

Curriculum Vitae

Tara Elise Brendle

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Citizenship: United States, Ireland (Dual Citizen)

Education

- Ph.D., Mathematics, Columbia University, 2002
- M.A., Mathematics, Columbia University, 1996
- B.S. (*Magna Cum Laude*), Mathematics, Haverford College, 1995

Research

Research Interests: Geometric group theory, low-dimensional topology, mapping class groups

Doctoral Thesis: The Torelli Group and Representations of Mapping Class Groups

Thesis Advisor: Joan Birman

Employment

Assistant Professor August 2005 - present
Louisiana State University, Department of Mathematics

Member August-December 2007
Mathematical Sciences Research Institute, Berkeley, CA

VIGRE Assistant Professor July 2002 - August 2005
Cornell University, Department of Mathematics

Instructor / Teaching Assistant August 1995 - May 2002
Columbia University, Department of Mathematics

Papers and Publications

- *On the linearity problem for mapping class groups*, (with Hessam Hamidi-Tehrani), Algebraic and Geometric Topology, Vol. 1 (2001), 449-468.
- *Every mapping class group is generated by 6 involutions*, (with Benson Farb), Journal of Algebra, Vol. 278 (2004), 187-198.
- *Commensurations of the Johnson kernel*, (with Dan Margalit), Geometry and Topology, Vol. 8 (2004), 1361-1384.
- *Braids: a survey*, (with Joan Birman), Chapter 2 in the “Handbook of Knot Theory”, ed. William W. Menasco and Morwen B. Thistlethwaite, 2005.
- *The Birman-Craggs-Johnson homomorphism and abelian cycles in the Torelli group*, (with Benson Farb), Math. Annalen, Vol. 338, No. 1 (2007), 33-53.
- *Calculating the image of the second Johnson-Morita representation*, (with Joan Birman and Nathan Broaddus), to appear, Advanced Studies in Pure Mathematics, Groups of Diffeomorphisms (in honor of Shigeyuki Morita).
- *Addendum to: Commensurations of the Johnson kernel*, (with Dan Margalit), to appear, Geometry and Topology.
- *The Johnson-Morita representations of the mapping class group and invariants of 3-manifolds*, (with Joan Birman, Nathan Broaddus, and Andy Putman), preprint in preparation.
- *Wicket subgroups of braid groups*, (with Allen Hatcher), preprint in preparation.
- *Notes on geometric and combinatorial group theory*, (with Indira Chatterji), manuscript in preparation.
- *Finiteness properties of the symmetric Torelli group*, (with Dan Margalit), preprint in preparation.

Students supervised

- Leah Childers, LSU, Ph.D. expected 2010.

Grant Activities

National Science Foundation Topology Grant DMS-0606882 “Subgroups of Mapping Class Groups” \$87,397 + \$10,000 matching funds	2005-2009
Louisiana Council on Research Summer Stipend \$5,000	July 2007
Co-Principal Investigator, LSU NSF VIGRE Grant (Pending, Site Visit Awarded December 2007) \$4,417,746	

Awards and Honors

Junior Faculty Teaching Award <i>Cornell University, Mathematics Department</i>	2004
Presidential Graduate Student Teaching Award <i>Columbia University</i>	2002
VIGRE Summer Research Fellowship <i>Columbia University, Mathematics Department</i>	2000
Faculty Fellowship <i>Columbia University, Mathematics Department</i>	1995–1998
Alice T. Schaefer Prize in Mathematics, Honorable Mention <i>Association for Women in Mathematics</i>	1995
Phi Beta Kappa	1995
Barry Goldwater Scholarship <i>Goldwater Foundation</i>	1994–1995
Archibald MacIntosh Scholar-Athlete Award, Haverford College <i>Haverford College</i>	1992
National Merit Scholarship	1991–1992

