

Alina Ioana Bucur

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EMPLOYMENT

2016 – *Associate Professor*, University of California, San Diego, La Jolla, CA (to start July 1)
2009 – 2016 **Assistant Professor**, University of California, San Diego, La Jolla, CA
Jan - May 2011 **Postdoctoral Fellow**, Mathematical Sciences Research Institute, Berkeley, CA
2009 – 2010 **Member of the School of Mathematics**, Institute for Advanced Study, Princeton, NJ
2006 – 2009 **C. L. E. Moore Instructor**, Massachusetts Institute of Technology, Cambridge, MA
2006 – 2007 **Member of the School of Mathematics**, Institute for Advanced Study, Princeton, NJ

VISITING POSITIONS

Fall 2015 Institute for Computational and Experimental Research in Mathematics, Providence, RI
Spring 2014 Institute for Pure and Applied Mathematics, Los Angeles, CA

EDUCATION

Ph.D.: Brown University, May 2006

Thesis: *On the Simultaneous Nonvanishing of Quadratic Twists of $GL(2)$ Cusp Forms Over the Rational Function Field*, under the direction of Prof. J. Hoffstein.

M.Sc.: Brown University, June 2003

B.Sc.: University of Bucharest, Romania, June 2001

RESEARCH INTERESTS

My primary research interest is analytic number theory with an emphasis on arithmetic statistics. I use techniques from analytic number theory and arithmetic geometry to answer modeling questions about arithmetic objects. I am also interested in automorphic forms, especially Eisenstein series and theta functions, as well as their applications.

PUBLICATIONS

- B. Brubaker, A. Bucur, G. Chinta, S. Frechette, J. Hoffstein, Non-Vanishing Twists of $GL(2)$ Automorphic L -functions *Int. Math. Res. Not.* **78** (2004), 4211–4239
- A. Bucur, C. David, B. Feigon, M. Lalin, Statistics for traces of cyclic trigonal curves over finite fields, *Int. Math. Res. Not.*, Vol. 2010, No. 5, 932–967
- A. Bucur, C. David, B. Feigon, M. Lalin, Biased statistics for traces of cyclic p -fold covers over finite fields, *WIN—Women in Numbers: Research Directions in Number Theory*, Fields Institute Communications, 121–144
- A. Bucur, A. Diaconu, Moments of Quadratic Dirichlet L -series Over Rational Function Fields, *Mosc. Math. J.*, **10** (2010), no. 3, 485–517

- A. Bucur, C. David, B. Feigon, M. Lalin, Fluctuations in the number of points on smooth plane curves over finite fields, *J. Number Theory*, 130, no. 11, 2528–2541
- A. Bucur, K.S. Kedlaya, The probability that a complete intersection is smooth, *J. Théor. Nombres Bordeaux* **24** (2012), no. 3, 541–556
- A. Bucur, C. David, B. Feigon, M. Lalin, K. Sinha, Distribution of zeta zeroes of Artin-Schreier curves, *Math. Res. Lett.* **19** (2012), no. 6, 1329 – 1356
- A. Bucur, C. David, B. Feigon, M. Lalin, Statistics for ordinary Artin-Schreier covers and other p -rank strata, to appear in *Transactions of the AMS*
- A. Bucur, K.S. Kedlaya, An application of the effective Sato-Tate conjecture, to appear in *Frobenius Distributions on Curves*, Contemporary Mathematics, Amer. Math. Soc., Providence, RI, 2015 , arXiv:1301.0139
- A. Bucur, A.-M. Ernvall-Hytonen, A. Odžak, E. Roditty-Gershon, L. Smajlović, On τ -Li coefficients for certain classes of L -functions, to appear in *Women in Numbers Europe: Research Directions in Number Theory*, Springer 2015, 167–190
- M.J. Bertin, A. Bucur, B. Feigon, L. Schneps eds., *Women in Numbers Europe*, Research Directions in Number Theory, Association for Women in Mathematics Series 2, Springer International Publishing AG Switzerland, 2015 (ISBN 978-3-319-17986-5), 205+xiii pp.(ISBN 978-3-319-17986-5)
- A. Bucur, C. David, B. Feigon, N. Kaplan, M. Lalin, E. Ozman, M.M. Wood, The distribution of \mathbb{F}_q -points on ℓ -cyclic covers of genus g of the projective line, *Int. Math. Res. Not.* rnv279, 44 pages; doi:10.1093/imrn/rnv279 (to appear)
- A. Bucur, A.-M. Ernvall-Hytonen, A. Odžak, L. Smajlović, On a Li-type criteria for zero-free regions of certain Dirichlet series with real coefficients (preprint, submitted)
- A. Bucur, E. Costa, C. David, J. Guerreiro, D. Lowry-Duda, Traces, High powers and One level density for families of curves over finite fields (preprint)

