometry seminar, Kyoto U. (Japan)
- Jun 2009 *On the classification of reflective Lorentzian lattices*
conference dedicated to Mike Davis (Bedlewo, Poland)
- Apr 2009 *On the classification of reflective Lorentzian lattices*
conference: Geometric Group Theory on the Gulf Coast (South Padre Island)
- Apr 2009 *Introduction to Coxeter groups and Lorentzian lattices*
conference: Geometric Group Theory on the Gulf Coast (South Padre Island)
- Mar 2009 *Invitation to Coxeter groups*
short presentation to prospective graduate students, UT Austin
- Mar 2009 *Triangles of Baumslag-Solitar Groups*
Topology seminar, U.T. Austin
- * Feb 2009 *The Jump to Light Speed*
Undergraduate math club, U.T. Austin
- Dec 2008 *A Banach space determined by the Weil height*
Number theory seminar, N.Y.U.
- * Nov 2008 *Dottier and Boxier*
Saturday Morning Math Group, U.T. Austin (for mid- and high-school students)
- Oct 2008 *A conjectural role for the monster simple group in complex hyperbolic geometry*
Geometry and arithmetic around hypergeometric functions,
workshop, Oberwolfach, Germany
- May 2008 *The metric completion of a nonpositively curved space*
Geometry seminar, U. Chicago
- * May 2008 *Complex moduli spaces as quotients of symmetric domains*
Colloquium, U. Penn
- * Apr 2008 *The Hurwitz monodromy problem in degree 4*
Distinguished lecture series (Max Dehn seminar), U. Utah
- * Apr 2008 *The jump to light speed*
Distinguished lecture series (undergraduate colloquium), U. Utah

- * Apr 2008 *Recent progress in hyperbolic reflection groups*
Distinguished lecture series (colloquium), U. Utah
- Apr 2008 *The metric completion of a locally CAT(0) space*
Geometry/topology seminar, Columbia
- * Apr 2008 *Complex moduli spaces as quotients of symmetric domains*
Colloquium, Institute for Defense Analysis–Center for Communications Research
- * Mar 2008 *Infinitely many hyperbolic Coxeter groups through dimension 19*
Colloquium, Rutgers (New Brunswick)
- Oct 2007 *The moduli space of cubic threefolds as a ball quotient*
Algebraic geometry seminar, Ohio State U.
- Oct 2007 *The moduli space of cubic threefolds as a ball quotient*
Algebraic geometry seminar, U. Michigan
- May 2007 *Finite quotients of the mapping class groups*
Hodge theory, Kahler manifolds and homogenous spaces,
conference in honor of James Carlson, U. Utah
- Apr 2007 *A monstrous proposal*
Groups and symmetries: from the neolithic Scots to John McKay,
conference in honor of John McKay, C.R.M., Montreal
- Oct 2006 *A new Torelli theorem for cubic threefolds*
Algebraic geometry seminar, Stanford
- Mar 2006 *Moduli of cubic threefolds and complex hyperbolic geometry*
Algebraic geometry seminar, Texas A&M
- Mar 2006 *A monstrous proposal*
Complex geometry—a conference in honor of
Domingo Toledo’s 60th birthday, U. Utah
- Apr 2006 *Infinitely many Coxeter groups through dimension 19*
31st annual Arkansas Spring Lecture Series, U. Arkansas
- * Aug 2005 *Infinitely many hyperbolic Coxeter groups*
Colloquium, Rice U.
- Jul 2005 *Introduction to Chevalley groups*
A.M.S. graduate summer school, U. Washington
- * Jul 2005 *Linear algebraic groups* (minicourse: 5 days, 3–4 hours/day)
A.M.S. graduate summer school, U. Washington
- Jun 2005 *Hyperbolic geometry in real algebraic moduli problems* (2 lectures)
Algebra and geometry around hypergeometric functions,
summer school at Galatasaray U., Istanbul
- Mar 2005 *Infinitely many hyperbolic Coxeter groups*
Group theory seminar, Université de Paris, Orsay
- * Nov 2004 *Topology of hyperplane complements and moduli spaces*
Frank Stones Research Lectureship, Texas Christian U.
- Mar 2004 *Topology of moduli spaces and discriminant complements*
Western algebraic geometry seminar, U. Utah

- Mar 2004 *Branched covers and their curvature*
Introduction to math research, U.T. Austin
- Nov 2003 *Hyperbolic geometry and real cubic surfaces*
Joint Stanford-Berkeley algebraic geometry/commutative algebra seminar
- Nov 2003 *The fundamental group of the space of smooth cubic surfaces*
Texas Geometry and Topology Conference, Rice U.
- Oct 2003 *Geometry of exceptional Lie groups*
Algebra seminar, U.T. Austin
- Apr 2003 *Geometry of groups*
Introduction to mathematical research, UT Austin
- * Apr 2003 *On the asphericity of hyperplane complements*
Invited Address, AMS central sectional meeting, Bloomington IN
- Nov 2002 *Arithmetic in the Cayley numbers*
Algebra seminar, U.T. Austin
- Oct-Nov 2002 *Geometry of Coxeter and Artin groups, and discriminant complements*
(3 lectures) GADGET seminar, U.T. Austin
- Sep 2002 *Linking numbers*
Topology seminar, U.T. Austin
- Apr 2002 *Complex hyperbolic reflection groups: a primer*
Informal seminar on geometry, topology and dynamics, Harvard
- Feb 2002 *Hyperbolic geometry and moduli of real cubic surfaces*
Algebraic geometry seminar, Columbia
- * Feb 2002 *Braid groups in algebraic geometry*
Colloquium, U. British Columbia
- Feb 2002 *Hyperbolic geometry and moduli of real cubic surfaces*
Joint topology/algebraic geometry seminar, U. British Columbia
- Feb 2002 *Braid groups in algebraic geometry*
Special seminar, U.C. San Diego
- * Jan 2002 *Braid groups in algebraic geometry*
Colloquium, U. Utah
- Dec 2001 *Negatively curved metric spaces in algebraic geometry*
Topology seminar, U.T. Austin
- Nov 2001 *The moduli space of cubic threefolds*
Workshop on moduli spaces, U. Nagoya (Japan)
- Oct 2001 *Complex hyperbolic arrangements*
Geometry/topology seminar, U. Maryland
- Oct 2001 *Hyperbolic reflection groups*
Basic notions seminar, Harvard
- May 2001 *Reflection groups on the octave hyperbolic plane*
Max Dehn seminar, U. Utah