Upcoming/Recent Conference Talks

Invited Talks

- Invited Speaker, *Finite Type Invariants, Fat Graphs and Torelli-Johnson-Morita Theory* Aarhus University, Denmark, March-April 2008.
- Invited Speaker, *Texas Geometry and Topology Conference*, Fort Worth, TX, March 2007.
- *Torelli Workshop*, Chicago, August 2006.
- *LTTR Topology Retreat*, 2006.
- Featured Speaker, *MAA EPADEL Spring Sectional Meeting*, 2005.
- Invited Speaker, *Canadian Mathematical Society Summer Meeting, Session on Geometric Topology*, University of Waterloo, 2005.
- Invited Speaker, *Braids, Links, and Mapping Class Groups* (conference honoring Joan Birman), 2005.
- Invited Speaker, *Joint Mathematical Meetings, Special Session on Dynamics of Mapping Class Groups on Moduli Spaces*, Atlanta, 2005.
- Invited Participant/Speaker, *Workshop on Braid Groups and Applications*, Banff International Research Station, 2004.
- Invited Speaker, *Conference on Combinatorial Topology in Mapping Class Groups*, University of Chicago, 2004.
- *CBMS Conference*, Rensselaerville, NY, 2004.

- *Albany Group Theory Conference*, 2004, 2003, and 2001.
- Invited Speaker, *Georgia Topology Conference*, 2003.
- Invited Speaker, *AMS Sectional Meeting, Special Session on Mapping Class Groups*, Ann Arbor, Michigan, 2002.

Recent Invitations Declined Due to Pregnancy/Birth of Baby in 2007

- Plenary Speaker, *Braids*, Institute for Mathematical Sciences, Singapore.
- Banff International Research Station, *Interactions of geometry and topol*
- *AMS, Special Session on Combinatorial and Geometric Group Theory, Miami University of Ohio ogy in low dimensions*
- AMS, Special Session on Combinatorial and Geometric Group Theory, Miami University of Ohio
- AMS, Special Session on Geometric Topology, Miami University of Ohio
- Georgia Institute of Technology Topology Seminar
- Indiana University Topology Seminar
- University of Utah Max Dehn Seminar
- University of California, Santa Barbara Topology Seminar

Seminar Talks

- University of Texas at Austin, Topology Seminar, 2006, 2001.
- University of Georgia, Topology Seminar, 2006.
- Columbia University, Topology Seminar, 2006, 2004.
- Ohio State University, Joint Topology Seminar, 2006.
- Cornell University, Topology and Geometric Group Theory Seminar, 2006, 2001.
- Rice University, Topology Seminar, 2005.
- CUNY Group Theory Seminar, 2005.
- University of Chicago, Geometry/Topology Seminar, 2005, 2003.
- UC Santa Barbara, Topology Seminar, 2004.
- University of Pennsylvania, Geometry-Topology Seminar, 2004.
- University of Rochester, Topology Seminar, 2004.

- Université du Québec à Montréal, CIRGET Seminar (Centre interuniversitaire de recherches en géométrie et topologie), 2004.
- University of Utah, Max Dehn Seminar, 2004.
- University at Buffalo, Geometry/Topology Seminar, 2004.
- Binghamton University, Geometry & Topology Seminar, 2004, 2002.
- Louisiana State University, Topology Seminar, 2004.
- McMaster University, Geometry/Topology Seminar, 2003, 2002.

Colloquia

- Haverford College, “Mapping class groups: problems and progress”, 2006.
- University of Georgia, VIGRE Graduate Seminar, “Mapping class groups and complexes of curves”, 2006.
- University of Akron, Math Colloquium, “Generating the mapping class group”, 2004.
- Bryn Mawr College, “Are mapping class groups linear?”, 2002.

Selected Undergraduate Talks

- Cornell University, Research Experience for Undergraduates, Smorgasbord Seminar Talk, “Complexes of Curves”, 2004; “Mapping class groups”, 2003.
- EDGE Symposium, “How to give a research talk”, Atlanta, 2004.
- University of Akron, Undergraduate Lecture, “From knots to braids”, 2004.

