Seminari Informal de Matemàtiques de Barcelona

***Speaker*:** Matilde Vieira Lino da Costa.
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Date: Wednesday, December 2nd, 2026.
Schedule: 12:20 talk.
Place: UB (Facultat de Matemàtiques i Informàtica - Aula B1) and Zoom.
Language: English.

Title: Galois representations and the beauty of deformations.

Abstract: In 1995, Taylor and Wiles solved the 300-year-old problem known as Fermat's Last Theorem. One crucial step was proving the modularity of a certain class of elliptic curves, which they achieved via the theory of deformations of Galois representations. The basic question in this theory is the following: given a Galois representation over a finite field k, can we describe its lifts over rings with residue field k? In this talk, I will introduce the main ideas of deformation theory, while emphasizing the role played by universal objects. Moreover, I will discuss some examples that illustrate how deformation theory continues to bear fruit in the field of Galois representations.

About us: *SIMBa* is a mathematics seminar organized by graduate students in the Barcelona area. It is aimed towards graduate and last–year undergraduate students. Our goals are disseminating knowledge from different branches of mathematics for those interested and promoting networking between the attendants.
This seminar is backed by the Faculty of Mathematics and Computer Science at Universitat de Barcelona, Faculty of Mathematics and Statistics at Universitat Politècnica de Catalunya, the Department of Mathematics at Universitat Autònoma de Barcelona, CRM, IMUB and BGSMath.

Fore more information, visit seminari-simba.github.io/en. You may contact us by sending an email to ***seminari.simba@gmail.com***.