

AMANDA L. FOLSOM

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EMPLOYMENT **University of Wisconsin, Madison** March 2007 - present
National Science Foundation Postdoctoral Fellow, and
Van Vleck Assistant Professor
Mentor: Ken Ono

Max-Planck-Institut für Mathematik September 2006 - March 2007
Bonn, Germany

EDUCATION **Ph.D. Mathematics University of California, Los Angeles** June 2006
Advisor: William Duke
Thesis title: Modular Units

M.S. Mathematics University of California, Los Angeles December 2002

B.A. Honors Mathematics The University of Chicago June 2001

HONORS AND AWARDS **National Science Foundation Postdoctoral Fellowship in Mathematics** 2007 - 2010
University of California Dissertation Year Fellowship 2005 - 2006
UCLA Graduate Research Mentorship Fellowship 2004 - 2005
National Science Foundation VIGRE Fellow 2001 - 2002
Phi Beta Kappa 2001
Sigma Xi 2001
University of Chicago - Degree Honors 2001
Salutatorian Bishop Fenwick High School 1997

RESEARCH INTERESTS Analytic and Algebraic Number Theory, Combinatorics, Lie Theory, Modular Forms, Maass Forms, q -series, Modular Units, Modular Curves, Class Field Theory, CM.

PUBLICATIONS 14. *Kac-Wakimoto characters and universal mock theta functions.*
Transactions of the American Mathematical Society, accepted for publication.

13. *Modularity and the distinct rank function.*
Ramanujan Journal, accepted for publication.

12. *Book Review: The 1-2-3 of modular forms, by J.H. Bruinier, G. van der Geer, G. Harder, and D. Zagier.***Bulletin of the American Mathematical Society** 46 (2009), 527-533.

11. *Limiting distribution of traces of Maass-Poincaré series* (with R. Masri).
Submitted.

10. *Equidistribution of Heegner points and the partition function* (with R. Masri).
Mathematische Annalen, accepted for publication.

9. *The spt -function of Andrews* (with K. Ono). **Proceedings of the National Academy of Sciences, USA**, 105 no. 51 (2008), 20152-20156.

8. *A short proof of the mock theta conjectures using Maass forms.*
Proceedings of the American Mathematical Society 136 (2008), 4143-4149.
7. *q-series and weight 3/2 Maass forms* (with K. Bringmann, K. Ono).
Compositio Mathematica 145 (2009), 541-552.
6. *Duality involving the mock theta function $f(q)$* (with Ken Ono).
Journal of the London Mathematical Society (2) 77 (2008), 320-334.
5. *Modular units, divisor class groups, and the q-difference equations of Selberg.*
Mathematical Research Letters, accepted for publication.
4. *Class invariants and cyclotomic unit groups from special values of modular units.*
Journal de Théorie des Nombres de Bordeaux (20) no. 2 (2008), 289-325.
3. *A characterization of the modular units.*
International Journal of Number Theory (5) no. 2 (2009), 303-310.
2. *Modular forms and Eisenstein's continued fractions.*
Journal of Number Theory 117 (2006), 279-291.
1. *A quantitative refinement of the Lagrange spectrum.*
(with E. Burger, A. Pekker, R. Roengpitya, J. Snyder)
Acta Arithmetica 102.1 (2002), 55-82.

**INVITED
RESEARCH
TALKS**

- **KMS-AMS winter meeting, Seoul, Korea** December 2009
- **University of Wisconsin Madison**, Number theory seminar September 2009
- **Palmetto Number Theory Series VIII**, Plenary speaker December 2008
(at the University of South Carolina)
- **University of Wisconsin Madison**, Number Theory Seminar November 2008
- **University College Dublin**, Seminar February 2008
- **Kumbakonam, India**, Shanmugha Arts/Sci/Tech/Research Acad. December 2007
- **Stanford University**, Number Theory Seminar November 2007
- **The Fields Institute**, Workshop on Algebraic Varieties & Calabi-Yau November 2007
- **McMaster University, Canada**, Arithmetic Geometry Seminar November 2007
- **University of South Carolina**, Number Theory Seminar November 2007
- **University of Illinois, U-C**, Number Theory Seminar October 2007
- **University of Wisconsin Madison**, Number Theory Seminar October 2007