Selected Recent Conference Participation

- *Hamilton Geometry and Topology Workshop*, Trinity College, Dublin 2006. (Full funding awarded.)
- *Groups of Diffeomorphisms (Conference in Honor of Shegeyuki Morita)*, University of Tokyo, 2006.
- *International Congress of Mathematicians*, Madrid, Spain, 2006. (\$2150 travel grant awarded by the American Mathematical Society)
- *Wasatch Topology Conference*, Winter 2005.

Teaching Experience

Assistant Professor, Louisiana State University

Topology II (Graduate Core II Course)	2008
Mapping Class Groups (Graduate Topics Course)	2007
Reading Course in Algebra	2007
Mentor for Communicating Mathematics Project Joshua Bennett, <i>Right-angled Artin groups</i>	2007
Abstract Algebra I (Group Theory)	2006
Multivariable Calculus	2006
Analytic Geometry and Calculus I, II	2005-06

VIGRE Assistant Professor, Cornell University

Introduction to Topology	2004
Linear Algebra and Differential Equations	2004
Mapping Class Groups, Berstein Graduate Seminar	2004
Knots and Braids, Topics in Geometric Topology	2003
Calculus II for Engineers	2002

Instructor, Columbia University

Basic Mathematics	1997, 2001
Calculus I	2000
Linear Algebra	1999

Teaching Assistant, Columbia University

Calculus I-II Mathematica Recitations	1996–2001
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Related Work Experience

Research Experience for Undergraduates

Supervised 5 undergraduates in research projects

Cornell University, Summer 2005

Instructor

Program for Women in Mathematics
Undergraduate course (combinatorial group theory)

Institute for Advanced Study
Princeton, May 2005

EDGE Summer Program

(Enhancing Diversity in Graduate Education)

Algebra Instructor
Participant/Speaker, EDGE Symposium
Short Course Instructor, Hyperbolic Geometry
Graduate Student Mentor

New College, Florida, 2006
Atlanta, 2004
Pomona College, 2003
Bryn Mawr and Spelman Colleges 1998-2001

Postdoctoral Fellow / Assistant

Minicourse: Mapping class groups and
Teichmuller space

July 2003
University of Chicago

Conferences Organized

- Co-Organizer**, AMS Special Session,
Southeast Sectional Meeting
Geometric Group Theory
(w/ N. Brady, P. Dani) Baton Rouge, March 2008
- Co-Organizer**, AMS Special Session, Joint Meetings
Mapping class groups and handlebodies
(w/ W. Vautaw) New Orleans, January 2007
- Co-Organizer**, Workshop on Torelli groups
(w/ B. Farb) Chicago, August 2006
- Topology Festival Organizing Committee**
Cornell University 2002 - 2005

Professional Service

- Student Chapter Selection Committee** 2006 - present
Association for Women in Mathematics
- Junior Faculty Representative** 2006 - 2009
Elected Member, Executive Committee
LSU Mathematics Department
- VIGRE Committee** 2006 - present
LSU Mathematics Department
- Faculty Contact, LSU** 2007 - present
Institutional Membership, Association for Women in Mathematics
- General Examination Committees**
Chair: Leah Childers 2008
Member: Carolyn Chun 2006
- Seminar Organizer** 2003 - 2004
Topology and Geometric Group Theory Seminar
Cornell University
- Advanced Placement Exam Committee** 2003 - 2004
Mathematics Department, Cornell University

Referee

Topology, Algebraic and Geometric Topology, Transactions of the AMS,
International Journal of Algebra and Computation, Geometriae Dedicata

Professional Memberships

American Mathematical Society

Association for Women in Mathematics

References

Joan Birman, Columbia University, jb@math.columbia.edu

Benson Farb, University of Chicago, farb@math.uchicago.edu

Shigeyuki Morita, University of Tokyo, morita@ms.u-tokyo.ac.jp

Karen Vogtmann, Cornell University, vogtmann@math.cornell.edu

Patrick Gallagher (teaching), Columbia University, pxg@math.columbia.edu