AWARDS AND GRANTS

- **NSF RTG grant** DMS-1502651 (2015-2020), senior personnel
 - **Simons Foundation Collaboration Grant** (2012 - 2017)
 - **Clay Mathematics Institute enhancement and partnership grant**, funding for organizing the “Apollonian Circle Packings” summer school, Institut Mittag-Leffler, Stockholm, Sweden, June 2014
 - **NSF conference grant** DMS-1400237 (2014-2015), funding for organizing the “Apollonian Circle Packings” summer school, Institut Mittag-Leffler, Stockholm, Sweden, June 2014
 - **Clay Mathematics Institute enhancement and partnership grant**, funding for organizing the “Women in Numbers/Femmes en nombre” workshop, Luminy, France, October 2013
 - **NSF conference grant** DMS-1303457 (2013-2015), funding for organizing the “Women in Numbers/Femmes en nombre” workshop, Luminy, France, October 2013
 - **Hellman Fellowship**, UCSD (2012-2013)
 - **SQuaRE**, American Institute of Mathematics (2012-2015), collaborative grant with C. David, B. Feigon and M. Lalin
 - **Faculty Career Development Program grant**, UCSD (2012)
 - **NSF: FRG grant** DMS-0652529 (2007-2010), collaborative grant together with B. Brubaker
 - **Dissertation Fellowship**, Brown University (2005)
 - **Mathematics Department Outstanding Teaching Award**, Brown University (2005)
 - **Socrates/Erasmus Scholarship**, University of Ferrara, Italy (1999 – 2000)
 - **Distinguished Fellowship**, University of Bucharest, Romania (1998 – 2001)
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TEACHING EXPERIENCE

- 09/10 – present **Assistant Professor**, UCSD: calculus, ODEs, undergraduate number theory, undergraduate abstract algebra, graduate algebra and number theory.
Led reading courses and directed undergraduate honors theses in number theory.
- 9/08 – 12/08 **Instructor**, MIT: designed and taught the first year graduate course in analytic number theory
- 9/07 – 5/08 **Teaching Assistant**, MIT: led recitation sections for differential equations courses
- 9/05 – 5/06 **Teaching Consultant**, Sheridan Center for Teaching and Learning, Brown University
- May 2004 **Sheridan Center Teaching Certificate**
- 9/03 – 5/06 **Teaching Fellow**, Brown University: taught my own calculus and linear algebra courses
- 9/02 – 5/03 **Teaching Assistant**, Brown University: led calculus recitations
- 9/02 – 5/03 **Tutor**, Mathematics Resource Center, Brown University
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PROFESSIONAL SERVICE TO THE MATHEMATICS AND NUMBER THEORY COMMUNITY

Panels, committees and referee work.

- Member of the editorial board of the L-functions and modular forms database (LMFDB); <http://www.lmfdb.org>
- Served on NSF grant panel, 2013 – 2014
- Served on NSF grant panel, 2012 – 2013
- Served on ANTS (Algorithmic Number Theory Symposium) program committee, 2012
- Served as referee for Acta Arithmetica, IMRN, International Journal of Number Theory, Transactions of the AMS, Journal of computational mathematics,
- Scientific Advisory Board for the Southwest Center for Arithmetic Geometry, 2009 – present
- Session chair, Royal Society meeting on *Number fields and function fields: coalescences, contrasts and emerging applications*, Kavli Royal Society Centre, Chicheley Hall, UK, May 29 – 30, 2014

Organizational work for conferences and semester in number theory.

