www.mathjobs.org ∗ www.ams.org ∗ 2015-11-05

AMS Standard Cover Sheet

Last Name: *Lang* Middle Name: *Ann*

First Name: *Jaclyn*

Complete mailing address:

UCLA Mathematics Department

Box 951555

Los Angeles, CA 90095-1555

Home Phone

(303) 5874174

e-mail address

jaclynlang@math.ucla.edu

Current Institutional Affiliation:

graduate student, 08/2010-present

University of California, Los Angeles

mathematics

Skype Name *jackiel8887*

Work Phone

Cell Phone *(303) 587-4174*

Highest Degree held or expected *Ph.D.*

Granting Institution *University of California, Los Angeles* Date (optional) *06/2016 expected*

Ph.D. Advisor: *Haruzo Hida*

Thesis Title (optional) *Images of Galois representations associated to Hida families*

Primary Interest (MSC# only) *11* Secondary Interests (optional)

Give a very brief synopsis of your current research interests in the box below (e.g. finite group actions on four-manifolds).

Galois representations, modular forms, p-adic families of such objects, elliptic curves, deformation theory
http://www.math.ucla.edu/~jaclynlang/

Most recent position held, if any, post Ph.D.

University or Company

Position Title Dates

Eligible for positions which requires U.S. citizenship or U.S. permanent residency: ☒ Yes ☐ No

If unsuccessful for this position, would you like to be considered for a temporary position?

☒ Yes ☐ No If yes, please check the appropriate boxes.

☒ Postdoctoral Position ☒ 2+ Year Position ☒ 1 Year Position

List the names and affiliations of individuals who will provide letters of recommendation if asked.

1. *Haruzo Hida, University of California, Los Angeles, hida@math.ucla.edu*
2. *Jacques Tilouine, Universite Paris 13, jacques.tilouine@free.fr*
3. *Chandrashekhar Khare, University of California, Los Angeles, shekhar@math.ucla.edu*
4. *Olga Radko, Unviersity of California, Los Angeles, radko@math.ucla.edu (teaching)*

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November 7, 2015

Search Committee
University of Southern California
Department of Mathematics
3620 Vermont Avenue, KAP 104
Los Angeles, CA 90089

To the Search Committee:

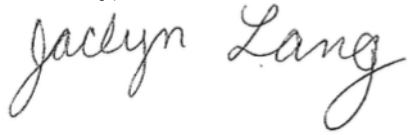
I am a Ph.D. student in algebraic number theory at UCLA studying with Haruzo Hida. I will be graduating in June 2016 and would like to apply for a non-tenure-track Assistant Professorship beginning in the Fall of 2016, as posted on the MathJobs website.

In my thesis, I study images of Galois representation associated to Hida families of modular forms. I prove that, in the non-CM case, the images of such Galois representations are appropriately large, an analogue of a classical theorem by Ribet and Momose. One of the key steps is a lifting theorem, which I prove using a combination of deformation theory and automorphic techniques. For more detailed information, please see my research statement. I would be excited to work with the number theorists at USC, particularly Sheldon Kamienny.

While at UCLA, I have been a successful teacher, both in the classroom and while working with individual students. I was honored to receive a Distinguished Teaching Award in 2014 from the UCLA Mathematics Department, based on evaluations from students and faculty members.

My application consists of the AMS cover sheet, my curriculum vitae, a list of publications, and my research and teaching statements. In addition, it includes letters of reference from my advisor, Haruzo Hida, and from Jacques Tilouine, Chandrashekhar Khare, and Olga Radko. Dr. Radko's letter addresses my teaching experience. Please let me know if any of these items is not accessible or if I can provide any further information. Thank you for your consideration.

Sincerely,



Jaclyn Lang

Contact Information

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Telephone:	(303) 587-4174
E-mail:	jaclynlang@math.ucla.edu
Website:	`http://www.math.ucla.edu/~jaclynlang/`

Education

University of California, mathematics, Ph.D., 2016 (expected)

Thesis adviser: Haruzo Hida

Thesis title: Images of Galois representations associated to Hida families

University of Cambridge, pure mathematics, CASM, 2010

Bryn Mawr College, mathematics, B.A./M.A., 2009

summa cum laude, with honors in mathematics

Publications and Preprints

1. *On images of Galois representations in non-CM Hida families.* Submitted to *Algebra and Number Theory.* `http://www.math.ucla.edu/~jaclynlang/I_0_level_existence.pdf`
2. (with J. Balakrishnan, M. Çiperiani, B. Mirza, and R. Newton) *Shadow lines in the arithmetic of elliptic curves.* To appear in *Women in numbers 3 Proceedings*.
3. (with M. Daub, M. Merling, N. Pitiwan, A. Pacelli, and M. Rosen) *Function fields with class number indivisible by a prime ℓ. Acta Arith.*, Volume 150, No. 4, (2011), 339–359.

