Daniel Allcock
1 October 2019

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

2016 (fall)	Consultant, Skydance Interactive (for virtual reality audio)
2010–present	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
1991	Geophysicist, Shell Offshore Inc., New Orleans
1990	Research Assistant, Los Alamos National Laboratory

Visiting/Temporary Positions

2013	Visiting Professor (7 months), Kyoto University (RIMS)
2010–2011	J.S.P.S. Fellow (10 months), Kyoto University
2010 (summer)	Member, Max Planck Institut für Mathematik (Bonn)
2008 (spring)	Member, Institute for Advanced Study
2007 (fall)	Visiting Scholar, University of Michigan math department
2000 (June)	E.T.H.-Zurich, Switzerland

External Grants

2016–2021	Simons Foundation Collaboration Grant 429818
2012–2017	NSF Research Training Group grant
	(with the U.T. math geometry and topology groups; Dan Freed is P.I.)
2011–2015	National Science Foundation grant DMS-1101566
2010–2011	J.S.P.S. Fellowship (10 months research in Japan)
2010–2011	Research Scholar, Clay Math Institute
2007–2012	NSF Research Training Group grant DMS-0636557
	(with the U.T. math department geometry group; Dan Freed was 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

Other Awards

2012	Fellow of the American Mathematical Society
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)

Service to the profession

2020	Co-organizer, A.I.M. Workshop (Arithmetic reflection groups and crystallographic packings)
2019–2021	Mathematics Research Communities Committee (A.M.S.)
2012–2014	Robbins Prize Committee (A.M.S.)
2014	Co-organizer, South Kyushu Workshop on Algebra (Japan)
2003–	$\Sigma\Xi$ (Scientific research society)

Address

Department of Mathematics, U.T. Austin	(512)471-1120
1 University Station C1200	*allcock@math.utexas.edu*
Austin TX 78712-1082	*http://www.math.utexas.edu/∼allcock*

Administrative Committee Service (since joining U.T.)

standing	Math Dept. Budget Comm. (all tenured faculty are members)
standing	Math Dept. Graduate Studies Comm. (all tenured faculty are members)
2018–2019	Faculty Annual Review Committee
2018–2019	FII search committee (combinatorics & number theory)
2018–2019	Chair committee (the new one, not the old one)
2018–2021	Parking and Traffic Appeals committee
2018–2019	Commencement Committee
2017–2018	FII search committee (combinatorics & number theory)
2017–2018	Promotion committee for Mihai Sirbu
2017–2018	Parking and Traffic Appeals committee
2017–2018	Chair committee (the new one, not the old one)
Jan 2018	Algebra Prelim Exam committee
Jan 2018	Graduate applications review group (algebra & number theory)
2016–2017	College of Natural Sciences Education Task Force (while on leave)
2016–2017	Parking and Traffic Appeals committee (while on leave)
2016–2017	Awards committee
2016–2017	Chair committee (the new one, not the old one)
2016–2017	triad for Arie Israel's 3rd year review
2016–2017	triad for Mihai Sirbu's promotion to Full Prof.
Jan 2017	Algebra Prelim Exam committee
Aug 2017	Algebra Prelim Exam committee
Aug 2016	Algebra Prelim Exam committee (chair)
2015–2016	triad for Lewis Bowen's promotion to Full Prof.
2015–2016	Review committee
2015–2016	Awards committee
2015–2018	Parking and Traffic Appeals committee
2014–2015	Review committee
2014–2015	Annual review committee
2014–2015	Awards committee
2014–2015	Parking and Traffic Appeals committee
2014–2015	triad for Amir Mohammadi's promotion to tenure (chair)
2014–2015	Algebra prelim committee (Jan 2015; chair)
2014–2015	Algebra prelim committee (Aug 2015; chair)
2013–2014	Review committee
2013–2014	Awards committee
2013–2014	Parking and Traffic Appeals committee (vice-chair)
2013–2014	3rd year review triad for Amir Mohammadi (chair)
2013–2014	Algebra prelim committee (spring; chair)
2012–2013	Post-tenure review committee
2012–2013	Colloquium Comm. (chair)

2012–2013	Graduate admissions (Algebra and number theory)
2011–2012	Review Comm.
2011–2012	Colloquium Comm. (chair)
2011–2012	Tenure file triad (for David Helm)
2010–2011	Graduate Admissions Comm. (served while on leave)
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

