Curriculum Vitae

Personal Information:

Name: **Ramin Takloo-Bighash**

Home Address: 303 Overbrook Rd, Baltimore, MD 21212
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Work Address: Department of Mathematics, Fine Hall, Princeton University, Princeton, NJ 08544-1000
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Email: rtakloo@math.princeton.edu
Iranian citizen, US permanent resident

Education:

Ph.D. in Mathematics. Johns Hopkins University, May 2001.
Advisor: Professor Joseph A. Shalika
Thesis Title: *The Integral of Novodvorsky and the Local p-adic factors of the Spinor L-function for the Similitude Symplectic Group of Order Four*

M.A. in Mathematics. Johns Hopkins University, 1996.

B.Sc. in Mathematics. Sharif University of Technology, Tehran, Iran. September 1992 - May 1995.

Employment:

Assistant Professor, Princeton University, starting fall 2004.

Instructor, Princeton University, 2001-2004.

Research:

Research Interests: Number Theory, Automorphic Forms, Arithmetic Geometry, Harmonic Analysis on Lie Groups.

Research Reports: http://www.math.princeton.edu/~rtakloo/preprints.html
Collaborators: Yuri Tschinkel, Alexandru Popa.

Honors:

Winner of the Teaching Assistantship Excellence Award , Krieger School of Arts and Sciences, Johns Hopkins University, 2001.

Dean's Teaching Fellowship, School of Arts and Sciences, Johns Hopkins University, Spring 2000.

Winner of the William Merril Kelso Award of Excellence in the Teaching of Mathematics, Department of Mathematics, Johns Hopkins Univ., 1999.

Winner of the 18th National Mathematics Competition for Undergraduate Students, Sharif University of Technology, Tehran, Iran 1994.

Silver Medal Winner of the 33rd International Olympiad of Mathematics, Moscow 1992.

Grants and Scholarships:

Young Investigator Award from the National Security Agency, starting 2004.

Clay Mathematics Institute Liftoff Award, Clay Mathematics Institute (Research at Johns Hopkins Univ.), summer of 2001.

Full Tuition Fellowship and Stipend, Department of Mathematics, Johns Hopkins University, 1995-2001.

Full Undergraduate Scholarship, by the Institute for Studies in Theoretical Physics and Mathematics, Tehran, Iran 1993-1995.

Other Awards:

Travel Grant from the American Institute of Mathematics to the attend the conference on Eisenstein Series, August 2005.

Travel Grant from Univ. Göttingen to attend the Gauss-Dirichlet Conference and Summer School on Algebraic Groups, June and July 2005.

Travel Grant from the University of Arizona to attend *Conference on Geometric Representation Theory*, March 2005.

Travel Grant from the University of Illinois at Urbana-Champagne to attend *Web of Modularity*, June 1-4, 2003.

Travel Grant from the American Institute of Mathematics to attend the Workshop on Rational Points on Higher Dimensional Varieties, December 2002.

Travel Grant from the Purdue University to visit the Department of Mathematics at Purdue for one week during the October of 2002.

Travel Grant and Stipend from the Park City Mathematical Institute to attend the PCMI summer school and research program on Automorphic Forms, July 2002.

Travel Grant from the Southwest Center for Number Theory to attend the Arizona Winter School, March 2001.

Travel Grant from the American Mathematical Society to attend the Mathematical Challenges of 21st Century meeting at UCLA, August 2000.

Summer Research Grants from the Department of Mathematics, Johns Hopkins University, Summer 97, 99, and 2000.

Travel Grant from the conference organizers and the Dept of Mathematics, JHU to attend the Millennial Conference on Number Theory, University of Illinois at Urbana-Champagne, May 2000.

Travel Grant from the workshop organizers to attend the Workshop on Automorphic Forms and Related Topics, Boulder, CO, March 2000.

Travel Grant from the workshop organizers to attend the Workshop on Arithmetic and Geometry (Principal Speaker: Peter Sarnak), Iowa City, Iowa,

August 1997.

Travel Grant from the Dept of Mathematics, JHU to attend the Conference on Automorphic Forms and Geometry in the honor of Robert Langlands, Princeton, NJ, October 1996.

Travel Grant from the International Center for Theoretical Physics (ICTP) to visit the ICTP for one month, Trieste, Italy, August 1995. I was awarded this grant, because I was the winner of the 18th National Mathematics Competition for Undergraduates, Iran 1994.

Travel Grant from ICTP to attend the month long Workshop on Arithmetic and Geometry, Antalya, Turkey, July 1994.