- **Amherst College**, Five College Number Theory Seminar May 2007
- **University of Wisconsin, Madison**, Number Theory Seminar May 2007
- **ETH Forschungsinst. für Mathematik**, Number Theory Seminar December 2006
Zurich, Switzerland
- **Max-Planck-Institut für Mathematik**, Number Theory Seminar September 2006
Bonn, Germany
- **Princeton University**, Number Theory Seminar May 2006
- **University of California, Los Angeles** Number Theory February 2006
- **Boston University**, Algebra Seminar November 2005
- **University of Wisconsin Madison**, Number Theory Seminar February 2005
- **Harvard University**, Student Number Theory Seminar July 2004
- **University of California, Los Angeles** Number Theory June 2004

**CONFERENCE
TALKS**

- Max-Planck-Institut für Mathematik International Conference:
Mock theta functions and applications** Bonn, Germany
- Kac-Wakimoto characters and universal mock theta functions* May 2009
- 1047th Meeting of the AMS (held at UIUC)**
- The error term in Rademacher's formula for $p(n)$* March 2009
- University of Florida, Conference on Quadratic Forms,
Sums of Squares, Theta Functions and Integral Lattices**
- q-series and weight 3/2 Maass forms* March 2009
- University of Hawaii, Workshop on Automorphic Forms**
- Generalized Ramanujan-Selberg identities* May 2008
- University of Florida, Number Theory Conference**
- The spt-function of Andrews.* March 2008
- AMS-MAA Joint National Meetings, San Diego**
- Special Session on "Modular Forms and Modularity."
- $\frac{1}{2}$ -integral weight Maass form correspondences & vector valued forms.* January 2008
- Conference in Honor of Heini Halberstam's 80th Birthday** May 2007
- University of Illinois, Urbana-Champaign
- Duality involving the mock theta function $f(q)$.*
- 21st Annual Workshop In Automorphic Forms** March 2007
- University of California, Santa Barbara
- Duality involving the mock theta function $f(q)$.*

	Jahrestagung der Deutschen Mathematiker-Vereinigung 2006 Universität Bonn, Germany, Minisymposium on automorphic forms. <i>Modular units.</i>	September 2006
	20th Annual Workshop In Automorphic Forms University of Colorado at Boulder <i>Modular units.</i>	March 2006
	19th Annual Workshop In Automorphic Forms University of North Texas <i>Modular units.</i>	March 2005
	18th Annual Workshop In Automorphic Forms University of California, Santa Barbara <i>The continued fractions of Eisenstein.</i>	March 2004
	Summer School in Analytic Number Theory Catalina Island, CA <i>Equidistribution of roots of quadratic congruence to prime moduli.</i>	August 2003
	AMS-MAA Joint National Meetings, New Orleans Undergraduate Poster Prize Winner, 1st place (with A. Pekker, R. Roengpitya, and J. Snyder.)	January 2001
	MAA Regional Meeting, St. Paul's School, NH <i>On a quantitative refinement of the Lagrange spectrum.</i>	June 2000
TALKS FOR UNDERGRADS	UW Madison Math Club, Who is Srinivasa Ramanujan? Amherst College, A friendly introduction to modular forms.	April 2009 November 2005
OTHER CONFERENCES AND MEETINGS	AIM Workshop on mock modular forms, Palo Alto, CA AMS-MAA Joint National Meetings, San Francisco Columbia University, NYC Conference in honor of Dorian Goldfeld's 60th birthday Oxford University Club of North America, NYC Distinguished lectures by A. Wiles and M. Du Sautoy (as an invited guest of Dr. F.H. Schott) Classical and modular approaches to exponential Diophantine equations Max-Planck-Institut für Mathematik Bonn, Germany	March 2010 January 2010 May 2007 April 2007 February 2007
	Mathematisch Instituut - Universiteit Leiden, Netherlands Intercity Number Theory Seminar	September 2006

Columbia University, NYC Automorphic Galois Representations, L-functions and Arithmetic	June 17-22, 2006
Princeton University - Institute for Advanced Study Zeta Function Women's Program	May 15-26, 2006
AMS-MAA Joint National Meetings San Antonio, TX	January 2006
Southern California Number Theory Day University of California, Irvine	October 2005
Gauss-Dirichlet Conference Göttingen, Germany	June 2005
Southern California Number Theory Day University of California, San Diego	May 2005
Conference on Additive Number Theory University of Florida, Gainesville	November 2004

**OTHER
RESEARCH**

National Science Foundation REU Participant Williams College SMALL Program, Williamstown, MA Undergraduate Research in Diophantine Approximation, advisor Edward Burger	Summer 2000
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**TEACHING
EXPERIENCE**

