Maria Rosaria Pati

mariarosariapati@gmail.com

Personal data

Name	Maria Rosaria
Surname	Pati
Date of birth	November 24, 1987
Place of birth	Cosenza, Italy
Citizenship	Italian

Postdoctoral positions

01/11/2022 - 30/09/2024 Laboratoire Nicolas Oresme, University of Caen Normandy, project: *p-adic Kudla program in higher dimension*, funded by KUPSUP RIN Emergent 2022 Region Normandie, holder: MARC-HUBERT NICOLE.

01/02/2022 - 31/10/2022 Department of Mathematics, University of Padova.

01/01/2021 - 31/12/2021 Department of Mathematics, University of Genova.

01/09/2020 - 28/02/2021 Centre de recherches mathématiques, University of Montréal, thematic semester: *Number Theory - Cohomology in Arithmetic*.

01/01/2020 - 31/07/2020 Laboratoire Paul Painlevé, University of Lille, project: $\mathcal{L}$*-invariants attached to Hilbert modular forms in the indefinite setting*.

01/01/2019 - 31/12/2019 Department of Mathematics, University of Padova, project: *p-adic L-functions and generalized Heegner cycles*.

01/01/2017 - 31/12/2018 Department of Mathematics, University of Padova, project: *Anticyclotomic Iwasawa Main Conjecture at ramified primes*.

Education

Ph.D. in Mathematics, University of Pisa, Italy (2012 - 2016).
Thesis: *Extensions of p-power degree of a p-adic field*
Advisor: Prof. Roberto Dvornicich.

Laurea Magistrale in Mathematics, University of Calabria, Italy (2009 - 2011).
Thesis: *Coomologia di campi di numeri*.
Advisor: Prof. Andrea Bandini.
Mark: 110/110 with honour.

Laurea in Mathematics, University of Calabria, Italy (2006 - 2009).
Thesis: *Il Teorema di Mordell-Weil*.

Advisor: Prof. Andrea Bandini.
Mark: 110/110 with honour.

Fields of Interest

Number Theory, Arithmetic Geometry, Rigid Geometry.
I work on the arithmetic of elliptic curves and modular forms, more precisely on the relations between p-adic L-functions and Heegner cycles for modular forms.

Publications and Preprints

1. M. R. Pati, *Extensions of degree p^ℓ of a p-adic field*, Annali di Matematica Pura ed Applicata (2017), vol. 196, p. 457-477, ISSN: 0373-3114, DOI 10.1007/s10231-016-0581-8.

2. M. R. Pati, *Extensions of degree p^4 of a p-adic field*, Annales mathématiques du Québec (2018), vol. 42, p. 107-125, ISSN: 2195-4755, DOI 10.1007/s40316-016-0076-4.

3. M. Longo and M. R. Pati, *Exceptional zero formulae for anticyclotomic p-adic L-functions of elliptic curves in the ramified case*, Journal of Number Theory (2018), vol. 190, p. 187-211, ISSN: 0022-314X, doi: https://doi.org/10.1016/j.jnt.2018.02.010.

4. M. Longo and M. R. Pati, *Generalized Heegner cycles on Mumford curves*, Mathematische Zeitschrift (2021), vol. 297, p. 483-515, ISSN 0025-5874, DOI 10.1007/s00209-020-02522-8.

5. L. Gehrmann and M. R. Pati, *$\mathcal{L}$-invariants for cohomological representations of* PGL_2 *over arbitrary number fields*, submitted. arXiv:2109.14949. (2021)

6. M. R. Pati, G. Ponsinet and S. Vigni, *On Shafarevich-Tate groups and analytic ranks in families of modular forms, II. Coleman families*, accepted for publication on Mathematical Research Letters. (2023) arXiv:2112.11847.

7. M. R. Pati, *On the anticyclotomic Iwasawa Main Conjecture for modular forms in a quaternionic setting*, submitted. arXiv:2304.08934. (2023)

Invited talks

February 24, 2023, Laboratoire de Mathématiques Nicolas Oresme, Université de Caen Normandie, France: "*On the anticyclotomic Iwasawa Main Conjecture for modular forms*";

October 17, 2022, University of Warwick, UK: "*$\mathcal{L}$-invariamts for cohomological representations of* PGL_2 *over an arbitrary number field*";

September 9, 2022, University of Duisburg-Essen, Germany: "*On Shafarevich-Tate groups and analytic ranks in Coleman families*" at the "School on Arithmetic Geometry on the occasion of Massimo Bertolini's 60th birthday";

February 18, 2021, Online format: "*On the $\mathcal{L}$-invariant for Hilbert modular forms*" at the conference "Number Theory Online";

September 7, 2019, Università di Pavia: "*Cicli di Heegner generalizzati e derivate di funzioni L p-adiche*" at the "XXI Congresso dell'Unione Matematica Italiana";

April 11, 2019, Università di Genova: "*Generalized Heegner cycles and derivatives of p-adic L-functions*";

