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**Research
Interest**

Geometric group theory
Low dimensional geometry, topology, and dynamics
Mapping class groups and Teichmüller space

Education

Ph.D. in Mathematics, State University of New York at Stony Brook, May 2004.
Thesis Advisor: Yair Minsky
B.A. in Mathematics (with Honors), University of California at Berkeley, May 1998.

Appointments

Assistant Professor of Mathematics Lehman College, CUNY	September 2008–Present
Ritt Assistant Professor of Mathematics Columbia University	July 2007–August 2008
Postdoctoral General Member Mathematical Science Research Institute	August 2007–December 2007
VIGRE Assistant Professor of Mathematics University of Utah	July 2005–June 2007
Assistant Professor of Mathematics Barnard College, Columbia University	July 2004–June 2005

**Awards and
Grants**

Feliks Gross Endowment Award for Outstanding Scholarly Achievement, CUNY
Academy for the Humanities and Sciences, 2009.
PSC-CUNY grant # 60051-39 40, 2009–2010
NSF grant #DMS-0812513 Principal Investigator, 2007–2009.
NSF grant #DMS-0604524 Principal Investigator, 2006–2009.
NSF VIGRE Postdoctoral Fellowship, 2005–2007.
NSF grant #DMS-0501702 Co-Principal Investigator, supporting the conference
“Braids, Links, and Mapping Class Groups,” Barnard College/Columbia Univer-
sity; Spring 2005.
Dorothy Pieper Merit Award for Outstanding Entering Doctoral Students, 1998.

**Publications
& Preprints**

1. Asymptotic geometry of the mapping class group and Teichmüller Space. *SUNY Stony Brook Ph.D Dissertation*.
Available at: <http://www.math.columbia.edu/~jason> .
2. Asymptotic geometry of the mapping class group and Teichmüller Space. **Geometry & Topology**, vol. 10 (2006) 1523–1578.
3. Curve complexes and finite index subgroups of mapping class groups, with D. Margalit. **Geometriae Dedicata**, vol. 118 (2006) 71–85.
4. Dimension and rank for mapping class groups, with Y. Minsky. **Annals of Mathematics**, vol. 167, (2008), 1055–1077.
5. Quasi-isometric classification of graph manifolds, with W. Neumann. **Duke Mathematical Journal**, vol. 141, (2008) 217–240.
6. Thick metric spaces, relative hyperbolicity, and quasi-isometric rigidity, with C. Druţu and L. Mosher. **Mathematische Annalen**, vol. 344, (2009), 543–595.
7. Commensurability and QI classification of free products of finitely generated abelian groups, with T. Januszkiewicz and W. Neumann. **Proceedings of the American Mathematical Society**, vol. 137, (2009) 811–813.
8. Geometry and rigidity of mapping class groups, with B. Kleiner, Y. Minsky, and L. Mosher. Preprint. <http://arXiv.org:0801.2006>
9. Growth of intersection numbers for free group automorphisms, with M. Clay and M. Bestvina. **Journal of Topology**, to appear.
10. Centroids and the Rapid Decay property for mapping class groups, with Y. Minsky. Preprint. <http://arXiv.org:0810.1969>
11. Median structures on asymptotic cones and homomorphisms into mapping class groups, with C. Druţu and M. Sapir. Preprint. <http://arXiv.org:0810.5376>
12. Quasi-isometric classification of high dimensional right angled Artin groups, with T. Januszkiewicz and W. Neumann. Preprint. <http://arXiv.org:0906.4519>
13. Quasi-isometric classification of non-geometric 3-manifold groups, with W. Neumann. Preprint. <http://arXiv.org:1001.0212>
14. Divergence and quasimorphisms of right-angled Artin groups, with R. Charney. Preprint. <http://arXiv.org:1001.3587>

**Student
publications
supervised**

- So Eun Park. Undergraduate at Columbia University.
Symmetries of the Tower of Hanoi. <http://arXiv:0809.1179>. **American Mathematical Monthly**, to appear.
- Michael Rand. Undergraduate at Columbia University.
On the Frame-Stewart algorithm for the Tower of Hanoi. Undergraduate Thesis.

Lectures

Invited Conference and Colloquia Lectures

Wasatch Topology Conference; Park City, Utah. Winter 2009.

Conference on Topology and Computers; Tokyo Institute of Technology, Japan. Summer 2009. (Plenary.)

NSF-CBMS conference (Families of Riemann Surfaces and Weil-Petersson); Central Connecticut State University. Summer 2009. (Plenary Lecture.)

Colloquium; Temple University, Pennsylvania. Spring 2009.

Spring Topology and Dynamics Conference; University of Florida (Section on Geometric Topology). Spring 2009.

