

David Dumas

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Academic Positions

- *Associate Professor*, University of Illinois at Chicago, 2011-
- *Assistant Professor*, University of Illinois at Chicago, 2008-2011
- *Tamarkin Assistant Professor & NSF Postdoctoral Fellow*, Brown University, 2005-2008
- *NSF Postdoctoral Fellow*, Rice University, 2004-2005

Visiting Positions

- *Professeur Invité*, Université Paris-Sud 11, June 2009
- *Member*, Mathematical Sciences Research Institute, Fall 2007

Education

- Ph.D. in Mathematics, Harvard University, June 2004
Advisor: Curtis T. McMullen
- B.S. in Mathematics & Physics, Pennsylvania State University, May 1999

Research Interests

- Real and complex projective structures on surfaces
- Teichmüller theory, hyperbolic geometry, and Kleinian groups
- Algorithms and computer visualization in geometry

Awards and Grants

- NSF CAREER Award, DMS-0952869, 2010-2015
- NSF Research Grant PI, DMS-0805525, 2008-2011
- NSF Postdoctoral Research Fellowship, 2004-2008
- NSF Graduate Research Fellowship, 1999-2004

Bibliography

- *Skinning maps are finite-to-one*. Preprint, 61pp.
- *Holonomy limits of complex projective structures*. Preprint, 42pp.
- *Grafting rays follow travel Teichmüller geodesics* (with Young-Eun Choi and Kasra Rafi). International Mathematics Research Notices (2011).
- *Bers slices are Zariski dense* (with Richard Kent). Journal of Topology 2 (2009), 373-379.
- *Complex projective structures* (survey). In *Handbook of Teichmüller Theory, Volume II* (EMS, 2009). 58pp.
- *Slicing, skinning, and grafting* (with Richard Kent). American Journal of Mathematics 131 (2009), 1419-1429.
- *Projective structures, grafting, and measured laminations* (with Michael Wolf). Geometry & Topology 12 (2008), 351-386.

- *Distribution of intersection lengths of a random geodesic with a geodesic lamination* (with Martin Bridgeman).
Ergodic Theory and Dynamical Systems 27 (2007), 1055-1072.
- *The Schwarzian derivative and measured laminations on Riemann surfaces*.
Duke Mathematical Journal 140 (2007), 203-243.
- *Grafting, pruning, and the antipodal map on measured laminations*.
Journal of Differential Geometry 74 (2006), 93-118. *Erratum*. *Ibid.*, 77 (2007), 175-176.
- *Complex projective structures, grafting, and Teichmüller theory*.
PhD Thesis, Harvard University, 2004

Software

- *Bear*, a program for exploring Bers slices and other aspects of the representation variety of punctured torus groups.
<http://bear.sourceforge.net/>
- *RandomChord*, a java applet for exploration of random chords in a hyperbolic ideal triangle.
<http://www.math.uic.edu/~ddumas/applets/RandomChord/>

Invited Lectures

2011

- *Real and complex boundaries in the character variety*
 - Wasatch Topology Conference
 - Geometry and Topology Seminar, University of Wisconsin, Madison
- *Floyd's theorem and A-trees*
 - William Rowan Hamilton Geometry and Topology Workshop, Trinity College, Dublin
- *Holonomy of projective structures and flat surfaces in hyperbolic space*
 - “Aspects of hyperbolicity in geometry, topology, and dynamics”, University of Warwick
- *Intersections in the character variety*
 - Topology/Geometry Seminar, Stanford University
 - Geometry/Topology Seminar, University of California, Davis
 - Geometry and Topology Seminar, California Institute of Technology
- *Skinning maps are finite-to-one*
 - “Analysis, Geometry, and Surfaces”, Autrans, France
- *Kähler structures on ML and applications*
 - Center for Dynamics and Geometry Seminar, Pennsylvania State University

2010

- *Kähler structures on ML and applications*
 - Geometry Seminar, Indiana University
- *Complex projective structures and character varieties*
 - Colloquium, University of Illinois at Urbana-Champaign
 - Colloquium, Indiana University
- Lecture series: *Complex projective structures and their holonomy representations*
 - Summer school on “Geometry, Topology and Dynamics of Character Varieties”,
Institute for Mathematical Sciences, National University of Singapore
- *Skinning maps are finite-to-one*
 - Special session, V Iberoamerican Congress on Geometry, Pucón, Chile

- AMS Special Session, Albuquerque, New Mexico
- *Rigidity and skinning maps*
 - Topology Seminar, Ohio State University

2009

- *Rigidity and skinning maps*
 - Geometry-Analysis Seminar, Rice University
 - *Kähler structures on ML*
 - Geometry and Topology Seminar, University of Warwick
 - Dynamics Seminar, Université Paris-Sud 11
- *Epstein surfaces, trees, and bubbles*
 - AMS Special Session, University of Illinois at Urbana-Champaign
 - UIC Geometry, Topology, and Dynamics Seminar
- *Bers slices are Zariski dense*
 - AMS-MAA Joint Meetings, Special Session, Washington, DC