2015   Alice Mark, now a postdoc at Arizona State University
2013   Mark Norfleet, now Asst. Prof. at U. Wisconsin Green Bay
2010   Cody Patterson, now Asst. Prof. at UTSA

Masters Student Supervised

2006   Josh Mercer (M.A.)

Undergraduate Honors Theses Supervised

2017   William Swartworth
2008   Michael Kelly

Student Candidacy and Dissertation Committees

pending	Yingying Wu (diss.)
pending	Jonathan Lai (diss.)
pending	Ethan Leeman (diss.)
pending	Thomas Oldfield (diss.)
pending	Max Riestenberg (diss.)
pending	Teddy Weisman (diss.)
2018	John Riestenberg (cand.)
2018	Michelle Chu (diss.)
2018	Adam Hughes (diss.)
2017	Timothy McGee (diss.)
2017	Alessandro Rezende de Macedo (diss.)
2017	Cory Colbert (diss.; candidacy committee 2014)
2016	Itamar Gal (diss.)
2016	Jennifer Berg (cand.)
2015	Alice Mark (Ph.D. supervisor; candidacy committee 2012)
2014	Sander Rieken (diss., U. Nijmegen; outside member)
2014	Samuel Taylor (diss.)
2014	Robert Grizzard (diss.)
2013	Mark Norfleet (Ph.D. supervisor; candidacy committee 2008)
2013	Ning Kang (diss.)
2013	Cid Vipismakul (candidacy committee 2011)
2013	Yuan Yao (diss.)
2012	Grant Lakeland (diss.)
2012	Braxton Collier (diss.; candidacy committee 2009)
2011	Mike Williams (diss.; candidacy committee 2008)
2011	Andrew Gillette (diss.)
2011	Brian Katz (diss.; candidacy committee 2005)
2011	Brandy Guntel (diss.)

2011	Zachary Miner (diss.)
2010	Eric Katerman (diss.)
2010	Matthew Stover (diss.; candidacy committee 2005)
2010	Parker Lowrey (diss.; candidacy committee 2006)
2010	David Jensen (diss.)
2010	Cody Patterson (Ph.D. supervisor; candidacy committee 2005)
2008	Mark Luxton (diss.; candidacy committee 2004)
2008	John Hammond (diss.)
2008	Sean Bowman (cand.)
2008	Michael Kelly (undergraduate honors thesis supervisor)
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.)
2005	Kathleen Petersen (diss.)

U.T.'s Junior Faculty Mentoring Program

2015–2016	Andy Neitzke (teaching)
2014–2015	Amir Mohammadi (research)
2013–2014	Tye Lidman (teaching) and Amir Mohammedi (research)
2012–2013	Tye Lidman (teaching)
2011–2012	Amir Mohammadi (research and teaching)

Classes Taught

U.T. Austin

fall 2019   M328K (elementary number theory)
fall 2019   M367K (topology I)

spring 2019   M328K (elementary number theory)
spring 2019   M373L (abstract algebra II)

fall 2018   gradiate reading course (Teddy Weisman)

spring 2018   M328K (elementary number theory)
               M392C (graduate Lie groups)

fall 2017   (on leave)

spring 2017   M328K (elementary number theory)
               senior honors thesis (William Swartworth)
               undegraduate reading course (Nathan Guermond)

fall 2016   (on leave)

spring 2016   M328K (elementary number theory)
               M390C (graduate topics course: Kac-Moody algebras and groups)
               undergraduate reading course: Billy Swartworth

fall 2015   M328K (2 sections; elementary number theory)
               graduate reading course: Spencer Johnson
               undergraduate reading course: Billy Swartworth

fall 2014   M328K (elementary number theory)
               M380C (graduate algebra I)

spring 2014   M390C (graduate topics course: linear algebraic groups)
               M367K (topology I)

fall 2013   M328K (two sections; elementary number theory)

fall 2012   M328K (elementary number theory)
               M390C (graduate topics course: quadratic forms)

spring 2012   M408D (calculus II)
               M367 (topology I)

fall 2011   M390C (graduate topics course: Coxeter groups)

fall 2010 and spring 2011 (on leave)

spring 2010   M390C (graduate topics course: finite group theory)
               M408L (calculus II)