Research Interests Galois representations, modular forms, elliptic curves, p-adic interpolation, p-adic L-functions

Honors and Awards

- *Charles E. and Sue K. Young Graduate Student Award*, 2015, ($10,000), 4/year out of all UCLA graduate students, UCLA Graduate Division
- *Teaching Award*, 2014, 4/year out of UCLA math graduate teaching assistants, UCLA Department of Mathematics
- *Edward A. Bouchet Graduate Honor Society Inductee*, 2014, 5/year out of all graduate students at UCLA, UCLA Graduate Division
- *NSF Graduate Research Fellowship*, 2010, (∼$121,500), 2,000/year nationally, National Science Foundation
- *Eugene V. Cota Robles Fellowship*, 2010, (∼$96,000), 71/year out of all graduate students at UCLA, UCLA Graduate Division

- *Churchill Scholarship*, 2009, (∼$50,000), 14/year nationally, The Winston Churchill Foundation of the United States

Talks
Invited lectures:

Five Colleges Number Theory Seminar, Amherst College (September 2015), *Images of Galois representations of Hida families*

Number Theory Seminar, Massachusetts Institute of Technology (September 2015), *Images of Galois representations of Hida families*

Mathematics Colloquium, Loyola Marymount University (February 2015), *p-adic interpolation*

Number Theory Seminar, University of Texas at Austin (March 2014), *Images of non-CM Galois representations associated to Hida families of modular forms*

Mathematics Colloquium, California State Polytechnic University (January 2014), *p-adic interpolation*

Contributed talks:

AMS Western Sectional Meeting, CSU - Fullerton (October 2015), *Images of Galois representations associated to Hida families*

BU-Keio U. Workshop, Boston University (September 2015), *Images of Galois representations associated to Hida families*

Number Theory Conference, University of Illinois at Urbana-Champaign (August 2015), *Images of Galois representations associated to Hida families*

Graduate Summer School on New Geometric Techniques in Number Theory, Mathematical Sciences Research Institute (July 2013), *On images of Galois representations associated to non-CM Hida families of modular forms*

Women in Mathematics in Southern California Symposium, Loyola Marymount University (October 2012), *Introduction to p-adic modular forms*

Talks at home institution:

UCLA Number Theory Seminar, March 2014: *On the image of non-CM Galois representations attached to Hida families*

Advancement to Candidacy, June 2013: *Images of Big Galois Representations*

UCLA Participating Number Theory Seminar:

Winter 2014: *Deformation Theory towards Serre's Conjecture* (4 lectures)

Fall 2014: *Iwasawa's Theorem and the Main Conjecture* (2 lectures)

Spring 2014: *Heuristics for completed cohomology* (2 lectures)

Winter 2014: *Abelian class field theory, via duality theorems*

Fall 2013: *Duality for abelian varieties over local fields and Global Duality Theorems* (2 lectures)

Spring 2013: *Serre's proof of a special case of the Mumford-Tate Conjecture* (2 lectures)

Winter 2013: *Introduction to Abelian Varieties* (2.5 lectures)

Fall 2012: *Families of p-adic modular forms* (2 lectures)

Spring 2012: *Classifying pro-p subgroups of* $\mathrm{SL}(2, A)$ *for a p-adic ring A*

UCLA Graduate Student Seminar:

October 2014: *The Art of Giving a Math Talk*

January 2014: *What is the BSD conjecture?*

November 2012: *The Local-Global Principle*

Part III 2010 Lent seminars: *How to add points on a hyperelliptic curve of genus two*

Part III 2009 Michaelmas seminars: *The Local-Global Principle*

Conference and Workshops Attended

Boston University/Keio University Workshop: Number Theory, September 2015, Boston University (funded participant)

Sage Days 69: Women in Sage 6, September 2015, La Jolla (funded participant)