November 13, 2018, Laboratoire de Mathématiques de Besançon, France: "*Generalized Heegner cycles and derivatives of p-adic L-functions*" at the conference "Arithmetic and L-functions";

December 12, 2017, CIB - EPF Lausanne, Switzerland: "*Exceptional zero formulae for anti-cyclotomic p-adic L-functions of elliptic curves in the ramified case*" at the conference "Recent Developments on the Arithmetic of Special Values of L-functions";

March 23, 2017, Università di Parma: "*Anticyclotomic p-adic L-functions of modular elliptic curves*";

September 27 and 29, 2016, Università di Padova: "*p-adic L-functions, following Bertolini-Darmon-Iovita-Spiess construction*";

November 19, 2015, Universidad Complutense de Madrid: "*Extensions of degree p^ℓ of a p-adic field*".

Participations in conferences and schools

Summer School on the Arithmetic of the Langlands Program, HIM, Bonn, Germany, May 8-12, 2023.

Connections and Introductory workshops: Algebraic Cycles, L-values, and Euler Systems, MSRI, Berkeley, California, January 17-29, 2023.

Elliptic curves and modular forms in arithmetic geometry. Celebrating Massimo Bertolini's 60th birthday, Milano, Italy, September 12-16, 2022.

Number Theory Online, online format, February 18, 24 and March 4, 2021.

Higher Coleman theory and applications, Montréal, Canada, December 7-11, 2020 (online format).

Automorphic p-adic L-functions and regulators, Lille, France, October 14-18, 2019.

XXI Congresso dell'Unione Matematica Italiana, Pavia, Italy, September 2-7, 2019.

Recent advances in the arithmetic of Galois representations, Genova, Italy, July 15-19, 2019.

Padova school on Serre conjectures and the p-adic Langlands program, Padova, Italy, May 27 - June 14, 2019.

p-Adic modular forms and p-adic L-functions, Como, Italy, May 20-24, 2019.

Arithmetic and L-functions, Besançon, France, November 12-16, 2018.

Recent Developments on the Arithmetic of Special Values of L-functions, Lausanne, Switzerland, December 11-15, 2017.

Summer School on Modular Forms, Padova, Italy, August 28 - September 6, 2017.

Prima giornata dei Dottorandi in Teoria dei Numeri, Parma, Italy, March 23, 2017.

Third Italian Number Theory Meeting, Pisa, Italy, September 21-24, 2015.

Hopf-Galois Theory and Galois Module Structure, Exeter, UK, June 23-26, 2015.

Final ERC meeting in Diophantine Geometry, Roma, Italy, May 27-29, 2015.

Problemi e Applicazioni in Algebra, Geometria e Analisi, Genova, September 19-20, 2011.

Research stays

September 24 - October 31, 2016, Università di Padova:
I gave two talks on the construction of the anticyclotomic p-adic L-function attached to a modular elliptic curve and an imaginary quadratic field K and the related questions about the existence of exceptional zeroes. Both are given following the work of Bertolini, Darmon, Iovita, Spiess. I continued the research on these topics, trying to generalize to the case in which p is ramified in K.

January 25 - February 28, 2016, Concordia University (Montréal), supervisor Adrian Iovita:
I attended the course "Complex and p-adic Analytic Number Theory" by Adrian Iovita and I started the study of p-adic L-functions attached to modular elliptic curves. I also studied the Schlessinger's paper *Functors of Artin rings* in view to the application to Mazur's deformation theory of Galois representations.
I regularly attended the QVNTS, Québec-Vermount Number Theory Seminar, a bi-weekly seminar organized by Darmon, Goren, Iovita and others.

Teaching Positions

Teaching assistance at *Elliptic Curves Graduate School*, Baskerville Hall, Wales (UK), August 8-12, 2022.

Basics on Hida Theory, PhD course, Università di Padova. 8h in collaboration with L. Dall'Ava, 2021/2022.

Pre-course in Mathematics, Laurea in Scienze Statistiche, Università di Padova, 2018/2019.

Adjunct Professor for the course *Fondamenti di Algebra Lineare e Geometria*, Laurea in Ingegneria Civile and Laurea in Ingegneria per l'Ambiente e il Territorio, Università di Padova, 2017/2018.

Adjunct Professor for the course *Fondamenti di Algebra Lineare e Geometria*, Laurea in Ingegneria Civile and Laurea in Ingegneria per l'Ambiente e il Territorio, Università di Padova, 2016/2017.

Tutor in the course *Informatica Teorica*, Laurea in Mathematics, Università della Calabria, 2012/2013.

Tutor in the course *Geometria e Algebra Lineare*, Laurea in Mathematics, Università della Calabria, 2009/2010.

Other

Abilitazione all'insegnamento nella scuola secondaria di II grado (TFA), Università della Calabria, July 24, 2013. Mark: 100/100.

Member of the National Group for Algebraic and Geometric Structures, and their Applications (GNSAGA-INDAM).

Last updated: May 16, 2023