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

fall 1995   M1B (TA; calculus II)

spring 1995   PHYS 7A (TA; physics for scientists and engineers)

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Publications
Daniel Allcock
1 October 2019

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All papers are available electronically at *http://www.math.utexas.edu/∼allcock.*

[51] Moduli spaces of tropical curves are simply connected
submitted 2019
(joint with Sam Payne and Daniel Corey)

[50] Best play in Dots and Boxes endgames
submitted 2019

[49] The tetrahedron and automorphisms of Enriques and Coble surfaces of Hessian type
submitted 2018
(joint with Igor Dolgachev)

[48] Generators for a complex hyperbolic braid group
Geometry & Topology **20** (2018), 747–778.
(joint with Tathagata Basak)

[47] Congruence subgroups and Enriques surface automorphisms
J. Lond. Math. Soc. **98** (2018), 1–11.

[46] The Conway-Sloane calculus for 2-adic lattices
To appear in *L'Enseignement Mathématique*
(joint with Itamar Gal and Alice Mark)

[45] Spherical space forms revisited
Transactions of the A.M.S. **370** (2018), 5561–5582.

[44] A fake projective plane via 2-adic uniformization with torsion
Tohoku Math. J. **69** (2017) 221–237
(joint with Fumiharu Kato)

[43] Presentation of hyperbolic Kac-Moody groups over rings
J. Algebra **445** (2016) 232–243
(joint with Lisa Carbone)

[42] Presentation of affine Kac-Moody groups over rings
Algebra & Number Theory **10** (2016) 533–556

[41] Prenilpotent pairs in the E_{10} root lattice
Math. Proc. Camb. Phil. Soc. **163** (2018) 473–483.

[40] Geometric generators for braidlike groups
Geometry & Topology **20** (2016) 747–778
(joint with Tathagata Basak)

[39] Steinberg groups as amalgams
Algebra & Number Theory **10** (2016) 1791-1843

[38] Binary Relations from Tournament Solutions, and Back Again
submitted 2013
(joint with Scott Moser)

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[37] Root systems for Lorentzian Kac-Moody algebras in rank 3
  Bull. Lond. Math. Soc. **47** (2015) 325–342

[36] Reflection centralizers in Coxeter groups
  Transformation Groups **18** (2013) 599–613

[35] Completions, branched covers, Artin groups and Singularity Theory
  Duke Math. J. **162** (2013) 2645–2689

[34] The densest lattices in $\mathrm{PGL}_3(\mathbf{Q}_2)$
  Advances in Math. **242** (2013) 102–115
  (joint with Fumiharu Kato)

[33] Normalizers of parabolic subgroups of Coxeter groups
  Algebraic & Geometric Topology 12 (2012) 1137–1143

[32] The reflective Lorentzian lattices of rank 3
  Memoirs of the A.M.S., **220** (2012) no. 1033

[31] Triangles of Baumslag-Solitar groups
  Canad. J. Math. **64** (2012) 241–253

[30] Monodromy groups of Hurwitz-type problems
  Advances in Math. **225** (2010) 69–80.
  (joint with Chris Hall)

[29] A Banach Space determined by the Weil height
  Acta Arithmetica **136** (2009) 279–298
  (joint with Jeffrey Vaaler)

[28] On the Y_{555} complex reflection group
  J. Alg. **322** (2009) 1454–1465

[27] A new approach to rank one linear algebraic groups
  J. Alg. **321** (2009) 2540–2544

[26] A monstrous proposal
  in *Groups and Symmetries*,
  eds. J. Harnad, P. Winternitz, CRM Proceedings and Lec. Notes **47** (2009) 17–24

[25] The moduli space of cubic threefolds as a ball quotient
  Memoirs of the A.M.S. **209** (2011) no. 985, xii+70 pp.
  (joint with James Carlson and Domingo Toledo)

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

[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. (4) **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] 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, Birkauser, 2005, 1–22
    (joint with James Carlson and Domingo Toledo)

[18] Orbits in the Leech lattice
    Experimental Math. 14 (2005) 491–509

[17] Real cubic surfaces and real hyperbolic geometry
    CRAS 337 (2003) 185–188
    (joint with James Carlson and Domingo Toledo)

[16] The moduli space of cubic threefolds
    J. Alg. Geom. 12 (2003) 201–223

[15] 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)