- May 2001 *Reflection groups on the octave hyperbolic plane*
Cornell Topology Festival
- Apr 2001 *Reflection groups on the octave hyperbolic plane*
Differential geometry seminar, Harvard
- Mar 2001 *The moduli space of cubic threefolds*
Topology seminar, U.C. San Diego
- Feb 2001 *The moduli space of cubic threefolds*
Geometry seminar, Boston U.
- Oct 2000 *Hyperbolic geometry of the moduli space of real cubic surfaces*
Lie groups seminar, Yale U.
- Aug 2000 *The moduli space of cubic threefolds*
Algebraic geometry seminar, U. Utah
- * Jul 2000 *Hyperbolic geometry of the moduli space of real cubic surfaces*
Colloquium, U. Heidelberg
- Jun 2000 *Automorphic forms on the 4-ball and moduli of cubic surfaces*
Algebraic geometry seminar, U. Freiberg
- Jun 2000 *Automorphic forms on the 4-ball and moduli of cubic surfaces*
E.T.H.-Zurich
- Jun 2000 *Hyperbolic geometry of the moduli space of real cubic surfaces*
Geometry/topology seminar, U. Chicago
- May 2000 *Automorphic forms on the 4-ball and moduli of cubic surfaces*
Algebraic geometry seminar, U. Chicago
- Mar 2000 *Borcherds products and moduli of cubic surfaces*
Joint Harvard/MIT algebraic geometry seminar
- Mar 2000 *Computing in the Leech lattice*
Combinatorics seminar, MIT
- Jan 2000 *Hyperbolic geometry of the moduli space of real cubic surfaces*
Lie groups seminar, U. Michigan
- Jan 2000 *Automorphic forms on the 4-ball and moduli of cubic surfaces*
Joint AMS/MAA meeting, Washington DC
- Oct 1999 *Hyperbolic Polyhedra and Moduli of Real Cubic Surfaces*
Lafayette College Group Theory Workshop
- Oct 1999 *The complex hyperbolic geometry of the moduli space of cubic surfaces*
Geometry/topology seminar, U. Maryland
- May 1999 *Metric curvature in infinite branched covers*
Topology seminar, Ohio State U.
- Mar 1999 *Metric curvature of infinite branched covers*
Wasatch Topology Conference, U. Utah
- Jan 1999 *Braid pictures for Artin groups*
Low-dimensional topology seminar, Columbia

- Dec 1998 *The Deligne-Mostow groups*
Number theory seminar, Harvard
- Nov 1998 *Braid pictures for Artin groups*
Algebra seminar, Brandeis
- Nov 1998 *Curvature in infinite branched covers*
Differential geometry seminar, MIT
- Nov 1998 *Arithmetic in the Cayley numbers*
Basic notions seminar, Harvard
- Nov 1998 *Complex hyperbolic lattices*
Special seminar, U. Heidelberg
- Oct 1998 *Hyperbolic lattices*
Special seminar, U. Heidelberg
- Oct 1998 *Braid pictures for Artin groups*
Geometry seminar, U. Edinburgh
- Oct 1998 *Curvature of infinite branched covers; applications to moduli of cubic surfaces*
Geometry seminar, Oxford
- Oct 1998 *Curvature of infinite branched covers; applications to moduli of cubic surfaces*
Group theory seminar, Southampton University
- Oct 1998, *The moduli space of cubic surfaces as a ball quotient*
Algebraic geometry seminar, Harvard
- Mar 1998 *Homological characterization of hyperbolic groups*
Max Dehn seminar, U. Utah
- May 1997 *New complex hyperbolic reflection groups*
Special seminar, U.C. Los Angeles
- Mar 1997 *The Leech lattice and hyperbolic geometry* (4 lectures)
Max Dehn seminar, U. Utah
- Oct 1996 *An isoperimetric inequality for the Heisenberg groups* (2 lectures)
Max Dehn seminar, U. Utah
- Oct 1996 *New complex hyperbolic reflection groups*
Group theory seminar, U.C. Berkeley
- Jun 1996 *New complex hyperbolic reflection groups*
Special seminar, U.C. Santa Barbara
- Mar 1996 *Computing in the Leech Lattice*
Group theory seminar, U.C. Berkeley
- Oct 1995 *Introduction to hyperbolic Coxeter groups*
Group theory seminar, U.C. Berkeley
- Apr 1995 *An isoperimetric inequality for the Heisenberg groups*
Math. Sci. Research Inst.
- Sep 1993 *Spotting infinite groups*
Low-dimensional topology seminar, Princeton

Aug 1993 *Spotting infinite groups*

SUNY-Albany conference on group theory and low-dimensional topology

Sep 1992 *The Kirby calculus*

Low-dimensional topology seminar, U.C. Berkeley