2008

- *Complex projective structures on surfaces*
 - Karcher Colloquium, University of Oklahoma
- *Holonomy limits of complex projective structures*
 - Seminar, Indiana University
 - Seminar, University of Illinois at Urbana-Champaign
- *Grafting and the Teichmüller metric*
 - The Fourth Ahlfors-Bers Colloquium, Rutgers University, Newark
 - Seminar, University of Chicago
 - Seminar, Brown University
- *Complex projective structures and applications*
 - Colloquium, Queens College (CUNY)
 - Colloquium, University of Connecticut
 - Colloquium, University of California, Riverside
 - Colloquium, University of California, Santa Cruz
 - Colloquium, Lehman College (CUNY)

2007

- *Complex projective structures and applications*
 - Colloquium, University of Illinois at Chicago
 - Colloquium, University of Massachusetts, Amherst
 - Seminar, Johns Hopkins University 2007
- *The Zariski closure of a Bers slice*
 - “Topics in Teichmüller Theory and Kleinian Groups”, MSRI Workshop
- *Slicing, skinning, and grafting*
 - “Hyperbolic structures on 3-manifolds and large scale geometry of Teichmüller space”, University of Warwick
- *Slicing, skinning, and grafting*
 - “Geometry and Dynamics in Surfaces and 3-Manifolds”, Brown University
 - Seminar, Johns Hopkins University

- *Shapes of polygons*
 - Brown Symposium for Undergraduates in the Mathematical Sciences
- *Skinning maps are never constant*
 - Seminar, University of Pennsylvania

2006

- *Grafting coordinates for Teichmüller space*
 - Seminar, University of Michigan
 - Seminar, California Institute of Technology
 - AMS Special Session, University of Connecticut
 - Seminar, University of Maryland
- *Analysis and geometry of CP^1 structures on surfaces*
 - “Teichmüller Theory, Classical and Quantum”, Oberwolfach
 - “Georgia Topology Conference”, University of Georgia
 - “Teichmüller Theory and Moduli Problems”, Harish-Chandra Research Institute

2002-2005

- *The Schwarzian derivative and measured laminations on surfaces*
 - Seminar, Brown University, 2005
- *Grafting, the Schwarzian derivative, and CP^1 structures on surfaces*
 - “The Third Ahlfors Bers Colloquium”, University of Michigan, 2005
- *Grafting, pruning, and the Teichmüller geodesic involution*
 - “Hyperbolic Geometry and Geometric Analysis”, Wesleyan University, 2004
- *The geometry of complex projective Riemann surfaces*
 - Colloquium, Wesleyan University, 2004
 - Seminar, Brown University, 2004
- *Grafting and complex projective Riemann surfaces*
 - Seminar, University of Minnesota, 2004
- *Grafting of Riemann surfaces and limits of complex projective structures*
 - Seminar, Yale University, 2003
 - Seminar, University of Maryland, 2003
- *Complex projective structures and the Bers embedding*
 - “Spaces of Kleinian Groups”, Isaac Newton Institute, Cambridge University, 2003
- *Projective structures with quasi-Fuchsian holonomy*
 - Seminar, Wesleyan University, 2002
- *Projective structures and quasi-Fuchsian groups*
 - Colloquium, Oklahoma State University, 2002

Teaching

- University of Illinois at Chicago
 - MCS 481: Computational Geometry, Spring 2012
 - Math 180: Calculus I, Fall 2011
 - MCS 481: Computational Geometry, Spring 2011
 - Math 442: Differential Geometry of Curves and Surfaces, Fall 2010
 - Math 535: Complex Analysis I, Spring 2010

- Math 180: Calculus I, Fall 2009
- Math 442: Differential Geometry of Curves and Surfaces, Spring 2009
- Math 210: Multi-variable Calculus, Fall 2008
- Supervised reading courses:
 - Teichmüller Theory (Spring 2010)
 - Lie Groups and Riemannian Geometry (Spring 2010)
 - Differential Geometry (Fall 2009)
- Brown University
 - Math 18: Multi-variable Calculus, Fall 2007
 - Math 104: Fundamental Problems in Geometry, Spring 2006
 - Math 52: Introduction to Linear Algebra, Fall 2005
- Harvard University
 - Math Xb: Functions and Calculus II, Spring 2003
 - Groups of Möbius Transformations, Summer 2002 (6-week course)
 - QR26: Decisions, Games, and Negotiation, Fall 2001
 - Hyperbolic Geometry in Two and Three Dimensions, Summer 2001 (6-week course)
- Other teaching:
 - SESAME: Weekend enrichment for secondary school teachers, Fall 2002
 - Substitute mathematics teaching, West Roxbury, MA Spring 2002

Service

- University administration
 - UIC Faculty Senate (2011-2014)
- Department administration
 - Hiring committee (2011)
 - Calculus coordinator (Fall 2011, Fall 2009)
 - Advisory committee (2011-2013)
 - Undergraduate studies committee (2010-2011)
 - Calculus committee (2010-2012)
 - Colloquium committee (2009- 2011)
 - Graduate admissions committee (2009)
- Conferences
 - Organizer of the *Undergraduate Mathematics Symposium* at UIC, an annual meeting featuring faculty and undergraduates speakers. (First held October 2010)
 - Co-organizer, *Workshop in Dynamics* at UIC, May 17-21, 2010
- Peer review activities
 - NSF Panel Member, February 2010 and January 2009
 - Referee for: *Duke Mathematical Journal*, *Geometry & Topology*, *Inventiones Mathematicae*, *Mathematical Research Letters*, *Topology Proceedings*

Advising

- Current doctoral student: *Jonah Gaster*

Version

- This document was last updated on March 14, 2012.