I. UNDERGRADUATE & GRADUATE COURSES

Linear Algebra and Differential Equations, Math 320 Topics: ODEs, Numerical Methods, Linear Systems, Vector Spaces, Exponential Methods, homogeneous/non-homogeneous systems, linear/non-linear systems. http://www.math.wisc.edu/~folsom/MT320.html	Fall 2009
The theory of Calculus, Math 421 This "writing intensive" math course is intended to teach math majors to write and understand proofs in mathematics in general, Calculus in particular. http://www.math.wisc.edu/~folsom/MT421.html	Spring 2009
Graduate level Algebraic Number Theory, Math 748 Graduate level introductory course. Topics: integer rings, Dedekind domains, prime ideal factorization, lattices, Minkowski's thm finiteness of class number, Dirichlet's unit thm, cyclotomic extensions, Chebotarev density, valuations, local fields. http://www.math.wisc.edu/~folsom/MT748.html	Fall 2008

II. NATIONAL SCIENCE FOUNDATION REU INSTRUCTOR

Advised small groups of undergraduate students from various US institutions	June - July 2009
(and the occasional advanced high school student) towards writing their own	June - July 2008
original math research papers in number theory. 18 student papers were written and submitted to mathematics journals (3 of which were directly advised by me).	June - July 2007
http://www.math.wisc.edu/~ono/reu09.html , reu08.html , reu07.html	

III. OTHER TEACHING EXPERIENCES

Princeton University - Institute for Advanced Study	May 15 - May 26, 2006
Zeta Function Women's Program, Beginning course assistant.	
Instructor: Giuliana Davidoff, Mt. Holyoke College, MA	
PEERS Seminar Calculus and Analytic Geometry	Fall 2003, Winter 2004
Seminar instructor - program for invited undergraduate minority students pursuing a scientific track at UCLA	
Professor Apprenticeship Program, UCLA	Fall 2002
Program with faculty involving the preparation, critiquing, rehearsing and ultimate delivery of lectures for an undergraduate Calculus course.	
Teaching Assistant, UCLA	2002 - 2004
Ran weekly discussion sessions with students in various upper and lower division courses including Combinatorics, Matrices and Differential Equations (Honors), Honors Calculus of Several Variables, Calculus and Analytic Geometry, Calculus for Life Science Students.	
Student Math Center Tutor	2002 - 03, 2003 - 04
Individual tutoring provided for UCLA undergraduates.	
Private Tutor	2000 - 2006
Calculus, Pre-calculus, Trigonometry, Geometry, Algebra, Algebra II, Linear Algebra, SAT, GRE.	
Junior Tutor, The University of Chicago	2000 - 2001
Ran weekly undergraduate Calculus sessions.	
Johns Hopkins CTY Program	Summer 1999
Mount Holyoke College, South Hadley, MA	
Assisted in the teaching of a course for talented youth in Reasoning, Logic and Formal Proof.	
Fiske School Student Teacher	1998 - 99, 1999 - 00
Taught an after school creative writing and literature course at Fiske Elementary School - Hyde Park, Chicago	
SERVICE, LEADERSHIP, MENTORING	Faculty Committee on Math Research Mentoring and Diversity 2008 - 09
Served as the one postdoctoral member at UW-Madison of an 8 member faculty committee on department research mentoring and diversity.	
AMS-MAA Joint National Meetings - Washington DC	January 2009
Co-organizer, special session in modular forms.	
Number Theory Seminar - University of Wisconsin Madison	2008 - 09
Mentor/co-organizer of the graduate student number theory seminar.	
Co-organizer/Panelist - Panel on Gender Equity in Mathematics	March 2006
UCLA Mathematics Department Fellowship recipient panelist	Dec. 2004, Nov. 2005

Panelist - UCLA Mathematics Department TA Training

December 2004

PEERS Program student mentor

2003, 2004, 2005, 2006

Graduate student mentor

2002, 2003, 2004, 2006

**JOURNAL
REFEREEING**

Selected journals: **Advances in Mathematics, Annals of Mathematics, Applied Mathematics Letters, Duke Journal of Mathematics, Israel Journal of Mathematics, Journal of Number Theory, Proceedings of the National Academy of Sciences, Proceedings of the American Mathematical Society, AMS MathSciNet Reviewer**

**PROFESSIONAL
MEMBERSHIPS**

**American Mathematical Society
Association for Women in Mathematics**

LANGUAGES

English - Fluency
French - Near fluency
German - Beginning/Intermediate

REFERENCES

1. George Andrews andrews@math.psu.edu
2. Bill Duke wdduke@math.ucla.edu
3. Ken Ono ono@math.wisc.edu
4. Don Zagier don.zagier@mpim-bonn.mpg.de
5. Robert L. Wilson* (teaching) wilson@math.wisc.edu