Alina Ioana Bucur

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Employment

2016 – present	**Associate Professor**, University of California, San Diego, La Jolla, CA
2018 – 2019	**von Neumann Fellow**, Institute for Advanced Study, Princeton, NJ
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. Lalín, 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. Lalín, Biased statistics for traces of cyclic p-fold covers over finite fields, *WIN–Women in Numbers: Research Directions in Number Theory*, Fields Institute Comm., 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. Lalín, 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. Lalín, 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. Lalín, Statistics for ordinary Artin-Schreier covers and other p-rank strata, *Trans. Amer. Math. Soc.*, **368** (2016), no. 4, 2371–2413
- A. Bucur, K.S. Kedlaya, An application of the effective Sato-Tate conjecture, *Frobenius Distributions on Curves: Lang-Trotter and Sato-Tate conjectures*, Contemporary Mathematics 663, Amer. Math. Soc., Providence, RI, 2015, 45–56
- A. Bucur, A.-M. Ernvall-Hytonen, A. Odžak, E. Roditty-Gershon, L. Smajlović, On $\tau-$Li coefficients for certain classes of $L-$functions, *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.
- 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.* **2016** (14), 2016, 4297–4340
- 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, *LMS J. Comput. Math.*, **19** (1), 2016, 259–280
- 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, *Math. Proc. Camb. Phil. Soc.* **165** (2), 2018, 225–248
- A. Bucur, A.C. Cojocaru, M. Lalín, L.B. Pierce, Geometric generalizations of the square sieve, with an application to cyclic covers, Mathematika 69 (2023), no. 1, 106–154.
- A. Bucur, F. Fité, K.S. Kedlaya, Effective Sato–Tate conjecture for abelian varieties and applications, J. Eur. Math. Soc. (JEMS) 26 (2024), no. 5, 1713–1746.
- A. Bucur, L-functions in arithmetic statistics, in *Curves over finite fields–past, present and future*, Panor. Synthèses, 60, Soc. Math. de France, Paris, 2023, 145–171.
- A. Bucur, A. Florea, A. Serrano López, I. Varma, Power-saving error terms for the number of D_4-quartic extensions over a number field ordered by discriminant, in *Research directions in number theory*, Assoc. Women Math. Ser., 33, Springer, Cham, 2024, 197–218.
- A. Bucur, W. Ho, R. Scheidler eds., Women in Number V, Research Directions in Number Theory, Assoc. Women Math. Ser., 33, Springer, Cham, 2024. xi+318 pp.
- A. Bucur, F. Fité, K.S. Kedlaya, Frobenius sign separation for abelian varieties, to appear in *Proceedings of the American Mathematical Society*, arXiv:2310.10568.

Selected Grants

- **NSF research grant** DMS-2002716 (2020-2025)
- **NSF conference grant** DMS-2012061 (2020-2021), funding for organizing the *Women in Numbers 5/6* workshop, Banff, Canada, November 2020
- **NSF conference grants** DMS-1504537 (2015 - 2018), DMS-1763675 (2018-2019) DMS-1903892 (2019-2022), funding for organizing the *Arizona Winter School*, co-PI
- **Simons Foundation Collaboration Grant** (2017 - 2022)
- **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
- **SQuaRE**, American Institute of Mathematics (2012-2015), collaborative grant with C. David, B. Feigon and M. Lalín
- **Hellman Fellowship**, UCSD (2012-2013)