[14] Braid pictures for Artin groups
    Trans. Amer. Math. Soc. 354 (2002) 3455–3474

[13] Orthogonal complex hyperbolic arrangements
    Symposium in Honor of C. H. Clemens, *Contemp. Math.* 312 (2002) 1–8
    (joint with James Carlson and Domingo Toledo)

[12] Cubic surfaces and Borcherds products
    Comm. Math. Helv. 77 (2002) 270–296
    (joint with Eberhard Freitag)

[11] Asphericity of moduli spaces via curvature
    J. Diff. Geom. 55 (2002) 441–451

[10] New complex- and quaternion-hyperbolic reflection groups
    Duke Math. J. 103 (2000) 303–333

[9] The Leech lattice and complex hyperbolic reflections
    Invent. Math. 140 (2000) 283–301

[8] The period lattice for Enriques surfaces
    Math. Ann. 317 (2000) 483–488

[7] Ideals in the integral octaves
    J. Alg. 220 (1999) 396–400

[6] Reflection groups on the octave hyperbolic plane
    J. Alg. 213 (1999) 467–498

[5] A homological characterization of hyperbolic groups
    Invent. Math. 135 (1999) 723–742 (joint with Steve Gersten)

[4] Spotting infinite groups
    Math. Proc. Camb. Phil. Soc. 125 (1999) 39–42

[3] A complex hyperbolic structure for moduli of cubic surfaces
    C.R.A.S. 326 (1998) 49–54 (joint with James Carlson and Domingo Toledo)

[2] An isoperimetric inequality for the Heisenberg groups
     G.A.F.A. 8 (1998) 219–233

[1] Identifying models of the octave projective plane
     Geom. Dedicata 65 (1997) 215–217

Service as Referee

NSF Grant Applications
NSA Grant Applications
DFG (Germany's equivalent of NSF) Grant Applications
NWO (Netherlands' equivalent of NSF) Grant Applications
FCT (Portugal's equivalent of NSF) Grant Applications
Advances in Geometry
Advances in Math.
Algebra and Number Theory
American Mathematical Monthly
Annals of Math.
Compositio
Duke Math. J.
European J. Combinatorics
Foundations of Physics
Geom. Dedicata
Geometry and Topology
Groups, Geometry, and Dynamics
Int. J. of Math.
Int. Math. Research Notices
Inventiones Math.
J. of Algebra
J. Algebraic Geometry
J. Differential Geometry
J. für die reine und angewandte Mathematik (Crelle)
J. of the London Math. Society
J. Number Theory
J. Pure and Applied Algebra
J. de Thórie des Nombres de Bordeaux
J. of Topology
Manuscripta Mathematica
Math. Proceedings of the Cambridge Phil. Soc.
Mathematische Annalen
Mathematische Nachrichten
Pacific J. Math.
Proceedings of the A.M.S.
Proceedings of the London Math. Soc.
Rocky Mountain J. Math.
Topology
Transactions of the A.M.S.
Transformation Groups
U. Texas Undergraduate Research Journal
various conference proceedings volumes

Lectures

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

August 2019 *On the Steinberg Presentation*
    China-US Group Theory Summit, Texas State U.
March 2018 *Subgroups of* PGL_2 *and birational automorphisms of algebraic surfaces*
    Algebraic geometry seminar, Yale U.
February 2018 *Automorphisms of Enriques surfaces*
    Group theory and dynamics seminar, U.T. Austin
November 2017 *Steinberg Groups as Amalgams*
    Group theory seminar, U. Chicago
November 2017 *Local fundamental groups of discriminant complements*
    Group theory working group, U. Chicago
November 2016 *Kac–Moody groups over rings*
    Conference "Moonshine and K3 surfaces", Nagoya U. (Japan)
November 2016 *Kac–Moody groups over rings*
    Arithmetic and Geometry Seminar, Tokyo Inst. of Technology (Japan)
December 2015 *Kac–Moody groups over rings*
    Lie groups seminar, U. Michigan
* December 2015 *Kac–Moody groups made easy (well, easier....)*
    Colloquium, Arizona State U.
September 2015 *Introduction to conformal field theory (2 lectures)*
    Geometry & string theory seminar, U.T. Austin (with Bezhat Ergun)
September 2015 *Spherical space forms revisited*
    Geometry seminar, U.T. Austin
May 2015 *Automorphisms of Enriques surfaces*
    Algebraic geometry seminar, Hiroshima U.
* March 2015 *Complex hyperbolic geometry and (we hope) the monster simple group*
    Colloquium, Purdue U.
March 2015 *A fake projective plane from 2-adic uniformization with torsion*
    Algebraic geometry seminar, Purdue U.
November 2014 *Presentation of hyperbolic Kac-Moody groups over rings*
    Groups and dynamics seminar, Texas A&M
October 2014 *Presentation of hyperbolic Kac-Moody groups over rings*
    Group actions and dynamics seminar, U.T. Austin
July 2014 *Geometric generators for braid-like groups*
    South Kyushu Workshop on Algebra (Kumamoto U., Japan)
July 2014 *Geometric generators for braid-like groups*
    Algebraic geometry seminar, Research Inst. Math. Sci. (Kyoto U.)
Apr 2014 *Geometric generators for braid-like groups*
    Topology seminar, U.T. Austin
Jan 2014 *Geometric generators for braid-like groups*
    Conference "Geometry of Special Functions" (U. Nijmegen, Holland)

