Xavier Guitart

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EMPLOYMENT

Universitat de Barcelona.

Associate professor (in Catalan: professor agregat), September 2019, present.

Universitat de Barcelona.

Tenure-track 1 lecturer (in Catalan: professor lector), September 2015, present.

Universitat de Barcelona.

Juan de la Cierva Fellowship, December 2014-August 2015.

Institut für Experimentelle Mathematik, Universität Duisburg-Essen.

Postdoctoral Fellowship, September 2013-November 2014.

Universitat Politècnica de Catalunya

Adjunct Lecturer (Professor Ajudant), January-August 2013.

Max Planck Institute for Mathematics, Bonn. Postdoctoral visiting researcher. January-December 2012.

Universitat Politècnica de Catalunya

Adjunct Lecturer (Professor Ajudant), June 2010-December 2012.

EDUCATION

Universitat Politècnica de Catalunya, Barcelona. Phd in Mathematics, June 2010.

Universitat Politècnica de Catalunya, Barcelona Degree in Mathematics, June 2005.

Universitat Politècnica de Catalunya, Barcelona Degree in Telecomunications Engineering, September 2005.

AWARDS

Juan de la Cierva Fellowship (Spanish Ministry of Education and Science), 2013.

Predoctoral fellowship FPU (Spanish Ministry of Education and Science) Universitat Politècnica de Catalunya, September 2007-August 2009.

Predoctoral Fellowship FI (Government of Catalonia) Universitat Politècnica de Catalunya, January 2006-September 2007.

RESEARCH STAYS

University of Duisburg–Essen, Essen. Research stay visiting Professor Ulrich Goertz. April 1–June 30, 2016.

Hausdorff Research Institute for Mathematics, Bonn. Trimester program on Arithmetic and Geometry. January 2, 2013–February 2, 2013.

Max Planck Institute for Mathematics, Bonn. Postdoctoral visiting researcher. January-December 2012.

McGill University, Montreal. Research stay visiting Professor Henri Darmon. September-December 2010.

PUBLICATIONS

On the elliptic Stark Conjecture in higher weight F. Gatti, X. Guitart. Publ. Mat. 64 (2020), 577-619.

Endomorphism algebras of geometrically split abelian surfaces over \mathbb{Q} (with F. Fité). F. Fité, X. Guitart. Algebra and Number Theory Vol. 14 (2020), No. 6, 1399-1421.

An automorphic approach to Darmon points X. Guitart, M. Masdeu, S. Molina. Indiana Univ. Math. J. 69 (2020), no. 4, 1251-1274.

Computing p-adic periods of abelian varieties X. Guitart, M. Masdeu. Contemporary Mathematics, Volume 732, 2019.

On the rank and the convergence rate towards the Sato-Tate measure F. Fité, X. Guitart. Int. Math. Res. Not., Vol. 2019 I. 13, July 2019, Pages 4081-4118

Periods of modular GL₂-type varieties and p-adic integration X. Guitart, M. Masdeu. Exp. Math. 27 (2018), no. 3, 344-361.

Fields of definition of elliptic k-curves and the realizability of all genus two Sato-Tate groups. F. Fité, Xavier Guitart. Trans. Amer. Math. Soc. 370 (2018), 4623-4659

Darmon points on elliptic curves over fields of arbitrary signature. X. Guitart, M. Masdeu, H. Sengun. P. Lond. Math. Soc. (3) 111 (2015), no. 2, 484–518.

Uniformization of modular elliptic curves via p-adic periods. X. Guitart, M. Masdeu, H. Sengun. J. Algebra 445 (2016), 458–502.

A p-adic construction of ATR points.X. Guitart, M. Masdeu. Publ. Mat. 59 (2015), 511–545

Overconvergent cohomology and quaternionic Darmon points. X. Guitart, M. Masdeu. J. Lond. Math. Soc. (2) 90 (2014), no. 2, 495–524

Elementary matrix decomposition and the computation of Darmon points with higher conductor. X. Guitart, M. Masdeu. Math. Comp. 84 (2015), 875–893

Computation of ATR Darmon points on non-geometrically modular elliptic curves. X. Guitart, M. Masdeu. Experimental Mathematics, 22:1, 85–98

Almost totally complex points on elliptic curves. X. Guitart, V. Rotger, Y. Zhao. Trans. Amer. Math. Soc. **336** (2014) 2773–2802

Modular abelian varieties over number fields. X. Guitart, J. Quer. Canad. J. Math. **36** (2014) 170–196

Continued fractions in 2-stage euclidean quadratic fields. X. Guitart, M. Masdeu. Math. Comp. 82 (2013), no. 282, 1223–1233.

