

CONTACT INFORMATION	Department of Mathematics University at Buffalo 244 Mathematics Building Buffalo, NY 14260 USA	Phone: (716) 645-8767 Fax: (716) 645-5039 E-mail: mangahas@buffalo.edu URL: www.buffalo.edu/~mangahas
EDUCATION	Ph.D. in Mathematics, August 2010, University of Michigan, Ann Arbor <i>Thesis advisors: Richard Canary and Juan Souto</i>	
	B.A., May 2000, University of California, Berkeley ( <i>highest distinction in general scholarship</i> ) Mathematics ( <i>with distinction</i> ) and English ( <i>with highest distinction</i> )	
APPOINTMENTS	Assistant Professor, University at Buffalo, August 2014 – present NSF Mathematical Sciences Research Postdoctoral Fellow, July 2012 – 2015 Tamarkin Assistant Professor, Brown University, July 2010 – July 2014	
OTHER EMPLOYMENT	Air Quality Modeling Consultant, ICF/SAI, San Francisco, CA 2002 – 2004 Technical Editor, Liftech Consultants Inc., Oakland, CA, 2000 – 2001	
PAPERS AND PUBLICATIONS	<p><i>Right-angled Artin group as normal subgroups of mapping class groups</i>, with Matt Clay and Dan Margalit, in preparation.</p> <p>The ping-pong lemma, <i>Office hours with a geometric group theorist</i>, Princeton Univ. Press, Princeton, NJ, 2017.</p> <p><i>The geometry of purely loxodromic subgroups of right-angled Artin groups</i>, with Thomas Koberda and Samuel J. Taylor. Transactions of the American Mathematical Society 369 (2017), no. 11.</p> <p><i>Convex cocompactness in mapping class groups via quasiconvexity in right-angled Artin groups</i>, with Samuel J. Taylor. Proceedings of the London Mathematical Society (3) 112 (2016), no 5.</p> <p><i>An algorithm to detect full irreducibility by bounding the volume of periodic free factors</i>, with Matt Clay and Alexandra Pettet. Michigan Mathematical Journal 64 (2015), no 2.</p> <p><i>An effective algebraic detection of the Nielsen-Thurston classification of mapping classes</i>, with Thomas Koberda. Journal of Topology and Analysis 7 (2015), no. 1.</p> <p><i>A recipe for short-word pseudo-Anosovs</i>. American Journal of Mathematics 135 (2013), no. 4.</p> <p><i>The geometry of right-angled Artin subgroups of mapping class groups</i>, with Matt Clay and Chris Leininger. Groups, Geometry, and Dynamics 6 (2012), no. 2.</p> <p><i>Uniform exponential growth of subgroups of the mapping class group</i>. Geometric and Functional Analysis 19 (2010), no. 5.</p>	
AWARDS AND FUNDING	NSF Topology grant, 2018 – 2021 (Proposal DMS 1812021) Research Member, MSRI Semester Program on Geometric Group Theory, Fall 2016 NSF Mathematical Sciences Research Postdoctoral Fellowship, July 2012 – July 2015 AMS-Simons Travel Grant 2011 – 2013	

## TEACHING

**Introduction to Contemporary Mathematics** (created, developed, and taught):  
 Spring and Fall 2017, Fall 2018  
**Calculus I:** Fall 2006, 2005  
**Calculus II:** Fall 2011 (coordinator), 2010, Winter 2009, 2008  
**Calculus III:** Spring 2011, Spring 2016  
**Linear algebra (honors):** Fall 2010  
**Differential Equations:** Spring 2015  
**Real Analysis:** Spring 2012  
**Complex Analysis:** Fall 2011  
**Fundamental Problems of Geometry:** Spring 2013  
**Graduate Differential Geometry:** Spring 2018,  
**Graduate Topics Course:** Spring 2018, Spring 2017, Spring 2016  
**Graduate Reading Course:** Fall 2016, Spring 2015

## SERVICE

- Graduate Advisor, Abdalrazzaq Zalloum
- Organizer, Special Session on Geometric Group Theory, AMS Fall Eastern Sectional Meeting 2017
- Organizer, ICERM Semester Workshop on Effective and Algorithmic Methods in Hyperbolic Geometry and Free Groups, May 16 – 20, 2016
- Faculty Sponsor, Association for Women in Mathematics (AWM) Student Chapter at University at Buffalo
- Organizer, Knots, Braids, and Mapping Classes: A Conference in Honor of Bill Menasco's 60th Birthday, May 11 – 12, 2015
- Undergraduate Committee, University at Buffalo Department of Mathematics, 2014 – present
- Organizer, Geometry and Topology Seminar @ Brown & Yale, 2012 – 2014
- Sophomore Advisor for Brown University Office of the Dean of the College, 2011 – 2012
- Referee for: *Experimental Mathematics*; *Geometriae Dedicata*; *Geometric and Functional Analysis*; *Groups, Geometry, and Dynamics*; *International Journal of Algebra and Computation*; *Journal of Topology*;