Illinois Number Theory Conference, August 2015, University of Illinois - Urbana-Champaign (funded participant)

p-adic methods in number theory: A conference inspired by the mathematics of Robert Coleman, May 2015, University of California - Berkeley (funded participant)

Southern California Number Theory Day, May 2015, University of California - San Diego

Southern California Number Theory Day, April 2015, California Institute of Technology

p-adic methods in the theory of classical automorphic forms, March 2015, Centre de recherches mathématiques, Montreal (funded participant)

Automorphic forms, Shimura varieties, Galois representations and L-functions, December 2014, Mathematical Sciences Research Institute, Berkeley (funded participant)

Southern California Number Theory Day, October 2014, University of California - Irvine

Introductory Workshop: New Geometric Techniques in Number Theory, August 2014, Mathematical Sciences Research Institute, Berkeley (funded participant)

Connections for Women: New Geometric Techniques in Number Theory, August 2014, Mathematical Sciences Research Institute, Berkeley (funded participant)

Graduate Summer School: Counting Arithmetic Objects, June 2014, Centre de recherches mathématiques, Montreal (funded participant)

p-adic variation in number theory, June 2014, Boston University (funded participant)

Women in Numbers 3, April 2014, Banff International Research Station, Banff, Shadow Lines project group (funded participant)

11th Annual Yale Bouchet Conference on Diversity and Graduate Education, March 2014, Yale University (funded participant)

Arizona Winter School: Arithmetic Statistics, March 2014, University of Arizona, Bjorn Poonen's Project Group (funded participant)

Hot Topics Workshop: Perfectoid Spaces and their Applications, March 2014, Mathematical Sciences Research Institute, Berkeley (funded participant)

Conference on Stark's Conjectures and related topics, September 2013, University of California - San Diego (funded participant)

Graduate Summer School: New Geometric Techniques in Number Theory, July 2013, Mathematical Sciences Research Institute, Berkeley (funded participant)

p-adic modular forms, L-functions, and Galois representations, May 2013, University of California - Los Angeles

Cohomology of Arithmetic Groups Graduate Workshop, May 2013, Chicago (funded participant)

Arizona Winter School: Modular Forms and Modular Curves, March 2013, University of Arizona, Frank Calegari's Project Group (funded participant)

p-adic modular forms and arithmetic, June 2012, University of California - Los Angeles

Joint Mathematics Meetings January 2013, 2012 (funded participant)

Teaching Experience

University of California - Los Angeles

Teaching Assistant Consultant, Fall 2013 (trained new teaching assistants)

Teaching Fellow, Discrete Mathematics, Spring 2014

Teaching Fellow, Group Theory, Winter 2014

Teaching Fellow, Integration and Infinite Series, Fall 2013

Teaching Assistant, Integration and Infinite Series, Summer 2013

Teaching Assistant, Integration and Infinite Series, Spring 2011

Teaching Assistant for Summer Program for Women in Mathematics, George Washington University, Summer 2012

Counselor for Program in Mathematics for Young Scientists (PROMYS), Boston University, Summer 2010

Bryn Mawr College

Problem Session Holder and Grader, Abstract Algebra II, Spring 2009

Problem Session Holder and Grader, Abstract Algebra I, Fall 2008

Peer Instructor, Linear Algebra, Spring 2008

Peer Instructor, Multivariable Calculus, Fall 2007

Problem Session Holder and Grader, Transitions to Higher Mathematics, Spring 2007

Problem Session Holder, Calculus 101, Fall 2006

Grader, Multivariable Calculus (enriched), Fall 2006

Service and Outreach Activities

Served as a referee for *Math Research Letters* and *Coates' 70th Birthday Conference Proceedings*

Contributed functionality to the open source software package Sage

Organized and ran advising workshops for UCLA math graduate students applying for NSF Graduate Research Fellowship, 2014, 2015

Co-created and ran a booth on the Monty Hall Problem at UCLA EmpowHer STEM Day, 2014, 2015

President of Graduate Student Organization in the UCLA mathematics department, 2012-2014

Co-founded and co-organized UCLA women in math group (2010-present)

Panelist at Aftermath Conference for undergraduate math majors interested in graduate school, Harvey Mudd College, February 2013

Served on panel for undergraduate math majors interested in graduate school, University of California - Los Angeles, October 2011

Languages

English (native)

French (intermediate reading, writing, speaking)