Fields of definition of definition of building blocks with quaternionic multiplication. X. Guitart. Acta Arith. 153 (2012), 1–14

Abelian varieties with many endomorphisms and their absolutely simple factors. X. Guitart. Rev. Mat. Iberoam. 28 (2012), no. 2, 591–601

Remarks on strongly modular Jacobian surfaces. X. Guitart, J. Quer. J. Théor. Nombres Bordeaux, 23 no. 1 (2011), 171-182 On the modularity level of modular abelian varieties over number fields.E. González-Jiménez, X. Guitart. J. Number Theory 130, no. 4, 1560-1570 (2010).

Parametrization of abelian K-surfaces with quaternionic multiplication. X. Guitart, S. Molina. C. R. Math. Acad. Sci. Paris 347 (2009), no. 23-24, 1325-1330.

SEMINAR AND CONFERENCE TALKS

Endomorphism algebras of geometrically split abelian surfaces over \mathbb{Q} . Octavas Jornadas de Teoría de Números. June 25-28, 2019, Vilanova i la Geltrú.

Modular forms over number fields of mixed signature and algebraic points on elliptic curves. Building Bridges: 4th EU–US Summer School + Workshop on Automorphic Forms and Related Topics. July 20, 2018. Budapest.

Fields of definition of elliptic k-curves with CM and Sato-Tate groups of abelian surfaces. 4th Conference of young researchers in Mathematics (RSME), September 4, 2017. University of Valencia.

Fields of definition of elliptic k-curves with CM and Sato-Tate groups of abelian surfaces. Septimas Jornadas de teoría de números. June 26, 2017. Universitat de Lleida.

Modular forms over number fields of mixed signature and algebraic points on elliptic curves. Meeting of the Catalan, Spanish, Swedish Math Societies. June 12, 2017. Umea (Sweden).

Fields of definition of elliptic k-curves with CM and Sato-Tate groups of abelian surfaces. HISTRUCT - Workshop on higher structures. December 13–16, 2016, University of Luxembourg

Modular forms over number fields of mixed signature and algebraic points on elliptic curves. Automorphic forms: theory and computation. King's College, London, September 6, 2016.

Fields of definition of elliptic k-curves with CM and Sato-Tate groups of abelian surfaces. Warwich Number Theory Seminar, February 2016.

Fields of definition of elliptic k-curves with CM and Sato-Tate groups of abelian surfaces. York Number Theory Seminar, February 2016.

Modular forms over fields of mixed signature and rational points on elliptic curves. Barcelona Fall Number Theory Workshop, November 2015.

Computation and some new instances of Darmon points. Séminaire de théorie des nombres de Jussieu-PRG, March 2015.

Computing equations of elliptic curves over number fields via p-adic methods. Barcelona Number Theory Seminar, January 2015.

Computing equations of elliptic curves over number fields via p-adic methods. Conference for Young Researchers in Arithmetic and Algebraic Geometry. University of Bonn, 6–8 October 2014

Modular forms over cubic fields and algebraic points on elliptic curves. First Joint International Meeting RSME-SCM-SEMA-SIMAI-UMI. Bilbo, July 2014.

Effective computation and some new instances of Darmon points. Arithmetic geometry seminar. Essen, April 2014.

Computation of quaternionic p-adic Darmon points. Bielefeld Arithmetic Geometry Seminar. Bielefeld, January 2014.

Computation of quaternionic p-adic Darmon points. Algebra and Number Theory Seminar. Heidelberg, December 2013.

Algorithms for Darmon points. Quintas Jornadas de Teoría de Números. Sevilla, July 8-12, 2013.

Effective computation of Darmon points. Essen Seminar for Algebraic Geometry and Arithmetic. University of Duisburg-Essen, November 29, 2012.

Darmon points: algorithms and numerical evidence. Number Theory Lunch Seminar, Max Planck Institute for Mathematics, Bonn, November 14.