INVITED TALKS  
(SINCE 2012)

- Workshop on Graphs, Surfaces and Cube Complexes, Warwick, UK, 7/18
- Topology Seminar, University of Michigan, 3/18
- Session on Low dimensional topology and geometric group theory, CMS Winter Meeting, Waterloo, Canada, 12/17
- Special Session on Infinite Groups and Geometric Structures: A Session in Honor of the Sixtieth Birthday of Andrew Nicas, AMS Fall Eastern Sectional Meeting, Buffalo NY, 9/17
- Scientific Session on Geometric Group Theory, Mathematical Congress of the Americas 2017, 7/17
- 51st Spring Topology and Dynamics Conference, 3/17
- MAA Invited Paper Session on Office Hours with a Geometric Group Theorist, 2017 JMM, Atlanta GA, 1/17
- Special Session on Convex Cocompactness, AMS Fall Eastern Sectional Meeting, Bowdoin College, 9/16
- Special Session on Geometric Group Theory, AMS Fall Eastern Sectional Meeting, Bowdoin College, 9/16
- Workshop on Mapping Class Groups and  $\text{Out}(F_n)$ , University of Texas at Austin, 5/15
- University of Virginia Colloquium, 4/15
- Special Session on Geometric Group Theory and Topology, AMS Spring Southeastern Sectional Meeting, Huntsville, AL, 3/15
- Session on Geometry and Topology of Manifolds in Low Dimensions, CMS Winter Meeting, Hamilton, Canada, 12/14
- Combinatorial Link Homology Theories, Braids, and Contact Geometry, ICERM, 8/14
- GEAR Junior Retreat, Univ. of Michigan, 5/14

- Syracuse University Colloquium, 4/14
- Redbud Topology Conference, University of Oklahoma, 4/14
- Special Session on Low-dimensional Topology and Group Theory, AMS Spring Eastern Sectional Meeting, Baltimore, MD, 3/14
- Boston U. Dynamical Systems Seminar, 3/14
- 48th Spring Topology and Dynamics Conference, 3/14
- Georgia Tech Geometry Topology Seminar, 3/14
- MAA Invited Paper Session on Six Crash Courses on Mapping Class Groups, 2014 JMM, Baltimore, MD, 1/14
- AMS Special Session on Geometric Group Theory, 2014 JMM, Baltimore, MD, 1/14
- Session on Geometric Group Theory and Low Dimensional Topology, CMS Winter Meeting, Ottawa, Canada, 12/13
- Cornell Topology and Geometric Group Theory Seminar, 10/13
- Boston College Geometry/Topology Seminar, 9/13
- Geometric Topology in New York, 8/13
- XXIIInd Rolf Nevanlinna Colloquium, Helsinki, Finland, 8/13
- 47th Spring Topology and Dynamics Conf., 3/13
- Columbia Geometric Topology Seminar, 2/13
- Session on Geometrical Group Theory, CMS Winter Meeting, Montreal, Canada, 12/12
- Wesleyan Topology Seminar, 10/12
- University of Oklahoma Geometry and Topology Seminar, 10/12
- Research Programme Seminar, Centre de Recerca Matemàtica, Spain, 9/12
- The 8th William Rowan Hamilton Geometry & Topology Workshop, Ireland, 9/12
- CUNY Geometry and Topology Seminar, 5/12
- RTG Workshop on Recent Progress on Hyperbolic 3-Manifolds, Univ. of Michigan, 5/12
- Topology Seminar, U. T. Austin, 4/12
- Yale Geometry and Topology Seminar, 4/12
- Young Geometric Group Theory Meeting, Bedlewo, Poland, 1/12
- AMS Special Session on Hyperbolicity in Manifolds and Groups, 2012 JMM, Boston, MA, 1/12

- SPECIAL PROGRAMS
- Research Member, Mathematical Sciences Research Institute *Program on Geometric Group Theory*, Aug. 15 – Dec. 16, 2016
  - Institute for Computational and Experimental Research in Mathematics *Semester Program on Low-dimensional Topology, Geometry, and Dynamics*, September 9 – December 6, 2013
  - Centre de Recerca Matemàtica *Research Programme on Automorphisms of Free Groups: Algorithms, Geometry and Dynamics*, September 16 – 29, 2012
  - Park City Mathematics Institute *2012 Research Program in Geometric Group Theory*
  - American Institute of Mathematics *Workshop on the Geometry of the Outer Automorphism Group of a Free Group*, Oct. 25 – 29, 2010
  - Hausdorff Research Institute for Mathematics *Trimester Program on Geometry and Dynamics of Teichmüller Spaces*, June 8 – 18, 2010
  - Mathematics Research Communities on *Teichmüller Theory and Low-Dimensional Topology*, Summer Conference, June 14 – 20, 2008
  - Mathematical Sciences Research Institute *Program on Teichmüller Theory and Kleinian Groups*, Aug. 20 – Dec. 14, 2007
  - Park City Mathematics Institute *2006 Summer School on Low Dimensional Topology*