Michael Carter Woodbury

Ritt Assistant Professor – Columbia University – Department of Mathematics
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Education

- PhD. in Mathematics, University of Wisconsin-Madison, 2011
- Master of Science in Mathematics, University of Utah, 2005
- Honors Bachelor of Arts in Mathematics, University of Utah, 2003
  Summa Cum Laude (4.0 on a 4.0 scale)

Employment

- Ritt Assistant Professor, Columbia University, 2011-2015

Awards and Honors

- Graduate Research Fellowship (supported by NSF RTG Grant) *Fall 2009, Spring 2010, Fall 2010*
- Vilas Travel Grant, University of Wisconsin Graduate School *Fall 2010*
- Departmental Award: Excellence in Research, University of Wisconsin *Spring 2009*
- VIGRE Graduate Fellowship, University of Wisconsin *Spring 2008*
  A one semester research fellowship.
- College of Letters and Science–University of Wisconsin Teaching Fellow *2007*
- Math Department–University of Wisconsin Teaching Award *2007*
- VIGRE Graduate Fellowship, University of Utah *2003–2005*

Research Experience

Publications

- "On the triple product L-function: local real calculations" (in preparation)
- (with D. Goldfeld) "An Adelic Kuznetsov Trace Formula for $GL(n)$" (in preparation)
- Appendix to "The Quantum Variance of the Modular Surface" by Peter Sarnak and Peng Zhao (submitted)
- (with G. Savin) "Matching of Hecke operators for exceptional dual pair correspondences" *Journal of Number Theory* 146 (2015)
- "Trilinear forms and subconvexity of the triple product L-function" (submitted)

- (with B. Bannish, A. Fogelson, J. Keener, J. Weisel) "Modelling fibrinolysis 1: continuum models" *Math. Med. Biol.* 31 (2014)
- (with G. Savin) "Structure of internal modules and a formula for the spherical vector of minimal representations" *Jornal of Algebra* 312 (2007), no. 2, pp.755–772

Talks and Presentations

- Number Theory Seminar, Columbia University *November 2014*
- Number Theory Seminar, Boston College *October 2014*
- Number Theory Seminar, University of Wisconsin *October 2014*
- Automorphic Forms Workshop, Moab, UT *May 2014*
- Joint Mathematics Meeting in Baltimore, MD *January 2014*
- Number Theory Seminar, CUNY *December 2013*
- Number Theory Seminar, Yale University *November 2013*
- Number Theory Seminar, Rutgers University *April 2013*
- Number Theory Seminar, Brigham Young University *March 2011*
- Number Theory Seminar, University of Chicago *January 2011*
- Midwest Number Theory Conference for Graduate Students, U of Michigan *November 14, 2010*
- Representation Theory Seminar, University of Utah *October 6, 2010*
- Joint Meeting of KMS-AMS *December 17, 2009*
- Pohang University of Science and Technology (POSTECH) *December 14, 2009*
- Midwest Number Theory Conference for Graduate Students *November 7, 2009*
- Number Theory Seminar, Univ. of Wisconsin *Spring 2009*
- Graduate Student Participation Seminar, Univ. of Wisconsin *2006-2010*
  Numerous talks. Topics included: twisted Euler products, Rankin-Selberg L-functions, ranks of elliptic curves, connection between automorphic representations and modular forms, and the relative trace formula in number theory.
- Fermat's Last Theorem Seminar, University of Wisconsin *November 2006*
  Three talks on why a counterexample to Fermat's Last Theorem leads to a contradiction of the Shimura-Taniyama conjecture.