Publications:

1. (With J. A. Shalika and Yu. Tschinkel), *Distribution of rational points on compactifications of semi-simple groups*, in preparation. (Research paper)

2. (With Benjamin Elias and Lior Silberman), *On Cayley's theorem*, in preparation. (Research paper)

3. *The spinor L-function*, to appear in the proceedings of the summer school on algebraic groups, Goettingen. (Survey paper)

4. (With Joe Shalika and Yuri Tschinkel), *Distribution of rational points on compactifications of anisotropic semi-simple Groups*, preprint 2005. (Research Paper)

5. *A remark on a recent paper of Ahlgren, Brendt, Yee, and Zaharescu*, to appear in the International Journal of Number Theory. (Research Paper)

6. *Spinor L-functions, theta correspondence, and Bessel coefficients* with an appendix by Philippe Michel, to appear in Forum Math. (Research Paper)

7. (With Dominic Lanphier), On the Rankin-Cohen bracket of eigenforms, Journal of the Ramanujan Mathematical Society, **19** (2004), no. 4, 253-259. (Research paper).

8. (With Steven J. Miller), An Invitation to Modern Number Theory (tentative title), to appear in the spring of 2006, Princeton University Press. (Advanced Undergraduate Textbook).

9. (With Joe Shalika and Yuri Tschinkel), *Distribution of rational points on compactifications of groups of rank 1*, in Rational Points on Higher Dimensional Varieties (ed. B. Poonen and Yu. Tschinkel) 2003. (Research paper)

10. (With Joe Shalika and Yuri Tschinkel), *Rational Points and Automorphic Forms*, in Contributions to Automorphic Forms, Geometry and Number Theory, Shalikafest 2002 (ed. H. Hida, D. Ramakrishnan, and F. Shahidi). (Research Announcement).

11. *Some Results on L-functions for the similitude symplectic group of order four* GSp(4), in Siavash Shahshahani's Sixtieth (ed. K. Lajevardi, P. Safari, and Y. Tabesh), May 2002. (Research Announcement and Survey).

12. *L-Function for the p-adic group GSp(4)*, American Journal of Mathematics, **122** (2000), no. 6, 1085-1120. (Research Paper).

13. (Co-author) An Introduction to Mathematical Olympiads (in Persian), Sharif University Press, Tehran, Iran 1998. (Elementary/High School Mathematics.)

14. *Abstract Poetry* (in Persian), Cultural Letter of Sharif, Sharif University of Technology, Tehran, Iran 1995. (Literature.)

15. *Maybe Next Time?: Report on the 25th Annual Mathematics Conference of Iran* (in Persian), Mathematics Journal, University Publication Center, Tehran, Iran 1994. (Event Report.)

16. *A Geometric Inequality* (in Persian), Olympiad, Tehran, Iran 1994. (Elementary/High School Mathematics.)

17. *The Fundamental Theorem of Algebra* (in Persian), Math. Journal of Sharif Univ., Tehran, Iran 1993. (History of Mathematics.)

Talks:

• Lie Groups Representations Seminar, UMD, November 2005.
• Number Theory and Lie Group Seminar, Caltech, November 2005.
• IAS/Princeton Number Theory Seminar, October 2005.
• Weekend conference in Luso, Portugal September 2005.
• Five talks in an undergraduate summer school (Escola Diagonal 2005) in Lisbon, September 2005.
• Workshop on Eisenstein series and applications (organized by W.T. Gan, S. Kudla, and Yu. Tschinkel), August 2005.
• A series of four talk in the Summer School on Algebraic Groups, Gottingen, July 2005.
• Number Theory seminar, UCSD, October 2004.
• Number theory seminar, Johns Hopkins University, September 2004.
• Special session on Analytic Number Theory and Modular Forms, AMS sectional meeting, Lawrenceville, NJ, April 2004.
• Algebraic geometry seminar, Duke University, March 2004.
• Automorphic forms seminar, Department of Mathematics, Ohio State University, March 2004.
• "Mathematics and Postmodernism," expository talk at Sureh Art Academy, Tehran, Iran October 2003.
• Departmental Colloquium, Department of Mathematics, Sharif University of Technology, Tehran, Iran, October 2003.
• Algebra Seminar, Brown University, April 2003.
• AMS Joint Meeting Special Session on Modular Forms and Elliptic Curves, Baltimore, January 2003.
• Workshop on Rational Points on Higher Dimensional Varieties, American Institute of Mathematics, Palo Alto, CA, December 2002.
• Automorphic Forms Seminar, Purdue University, October 2002.
• PCMI Research Program on Automorphic Forms, Park City, Utah, July 2002.
• Algebraic Geometry seminar, University of Minnesota, April 2002.
• Lie Groups Representations Seminar, University of Maryland, April 2002.
• Arithmetic Geometry Seminar, Graduate Center, CUNY, March 2002.
• Number Theory Seminar, Princeton University, Feb 2002.
• Algebra Seminar, University of Pennsylvania, Feb 2002.
• JAMI Conference on Automorphic Forms and Shimura Varieties, March 2001.