July 2013 *Presentation of the E_{10} Kac-Moody group*
　　conference: Geometric Group Theory (RIMS, Kyoto U.)
* July 2013 *Steinberg groups and Kac-Moody groups*
　　Colloquium, Kyoto U.
* May 2013 *Steinberg groups and Kac-Moody groups*
　　Colloquium, Kumamoto U.
May 2013 *New 2-adic uniformization of a fake projective plane*
　　algebraic geometry seminar, Kyoto U.
May 2013 *2-adic uniformization with torsion, and a fake projective plane*
　　algebraic geometry seminar, Nagoya U.
Feb 2013 *Root systems for rank 3 hyperbolic Kac-Moody algebras (3 lectures)*
　　　　Introduction to Singularity Theory (1 lecture)
　　winter school: Exceptional structures in geometry and field theory
　　(IPMU, Tokyo U.)
Nov 2012 *Hyperbolic root systems with Weyl vectors*
　　conference: Algebraic geometry, modular forms and applications to physics
　　(ICMS, Edinburgh)
* Oct 2012 *Root systems for hyperbolic Lie algebras*
　　Colloquium, U. Virginia math department
Sep 2012 *The reflective Lorentzian lattices in rank 3*
　　Group actions and dynamics seminar, U.T. Austin
Feb 2012 *The densest lattices in $PGL_3(\mathbf{Q}_2)$*
　　Topology seminar, U.T. Austin
Feb 2012 *Nonpositive curvature in algebraic geometry* (2 lectures)
　　conference: Extended root systems and fundamental groups (IPMU, Tokyo)
Oct 2011 *Finite Presentation of Kac-Moody groups over rings*
　　conference: Moduli spaces and automorphic forms (Luminy, France)
Sep 2011 *Finite Presentation of Kac-Moody groups over rings*
　　conference: CFT, automorphic forms and related topics (Heidelberg)
Sep 2011 *Finite Presentation of Kac-Moody groups over rings*
　　geometry seminar, U.T. Austin
Apr 2011 *Classification of reflective Lorentzian lattices*
　　algebraic geometry seminar, Nagoya U.
* Feb 2011: 2 lectures, *How to see spacetime* and *How to see a black hole*
　　"Yoshida Juku Senior" (4-day program for advanced Japanese undergraduates)
Jan 2011 *Curvature and branched covers in singularity theory*
　　conference: Arithmetic and algebraic geometry 2011 (Tokyo U.)
Dec 2010 *Completions and Branched Covers*
　　algebraic geometry seminar, Kyoto University
Nov 2010 *Completions and branched covers*
　　conference: Lattices, reflection groups and algebraic geometry (Nagoya U.)
Jun 2010 *Hyperbolic reflection groups and Lie algebras*
　　conference: Geometry and quantum theory (U. Nijmegen and U. Amsterdam)

* Jun 2010 *Hyperbolic reflection groups and Lie algebras*
     colloquium: University of Bonn
* Jun 2010 *Hyperbolic reflection groups and Lie algebras*
     colloquium: Hamburg University
* Feb 2010 *Hyperbolic reflection groups and Lie algebras*
     faculty 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 isoperimeteric 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 isoperimeteric 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