- *Scientific organizer, Arizona Winter School 2016*
- Director of the Southwest Center for Arithmetic Geometry and co-PI for Arizona Winter School (2015 – present)
- Co-organizer, special semester on *Computational aspects of the Langlands program*, Institute for Computational and Experimental Research in Mathematics (ICERM), Providence, RI, Fall 2015
- Co-organizer, 6th EMS/EWM summer school on *Apollonian Circle Packings* (competitive proposal selection), Institut Mittag-Leffler, Stockholm, Sweden, June 23– 28, 2014
- Co-organizer, Workshop on *Arithmetic statistics over finite fields and function fields*, American Institute of Mathematics, Palo Alto, CA, January 27 – 31, 2014
- Co-organizer, Special Session on *L-functions and Arithmetic Geometry*, AMS & MAA Joint Meetings, San Diego, CA, January 9 – 12, 2013
- Co-organizer, Special Session on *Number Theory*, AWM 40th Anniversary conference, Brown University, Providence, RI, September 17 – 18, 2011
- Co-organizer, introductory talks by program members, Mathematical Sciences Research Institute, Berkeley, CA, January 2011
- Co-organizer, Special Session on *L-functions and Analytic Number Theory*, AMS & MAA Joint Meetings, San Francisco, CA, January 13 – 16, 2010
- Co-organizer, Special Session on *L-functions and Automorphic Forms*, AMS Eastern Spring Meeting, Courant Institute, New York University, March 15 – 16, 2008

Mentoring students and junior mathematicians.

- Led group on *Li coefficients of zeta and L-functions*, Sage Days 62: Women in Sage 5, Portland, OR, July 28 – August 1, 2014

- Junior group leader, *Curves and zeta functions over finite fields* group (senior leader Chantal David), Arizona Winter School, Tucson, AZ, March 15–19, 2014
- Group co-leader, WIN2: Women in Numbers, BIRS, Banff, Canada, November 2011
- Group co-leader, *Women in Numbers/Femmes en nombre* workshop, CIRM, Luminy, October 14 – 18, 2013
- Directed honors thesis work for undergraduate students at UCSD (2013-2014)

SERVICE THAT SUPPORTS AND PROMOTES WOMEN IN MATHEMATICS

Service in organizations promoting women in mathematics.

- Member of steering committee for WINN (Women in Numbers Network) - a professional development group for women mathematicians who are interested in Number Theory
- AWM Mentor Network Committee (2015-2018)
- Founding member (2001-2006) and coordinator (2004-2006) of the Rose Whelan Society, Brown University. Rose Whelan Society is the association of women graduate students and postdocs in Mathematics and Applied Mathematics at Brown University. It also works closely with various groups of women undergraduate students, such as WISE.

Mentoring women in mathematics.

- Faculty advisor for the AWM student chapter at UCSD (2014 - present)
- Running *FeMa - Females in Math* at UCSD (2012 - present)
- Led group on *Li coefficients of zeta and L-functions*, Sage Days 62: Women in Sage 5, Portland, OR, July 28 – August 1, 2014
- Group co-leader, WIN2: Women in Numbers, BIRS, Banff, Canada, November 2011
- Group co-leader, *Women in Numbers/Femmes en nombre* workshop, CIRM, Luminy, October 14 – 18, 2013

Conferences organized that promote female mathematicians' research.

- *Co-organizer*, Re:boot 2016, *Duke University*, March 2016
- Co-organizer, 6th EMS/EWM summer school on *Apollonian Circle Packings* (competitive proposal selection), Institut Mittag-Leffler, Stockholm, Sweden, June 23– 28, 2014
- Co-organizer, *Women in Mathematics in Southern California Symposium*, April 2013 and May 2014
- Co-organizer, *Women in Numbers/Femmes en nombre* workshop, CIRM, Luminy, October 14 – 18, 2013

COMPUTER SKILLS

Mathematica, pari, sage, Python, L^AT_EX, T_EX, basic HTML and web design

SYNERGISTIC ACTIVITIES

- AMS, AWM member