Marta Sánchez Pavón

Updated July 15, 2022

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Math interests

Arithmetic Geometry, Number Theory, Elliptic Curves, Galois Representations, Langlands program, Abstract Algebra, Cryptography…

Education

IES Isla Verde Algeciras, Cádiz
Graduated with honors

University of Seville Seville, Seville
BSc in Mathematics (coursing)

Talks

Entering the tower with Iwasawa theory 21 Apr. 2021
Slides here and recording here. Proving Fermat's Last Theorem has been one of the most famous mathematical challenges during the last years. Most importantly, it served as a key starting point for developing deep theories in arithmetic geometry; and Iwasawa theory has been one of such. The fundamental idea of Iwasawa theory is studying the growth of arithmetic objects over the tower of a p-adic extension. Much of the recent progress in the Birch and Swinnerton-Dyer conjecture is due to these methods. In this talk I give an introduction to Iwasawa theory with an eye on its application to elliptic curves.

A trip through elliptic curves & Fermat's Last Theorem 17 Mar. 2021
Slides here and recording here. This is a talk I prepared for the cultural week we celebrate in University of Seville because of the Pi Day. I talk about motivation for defining elliptic curves, the key role that they play in the proof of Fermat's Last Theorem, and their connection to modular forms. I would like to improve the slides and the talk itself in the future.

Conferences

Novenas Jornadas de Teoría de Números Logroño, Spain, 2022

Skills

Programming languages
SageMath, Python, Haskell, Matlab.

Software
Comfortable with GNU/Linux (mainly Arch Linux) and Windows.

Languages
Spanish (native), English (fluent, C1 Cambridge level).

Personal
Highly motivated and enthusiastic about math interests and further learning, self-taught person, strong communication skills and adaptability.

Additional learning

From Oct. 2020 to Jun. 2021, Sara Arias-de-Reyna and I have been reading parts of the books *The Arithmetic of Elliptic Curves* (J. Silverman) and *Algebraic Number Theory* (J. Neukirch). She helped me through this period of time, teaching me the necessary prerrequisites to study Galois representations.

From Jan. 2021 to Apr. 2021 I audited a full graduate course about elliptic curves taught by Álvaro Lozano-Robledo, linked here.

From Oct. 2021 to Jun. 2022, Sara Arias-de-Reyna and I have been reading parts of the book *Abelian ℓ-adic Representations and Elliptic Curves* (J. P. Serre) in order to learn about the theory of Galois representations.