Spring Topology and Dynamics Conference; University of Florida (Section on Geometric Group Theory). Spring 2009.

The 5th East Asian School of Knots and Related Topics; Gyeongju, Korea. Winter 2009. (Plenary.)

Colloquium; University of California, Los Angeles. Fall 2008.

Colloquium; University of California, Davis. Fall 2008.

Colloquium; University of Muenster, Germany. Fall 2008

Geometric Group Theory, Geometric Analysis, and Mapping Class Groups; Johns Hopkins University, Maryland. Summer 2008. (Plenary.)

Colloquium; Tufts University, Massachusetts. Spring 2008.

Colloquium; Tulane University, Louisiana. Spring 2008.

Colloquium; Lehman College, CUNY, New York. Fall 2007.

Research conference on geometric group theory; Mathematical Science Research Institute, Berkeley, California. Fall 2007. (Plenary.)

Analysis on Homogeneous Spaces; University of Arizona. Spring 2007. (Plenary.)

Topology; Banff International Research Station, Canada. Winter 2007. (Plenary.)

Outre-espace et Espace de Teichmüller; Centre International de Rencontres Mathématiques, Luminy, France. Winter 2007. (Plenary.)

AMS/MAA National Joint Meeting, Special Section on Geometric Group Theory; New Orleans, Louisiana. Winter 2007.

AMS Sectional Meeting, Special Section on Low Dimensional Topology and Geometry; University of Utah. Fall 2006.

Conference on Geometric Group Theory; Centre de Recherches Mathématiques, Montréal, Canada. Summer 2006. (Plenary.)

Summer Research Program on Low Dimensional Topology; Park City Math Institute, Utah. Summer 2006. (Plenary.)

Georgia Topology Conference; University of Georgia. Summer 2006. (Plenary.)

Combinatorial and Geometric Group Theory Conference; Vanderbilt, Tennessee. Summer 2006.

Spring Lecture Series; University of Arkansas. Spring 2006.

Spring Topology and Dynamics Conference; UNC Greensboro. Spring 2006.

Geometric and Probabilistic Methods in Group Theory and Dynamical Systems; Texas A&M, Texas. Fall 2005.

AMS Sectional Meeting, Special Section on Geometric Group Theory; Bard College, New York. Fall 2005.

Colloquium; Brigham Young University, Utah. Fall 2005.

Asymptotic and Probabilistic Methods in Geometric Group Theory; University of Geneva, Switzerland. Summer 2005.

Geometric and Asymptotic Methods in Group Theory; Banff International Research Station, Canada. Summer 2005. (Plenary.)

Geometric Groups in the Gulf; Florida. Fall 2004. (Plenary.)

Albany Group Theory Conference; New York. Fall 2004.

Conference on Combinatorial Topology in Mapping Class Groups; University of Chicago. Spring 2004. (Plenary.)

Albany Group Theory Conference; New York. Fall 2003.

Invited Seminar Lectures (selected)

Columbia University; Geometric Topology Seminar. Spring 2010.

University of Southern California; Geometry and Topology Seminar. Fall 2008.

University of Muenster, Germany. Geometry Seminar. Fall 2008

University of Muenster, Germany. Topology Seminar. Fall 2008

CUNY, Graduate Center; Differential Geometry Seminar. Fall 2008.

Columbia University; Geometric Topology Seminar. Fall 2008.

Vanderbilt University; Noncommutative Geometry Seminar (2 lectures). Spring 2008.

Yale University; Topology Seminar. Spring 2008.

University of California, Davis; Geometry/Topology Seminar. Spring 2008.

Rutgers University, New Brunswick; Topology and Geometry Seminar. Fall 2007.

Columbia University; Geometric Topology Seminar. Fall 2007.

University of Pennsylvania; Geometry and Topology Seminar. Fall 2007.

Brown University; Geometry and Topology Seminar. Spring 2007.

Harvard University; Geometry and Dynamics Seminar. Spring 2007.

Tufts University; Geometric Group Theory and Topology Seminar. Spring 2007.

University of California, Berkeley; Topology Seminar. Spring 2007.

University of Southern California; Geometry and Topology Seminar. Fall 2006.

Princeton University; Topology Seminar. Fall 2006.

Vanderbilt University; Topology and Group Theory Seminar. Spring 2006.

University of Texas, Austin; Topology Seminar. Spring 2006.

Columbia University; Geometric Topology Seminar. Fall 2005.

Ohio State University; Geometric Group Theory Seminar. Fall 2005.

Cornell University; Topology and Geometric Group Theory Seminar. Fall 2005.

