Joel Louwsma

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EDUCATION	**California Institute of Technology**, Pasadena, California

Ph.D. in Mathematics   June 2011

- Advisor: Danny Calegari
- Thesis: *Extremality of the rotation quasimorphism on the modular group*

University of Michigan, Ann Arbor, Michigan

B.S. with Highest Honors in Mathematics   April 2005

- Fall 2004 and Spring 2005 spent at the Math in Moscow program.
- Spring 2003 spent at the Budapest Semesters in Mathematics program.

EMPLOYMENT

Smith College, Northampton, Massachusetts

Visiting Assistant Professor   July 2014–present

The University of Oklahoma, Norman, Oklahoma

Visiting Assistant Professor (Postdoc)   August 2011–May 2014

RESEARCH INTERESTS

Geometric group theory

Low-dimensional topology

PAPERS

Stable commutator length in Baumslag–Solitar groups and quasimorphisms for tree actions, with Matt Clay and Max Forester, Trans. Amer. Math. Soc., to appear, arXiv:1310.3861.

Immersed surfaces in the modular orbifold, with Danny Calegari, Proc. Amer. Math. Soc. **139** (2011), 2295–2308.

A new computation of the codimension sequence of the Grassmann algebra, with Adilson Eduardo Presoto and Alan Tarr, Rose–Hulman Undergraduate Mathematics Journal **6** (2005), no. 2.

AWARDS

Mathematical Congress of the Americas Travel Grant

American Mathematical Society   2013

Apostol Award for Excellence in Teaching in Mathematics

California Institute of Technology   May 2010

INVITED HOUR-LONG RESEARCH TALKS

Brandeis University, Waltham, Massachusetts

Topology Seminar   October 14, 2014 (scheduled)

Yale University, New Haven, Connecticut
Geometry and Topology Seminar   September 2, 2014 (scheduled)

Cornell University, Ithaca, New York
Topology and Geometric Group Theory Seminar   November 12, 2013

Fall Redbud Topology Conference
University of Arkansas, Fayetteville, Arkansas   November 19, 2011

The University of Sydney, Sydney, Australia
Infinite Groups Seminar   August 1, 2011

Workshop on Geometric Group Theory
Louisiana State University, Baton Rouge, Louisiana   July 8, 2011

The Ohio State University, Columbus, Ohio
Geometric Group Theory Seminar   April 21, 2011

CIRGET, Montréal, Canada
Geometry and Topology Seminar   November 5, 2010

Claremont Colleges, Claremont, California
Claremont Topology Seminar   March 30, 2010

University of Southern California, Los Angeles, California
Geometry and Topology Seminar   March 8, 2010

INVITED SHORT RESEARCH TALKS

AMS Spring Southeastern Section Meeting
Special Session on Geometric Topology and Number Theory
University of Tennessee, Knoxville, Tennessee   March 23, 2014

48th Spring Topology and Dynamics Conference
Special Session on Geometric Group Theory   March 15, 2014
University of Richmond, Richmond, Virginia

Joint Mathematics Meetings
AMS Special Session on Geometric Group Theory   January 16, 2014
Baltimore, Maryland

AMS Spring Central Section Meeting
Special Session on Geometric Topology and Group Theory   April 1, 2012
University of Kansas, Lawrence, Kansas

AMS Spring Western Section Meeting
Special Session on Asymptotic Group Theory   March 4, 2012
University of Hawaii at Manoa, Honolulu, Hawaii

The Triennial Ahlfors–Bers Colloquium
Dynamics Workshop   March 24, 2011
Rice University, Houston, Texas

45th Spring Topology and Dynamics Conference
Special Session on Geometric Group Theory   March 18, 2011
Special Session on Geometric Topology   March 18, 2011
The University of Texas at Tyler, Tyler, Texas

Joint Mathematics Meetings
AMS Special Session on Geometric Group Theory   January 6, 2011
New Orleans, Louisiana

Workshop on Geometric Group Theory
Goa University, Goa, India   August 9, 2010

CONTRIBUTED
RESEARCH
TALKS

Joint Mathematics Meetings
AMS Special Session on the Geometry of Real Projective Structures
Boston, Massachusetts   January 5, 2012

Geometric Group Theory Workshop
University of Bristol, Bristol, England   June 20, 2011

AMS Spring Western Section Meeting
Special Session on Geometric Group Theory and Dynamics   May 1, 2011
University of Nevada, Las Vegas, Nevada