• Number Theory Seminar, Johns Hopkins University, March 2001.
• Number Theory Seminar, Johns Hopkins University, October 2000.
• Mathematical Challenges of 21st Century contributed talk, Los Angeles, CA, August 2000.
• Millennial Conference on Number Theory contributed talk, Urbana-Champagne, IL, May 2000.
• Lie Groups and Representation Theory Seminar, University of Maryland at College Park, May 2000.
• Workshop on Automorphic Forms and Related Topics, Boulder, CO, March 2000.
• Algebra Seminar, Department of Mathematics, Brown University, November 1999.
• Various talks at the Johns Hopkins Math Club 95-2001.

Teaching Experiences:

"Freshman-Sophomore Advisor", since Fall 2002.
Wilson College, Princeton University.

"Equations, Numbers, and Proofs", Spring and fall 2005.

"Representation theory of Lie groups" (Graduate Course), Spring 2004.

"Real Analysis", Fall 2004.

"Ordinary Differential Equations", Fall 2004 and 2005.

"Topics in Algebra", Spring 2004.

"Algebra", Fall 2003.
Undergraduate course on group theory and Galois theory.

"Complex Analysis and Applications", Fall 2003.
Undergraduate course on complex analysis.

"Topics in Number Theory", Spring 2002.
Graduate level topics course on L-functions and the Rankin-Selberg Method.

"Undergraduate Math Laboratory"(with Steven Miller), Fall 2002.
A course for junior math majors. The emphasis was Diophantine approximations and Roth's theorem.

Graduate Course Assistant (with Akshay Venkatesh), PCMI, July 2002.
Helped Armand Borel with his graduate course 'Automorphic forms on reductive groups', held problem-solving sessions, and prepared lecture-notes to appear in the proceedings of the summer school.

"Irrational Mathematics"
taught at Princeton Univ. spring of 2002 through spring 2003, and spring 2004.

Undergraduate Research in Mathematics, spring 2001.
Directed undergraduate students working on various open problems.

Number Theory, fall 2000.
Co-taught the Elementary Number Theory course with J. A. Shalika.

Putnam Problem Solving, spring 2000 through spring 2001.
Designed and taught a 3-credit course to undergraduate students.

Dean's Teaching Fellow, spring 2000.
Designed and taught a new course titled "Irrational Numbers."

Graduate Teaching Assistant, 1995-2001.

William L. Putnam Competition Camp Coach, since October 1996.

Instructor, Institute for Academic Advancement of Youth/CTY, Johns Hopkins University Summer Camp, 1999 and 2000.
Taught "Individually Paced Mathematics Sequence"

Instructor, Shahid Soltani High School, The National Center for Talented Students, Karaj, Iran 1994.

Instructor, The National Center for Scientific Olympiads, 1992-1995.

Visits:

Purdue University, October 2002.
University of Maryland at College Park, Summer 2003.
Ohio State University, March 2004.
Johns Hopkins, Summer 2004.
Brown University, March 2004.
Univ. Gottingen, June-July 2005.

Other Professional Activities:

Organizer of a special session on Modular Forms and Related Topics at the Lawrenceville AMS meeting with Stephen D. Miller, April 2004.
Member of the American Mathematical Society
Reviewer for Mathematical Reviews
Referee for the American Journal of Mathematics
Referee for the Canadian Journal of Mathematics
Associated editor, Nashr-e Riazi (A mathematical journal published in Iran similar to Math Intelligencer)
Organizer of the IAS/Princeton Number Theory Seminar, Academic year 2002/2003 and spring term of 2004.
Organizer of an informal seminar on Perverse Sheaves, academic year 2004-2005.
Graduate thesis committee member (Farrell Brumley 2004, Lior Silberman 2005)
Served on various graduate general exams committees (2004-present)
Served on various undergraduate senior thesis committees (2001-present)

Students Supervised:

Matthew Ong, Junior project on Class Field Theory, Spring 2002.
Adam Durrett, Senior project on Modular Forms, Academic year 2002-2003.
Rahul Bhargava, Junior project on the Lone Runner Conjecture, Spring 2003.
Felice Kwan, Senior project on Representation Theory, Academic year 2003-2004.
Matthew Michelini, Senior project on Continued Fractions, Academic year 2003-2004.

Benjamin Elias, Senior project on Cayley's theorem in finite groups, Academic year 2004-2005.
Justin Almeida, Senior project on equivalent formulations of the Riemann hypothesis, Academic year 2004-2005.

Languages:

Fluent in English and Persian, and familiar with French and Arabic.

Other interests:

Iranian traditional music, traveling, classical guitar, cooking.

References:

Joseph Shalika, Johns Hopkins University
Email: shalika@math.jhu.edu

Peter Sarnak, Princeton University
Email: sarnak@math.princeton.edu

Freydoon Shahidi, Purdue University
Email: shahidi@math.purdue.edu

Yuri Tschinkel, Göttingen
Email: ytschink@math.princeton.edu