University of Utah; Max Dehn Seminar. Fall 2005.
Columbia University; Geometric Topology Seminar. Spring 2005.
CUNY, Graduate Center; Magnus Seminar. Fall 2004.
Cornell University; Topology and Geometric Group Theory Seminar. Fall 2004.
Rutgers University, New Brunswick; Topology and Geometry Seminar. Spring 2004.
University of Utah; Max Dehn Seminar. Spring 2004.
California Institute of Technology; Geometry and Topology Seminar. Fall 2003.
University of Chicago; Geometry and Topology Seminar. Fall 2003.
University of Illinois, Chicago; Geometry, Topology, and Dynamics Seminar. Fall 2003.
Columbia University; Geometric Topology Seminar. Fall 2003.
SUNY Stony Brook; Complex Analysis and Geometry Seminar. Fall 2002.

Expository Lectures for Undergraduates

Tulane University, Louisiana. Spring 2008.
Columbia University, New York. Spring 2008.

**Teaching
Experience****Graduate Center, CUNY**

Fall 2009: Topics in Group Theory.

Lehman College, CUNY

Fall 2008–Spring 2009: Calculus.

Fall 2009: Multivariable Calculus

Columbia University

Fall 2007–Spring 2008: Multivariable Calculus.

University of Utah

Fall 2006: Trigonometry

Spring 2006: Algebraic Topology.

Fall 2005: Point-set Topology; Honors Undergraduate Thesis reading course on One-dimensional Dynamical Systems; Graduate reading course in Topology.

Barnard College

Fall 2004–Spring 2005: First Semester Calculus and Multivariable Calculus.

SUNY Stony Brook

Fall 2001–Fall 2002: First Semester Calculus, Instructor.

Spring 2003: Mathematical Logic (Upper Division Mathematics/Computer Science course).

Fall 2000–Spring 2001: First and Second Semester Calculus, Teaching Assistant.

**Professional
Activities**

Ph.D. advisor for candidate Harold Sultan at Columbia University.

Refereed for a number of journals, including: *Algebraic & Geometric Topology*, *American Mathematical Monthly*, *Duke Mathematical Journal*, *Geometry & Topology*, *Groups, Geometry, and Dynamics*, *Journal of Topology*, *Michigan Mathematical Journal*, *Proceedings of the American Mathematical Society*, *Revista Colombiana de Matematicas*, *Transactions of the American Mathematical Society*, *Topology and its Applications*

Reviewer for *Math Reviews*.

Calculus Committee, Mathematics Department, Lehman College, 2008–2009.

Co-organizer of conference on “Quasi-isometric rigidity in low dimensional topology,” at Banff International Research Station, Canada, March 2010.

Initiated and organized the Geometry and Topology Seminar, CUNY Graduate Center, Fall 2008–present.

Co-organizer of the Max Dehn Seminar, University of Utah, 2005–2007.

Co-organizer of “Braids, Links, and Mapping Class Groups,” an international conference in honor of Joan Birman; Spring 2005.

Co-organizer of the Geometric Topology Seminar, Columbia University, 2004–2005.

Co-organizer of the Complex Analysis and Geometry Seminar, SUNY Stony Brook, 2002–2003.

Co-organizer of the Dynamical Systems Seminar, UC Berkeley, 1996–1997.

**Synergistic
Activities**

Ph.D. Qualifying Exam Committee Member for Harold Sultan, Columbia University, Fall 2008.

Undergraduate Thesis Reader for Michael Rand, Columbia University, Spring 2009.

Organized and ran an NSF supported Research Experience for Undergraduates (REU) program at Columbia University on “The Tower of Hanoi” for 5 students, Summer 2008.

Organized and ran an NSF supported Research Experience for Undergraduates (REU) program at the University of Utah on “The Geometry of Mobius Transformations” for 8 students, Summer 2006.

Organizer of the Mini Max Dehn (Graduate Topology) Seminar, University of Utah, Spring 2006.

Advisor for Undergraduate Honors Thesis at the University of Utah, Fall 2005.

Organized and ran a Graduate reading course in Topology for beginning graduate students, Fall 2005.

Recruitment of new incoming students (intended mathematics majors) for Barnard College, 2004–2005.

As a volunteer, taught Pre-Algebra to a group of inmates at San Quentin State Prison, California, who were working towards Associate in Arts degrees, 1997–1998.

References

Mladen Bestvina, University of Utah, bestvina@math.utah.edu

Wolfgang Lück, Universität Münster, lueck@math.uni-muenster.de

Yair Minsky, Yale University, yair.minsky@yale.edu

Lee Mosher, Rutgers University at Newark, mosher@andromeda.rutgers.edu

Walter Neumann, Barnard College, Columbia University, neumann@math.columbia.edu

Guoliang Yu, Vanderbilt University, guoliang.yu@vanderbilt.edu

David Bayer (teaching), Barnard College, Columbia University, bayer@math.columbia.edu