Ninth Annual Graduate Student Topology and Geometry Conference
Michigan State University, East Lansing, Michigan   April 2, 2011

Eighth Annual Graduate Student Topology and Geometry Conference
Geometric Group Theory Session   April 10, 2010
University of Michigan, Ann Arbor, Michigan

Geometric Groups on the Gulf Coast
Pensacola Beach, Florida   March 25, 2010

Joint Mathematics Meetings
AMS Session on Group Theory   January 13, 2010
San Francisco, California

TEACHING
TALKS

Joint Mathematics Meetings
MAA Session on Assessing Student Learning: Alternative Approaches
Baltimore, Maryland   January 15, 2014

TEACHING
EXPERIENCE

Primary Instructor, Smith College   2014–present
- **Calculus I**, Fall 2014
- **Calculus II**, Spring 2015 (scheduled)
- **Calculus III**, Fall 2014

Primary Instructor, The University of Oklahoma   2011–2014
- **Calculus and Analytic Geometry III**, Fall 2011, Fall 2012
- **Calculus and Analytic Geometry IV**, Spring 2014
- **Introduction to Ordinary Differential Equations**, Spring 2012, Fall 2012, Spring 2013
- **Linear Algebra I**, Fall 2013

Teaching Assistant, California Institute of Technology   2005–2010
- **Calculus**, Fall 2005
- **Linear Algebra**, Winter 2006, Winter 2007
- **Vector Calculus**, Spring 2006, Spring 2007, Spring 2009, Spring 2010
- **Differential Equations**, Fall 2006, Fall 2007, Fall 2008, Fall 2009
- **Probability and Statistics**, Winter 2008, Winter 2009

PROFESSIONAL DEVELOPMENT	**Teaching Scholars Initiative**	Fall 2011, Fall 2013

Teaching Scholars Initiative   Fall 2011, Fall 2013
A teaching colloquium at the University of Oklahoma aimed at improving student learning.

Project NExT   2012–2013
A program of the Mathematical Association of America for new or recent Ph.D.s in the mathematical sciences who are interested in improving the teaching and learning of undergraduate mathematics. It addresses the full range of faculty responsibilities in teaching, research, and service.

Faculty Learning Community   Spring 2013
A group of faculty at the University of Oklahoma who read and discussed the book *How Learning Works: Seven Research-Based Principles for Smart Teaching.*

New Faculty Seminar   Fall 2011
A 12-week seminar for new faculty at the University of Oklahoma.

Pedagogy Workshop Series   2007–2009
A series of six workshops offered by the Caltech Project for Effective Teaching designed to help participants reflect upon and improve their teaching skills.

EXTENDED VISITS

The Ohio State University, Columbus, Ohio   Spring 2011
(part of Special Year in Topology and Geometric Group Theory)

Centre de Recherches Mathématiques, Montréal, Canada   Fall 2010
(program on Geometric, Combinatorial and Computational Group Theory)

ORGANIZATION

Spring Redbud Topology Conference, Co-organizer
The University of Oklahoma, Norman, Oklahoma   April 11–13, 2014

Geometry and Topology Seminar, Organizer
The University of Oklahoma, Norman, Oklahoma   Fall 2012–Spring 2014

How to make peer learning and small groups work in class, Co-organizer
Panel discussion at Project NExT Workshop   July 31, 2013
Hartford, Connecticut

Fall Redbud Topology Conference, Co-organizer
The University of Oklahoma, Norman, Oklahoma   November 3, 2012

Special Session on Geometric Group Theory and Dynamics, Co-organizer
AMS Spring Western Section Meeting   April 30–May 1, 2011
University of Nevada, Las Vegas, Nevada

SELECTED CONFERENCES ATTENDED FOR PRIMARILY RESEARCH PURPOSES

Geometry on Groups and Spaces   August 2014
Korea Advanced Institute of Science and Technology, Daejeon, Korea

What's Next? The mathematical legacy of Bill Thurston
Cornell University, Ithaca, New York   June 2014

GEAR Junior Retreat
University of Michigan, Ann Arbor, Michigan   May–June 2014

Smoky–Cascade Geometry Conference
University of Tennessee, Knoxville, Knoxville, Tennessee   March 2014