Conferences and Schools

- Analytic Number Theory and its Applications: Conference in Honor of Jeff Hoffstein *July 2014*
- Automorphic Forms Workshop, Moab, UT *May 2014*
- Joint Mathematics Meetings, Baltimore, MD *January 2014*
- Conference in Honor of Wilfried Schmid, Harvard University *May 2013*
- Automorphic Forms and Related Geometry, Yale University *April 2012*

- Joint Mathematics Meetings, New Orleans, LA *January 2011*
- Conference in Honor of Benedict Gross, Harvard University *June 2010*
- Joint Meetings of the Korean and American Mathematical Societies *December 2009*
- Workshop on Modular Forms, POSTECH *December 2009*
- Relative Trace Formula, American Institute of Mathematics *August 2009*
- Equidistribution of Finite Volume Orbits on Homogeneous Spaces, Mathematisches Forshungsinstitut Oberwolfach *June 2009*
- Generalizing Theta, American Institute of Mathematics *July 2008*
- Analytic Number Theory and Higher Rank Groups, Courant Institute *June 2008*
- Instructional Conference on Representation Theory and Arithmetic, Northwestern University *May 2008*
- Midwest Number Theory Days, UIC *March 2008*
- Conference on Representation Theory and L-functions, University of Iowa *July 2007*
- L-functions and Automorphic Forms, Columbia University *May 18-23 2007*

Teaching and Outreach Experience

REU Supervisor *Summer 2013*

Together with Marc Masdeu, I led six undergraduates in a research project on elliptic curve cryptography. More specifically, the students studied efficient implementations of the Tate and Weil pairings on elliptic curves over a finite fields of characteristic 3.

Instructor of Mathematics *2011-present*

Classes taught at Columbia University:

Math V1201	Calculus III	Spring 2012, Fall 2012
Math V1202	Calculus IV	Fall 2011, Fall 2013
Math V2000	Intro to Higher Math	Spring 2013, Spring 2014, Fall 2014
Math S4061	Intro to Modern Analysis I	Summer 2014

Instructor *Summer 2010*

Taught a professional development course for high school and middle school teachers at University of Wisconsin primarily focused on project based learning. We modeled this type of learning by doing projects in elementary number theory.

Teaching Assistant *Fall 2005 to Spring 2009*

Teaching Assistant at the University of Wisconsin. Classes taught:

Math 217	Calculus with Alg and Trig II	Spring 2009
Math 221	Calculus I	Fall 2005, Fall 2007 and Fall 2008
Math 222	Calculus II	Spring 2006 and Fall 2006
Math 319	Linear Algebra and Diff. Eq	Spring 2007

Course Coordinator *Fall 2008, Fall 2007 and Fall 2006*
In conjuntion with the courses that I taught those semesters, I helped four or five new teaching assistants learn their roles. This included presemester training, as well as visiting their classrooms and providing feedback during the semster.

Teaching Fellow *Fall 2007*
As a teaching fellow for the College of Letters and Science, I helped prepare a day long training program for all new teaching assistants within the college. Among other duties, I developed and ran a workshop on "preparing for the first day."

PEOPLE Program Math Coordinator *Spring/Summer 2008, 2009*
PEOPLE, an acronym for "Pre-College Enrichment Opportunity Program for Learning Excellence," is a program designed to help middle and high school students make the transition into college. I co-coordinated the math component of a three week summer program for the Freshman and Sophomore students within the program.

Instructor of Mathematics *Fall 2004 to Spring 2005*
I was Instructor for the following courses taught at the University of Utah. Work included: writing syllabus, choosing homework problems, preparation and presentation of lectures, writing and grading quizzes and exams (including the final in 1100), supervision of group work, grading projects and papers.

Math 1100	Business Calculus	Fall 2004
Math 1030	Quantitative Reasoning	Spring 2005

Megamath Meet Coorganizer *Spring 2007, 2008, 2009, 2010*
I helped organize a mathematics competition for fifth and sixth graders from throughout the state of Wisconsin held at the University of Wisconsin May 28, 2007. This work included designing the event schedule, writing problems and supervising the actual event. In 2010 I was the principal organizer.

Senior Seminar Coordinator/Supervisor *Spring 2004*
The Senior Seminar is a forum for advanced undergraduate students to present their work as part of an REU or in fulfillment of the requirements for an Honors Degree. I helped coordinate and run the seminar.

Research Mentor *Fall 2003 to Spring 2004*
Helped two undergraduate students doing individual REUs (Research Experience for Undergraduates) with their projects.

GRE Instructor *Fall 2003*
Assisted in a semester–long course in GRE preparation to undergraduate students who were preparing to take the GRE Subject Test in Mathematics.