Problema del subgrup de congruència efectiu i càlcul de punts de Stark-Heegner. Third meeting of young researchers of the SCM (Catalan Society of Mathematics), Institut d'Estudis Catalans, October 19, 2012

Numerical computation of Stark-Heegner points in higher level. Rational points on curves: A p-adic and computational perspective, Mathematical Institute, University of Oxford, September 24-28, 2012

Cálculo de puntos ATR de Darmon en curvas elípticas no geométricamente modulares. Seminario de Teoría de Números, ICMAT, Madrid. May 8, 2012.

Effective computation of ATR Darmon points. Number theory lunch seminar, Max Planck Institute for Mathematics, Bonn. May 2, 2012.

Rational points on elliptic curves over almost totally complex quadratic extensions. Seminarium z Arytmetycznej Geometrii Algebraicznej, Adam Mickiewicz University, Poznan. November 9, 2011

Rational points on elliptic curves over almost totally complex quadratic extensions. Computations with modular forms, Heidelberg. September 5, 2011.

Computing continued fractions on real quadratic fields. Cuartas Jornadas de Teoría de Números, Bilbao. July 13, 2011.

L-series of building blocks. Québec-Vermont Number Theory Seminar, University of Vermont. October 21, 2010.

On the modularity level of modular abelian varieties over number fields. Conférence de théorie des nombres Québec-Maine, Université Laval, Québec. October 2, 2010.

On the modularity level of modular abelian varieties over number fields. Arithmetic geometry seminar, Centre de Recerca Matemàtica, Bellaterra (Barcelona). May 19, 2010.

Modular abelian varieties over number fields. 26th Journées Arithmétiques, Saint-Étienne. July 8, 2009.

Variedades abelianas modulares sobre cuerpos de números. Terceras jornadas de teoría de números, Salamanca. June 30, 2009.

Article de Ribet: Abelian varieties over \mathbb{Q} and modular forms. Seminari de Teoria de Nombres de Barcelona, Barcelona. 2009.

Tipus de reduccions de corbes. Seminari de Teoria de Nombres de Barcelona. Barcelona, 2007.

MATHEMATICAL ACTIVITIES

Coorganizer (with C. de Vera) of the Number Theory session of the Barcelona Mathematical Days 2020 Conference, October 23-24, 2020.

Thesis defense committee member, Iago Giné, Albanese varieties of non-Archimedean uniformized varieties, student of Xavier Xarles (Universitat Autònoma de Barcelona), July 2017.

Member of the Local Organizing Committee of the Foundations of Computational Mathematics conference. July 10-19, 2017. Barcelona.

Co-organizer (with Daniel Barrera, Francesc Fité, Santiago Molina, and Victor Rotger) of the workshop *p*-adic methods for modular forms and Galois representations, February 13–17, 2017. Barcelona.

Thesis defense committee member, Laia Amorós, *Images of Galois representations and p-adic mod*els of Shimura curves, student of Gabor Wiese (University of Luxembourg) and Pilar Bayer (University of Barcelona), December 2016.

Co-organizer (with M. Masdeu) of the workshop *Arithmetic of Euler Systems*, to be held in Benasque, Spain, on August 22–30, 2015.

Co-organizer (with Paloma Bengoechea) of the Session on Number Theory of the Young Researchers Conference of the Royal Spanish Mathematical Society, University of Murcia, September 7–11, 2015.

Co-organizer (with F. Fité, J.-C. Lario, M. Masdeu, and V. Rotger) of the workshop *Effective Methods for Darmon Points*, Benasque (Spain), August 26–30, 2013.

Heegner points on elliptic curves, 4 hours course to graduate students at the Universidad Autónoma de Madrid, 7-9 May, 2012.

Master defense committee member, Carlos de Vera, *Rational points on Atkin-Lehner quotients of Shimura curves*, student of Victor Rotger (Universitat Politècnica de Catalunya), June 2011.

Ph.D. external examiner of the thesis *The Birch and Swinnerton-Dyer conjecture for* \mathbb{Q} -curves, by Yu Zhao (McGill University); student of Henri Darmon (McGill University) and Victor Rotger (Universitat Politècnica de Catalunya), 2011.

Co-organizer (with J.-C. Lario and M. Masdeu) of the workshop *Sato-Tate in Higher dimension*, Benasque (Spain), Jul 25 – Aug 06, 2011.

Coordinator at the 49th International Mathematics Olympiad, July 10th to 22nd, 2008. Madrid, Spain

LANGUAGES

Catalan and Spanish. Mother tongues.

English. Fluent, spoken and written. Cambridge Certificate in Advanced English (CAE).