Topology, Geometry, and Group Theory, Informed by Experiment

ICERM, Brown University, Providence, Rhode Island   October 2013

Mathematical Congress of the Americas
Guanajuato, Mexico   August 2013

Mathematics Research Community on Geometric Group Theory
Snowbird Resort, Utah   June 2013

Cube complexes and 3-manifolds
The University of Illinois at Chicago, Chicago, Illinois   May 2013

3-manifolds: Heegaard Splittings, the Curve Complex, and Hyperbolic Geometry
Rice University, Houston, Texas   April 2013

Hot Topics: Surface subgroups and cube complexes
Mathematical Sciences Research Institute, Berkeley, Calif.   March 2013

Young Geometric Group Theory II
The Technion, Haifa, Israel   February 2013

Conference on Automorphisms of Free Groups
Centre de Recerca Matemàtica, Bellaterra, Spain   November 2012

IAS/Park City Mathematics Institute (Topic: Geometric group theory)
Park City, Utah   July 2012

Young Geometric Group Theory Meeting
MRCC, Będlewo, Poland   January 2012

Tech Topology Conference
Georgia Institute of Technology, Atlanta, Georgia   December 2011

Geometry & Topology Down Under
The University of Melbourne, Melbourne, Australia   July 2011

Recent Advances in Geometric Group Theory
University of Southampton, Southampton, England   June–July 2011

The Geometry of Real Projective Structures
Snowbird Resort, Utah   June 2011

The 6th William Rowan Hamilton Geometry & Topology Workshop
Hamilton Mathematics Institute, Dublin, Ireland   September 2010

International Congress of Mathematicians
Hyderabad, India   August 2010

Geometry, Topology and Dynamics in Negative Curvature
Raman Research Institute, Bangalore, India   August 2010

Oberwolfach Seminar on Bounded Cohomology
Mathematisches Forschungsinstitut Oberwolfach, Germ.   May–June 2009

More Examples of Groups
The Ohio State University, Columbus, Ohio   May 2009

Examples of Groups
The Ohio State University, Columbus, Ohio   May–June 2008

Georgia Topology Conference
University of Georgia, Athens, Georgia   May 2008

The Fourth Ahlfors–Bers Colloquium
Rutgers University, Newark, New Jersey   May 2008

Geometric Groups on the Gulf Coast
Pensacola Beach, Florida   March 2008

Joint Mathematics Meetings
San Diego, California   January 2008

Topics in Teichmüller Theory and Kleinian Groups
Mathematical Sciences Research Institute, Berkeley, Cal.   November 2007

Introduction to Geometric Group Theory
Mathematical Sciences Research Institute, Berkeley, Calif.   August 2007

Introduction to Teichmüller Theory and Kleinian Groups
Mathematical Sciences Research Institute, Berkeley, Calif.   August 2007

Workshop in Geometric Topology
Calvin College, Grand Rapids, Michigan   June 2007

Geometry and the Imagination
Princeton University, Princeton, New Jersey   June 2007

IAS/Park City Mathematics Institute (Topic: Low-dimensional topology)
Park City, Utah   June–July 2006

Selected
Conferences
Attended for
Primarily
Pedagogical
Purposes

17th Annual Legacy of R.L. Moore Conference
Denver, Colorado   June 2014

MathFest
Hartford, Connecticut   July–August 2013

MAA PREP Inquiry-Based Learning Workshop
California State Polytechnic Univeristy, San Luis Obispo, Cal.   June 2013

16th Annual Legacy of R.L. Moore Conference
The University of Texas at Austin, Austin, Texas   June 2013

Oklahoma–Arkansas MAA Section Meeting
Oklahoma State University, Stillwater, Oklahoma   April 2013

Joint Mathematics Meetings
San Diego, California   January 2013

MathFest
Madison, Wisconsin   August 2012

Service

Led **preparatory sessions for topology qualifying exam**
The University of Oklahoma   July 2013, May 2014

Judge for Undergraduate Poster Session
Joint Mathematics Meetings   January 2013

Volunteer for **Math Day** for high school students
The University of Oklahoma   November 2011, November 2013

Committee to determine mathematics placement of incoming undergraduates
California Institute of Technology   Summer 2009

Coordinated **TA training** for new mathematics graduate students in conjunction with the Caltech Project for Effective Teaching   Fall 2008

MEMBERSHIPS   **American Mathematical Society**
                Mathematical Association of America

CITIZENSHIP   **USA**