SIMBa

BGSMath
BARCELONA GRADUATE SCHOOL OF MATHEMATICS

Seminari Informal de Matemàtiques de Barcelona

***Speaker*:** Ignasi Sánchez Rodríguez.
University: University of Barcelona.

Date: Wednesday, November 4th, 2026.
Schedule: 12:20 talk.
Place: UPC (Facultat de Matemàtiques i Estadística - Aula S03) and Zoom.
Language: English.

Title: Proving examples of modularity.

Abstract: Modularity is a remarkable phenomenon in number theory, connecting seemingly unrelated objects such as elliptic curves, modular forms, and Galois representations. While some of the most celebrated results in modern mathematics establish modularity in great generality, an interesting question remains: how can we actually prove that a specific object is modular?
In this talk, I will introduce the Faltings–Serre method, a powerful tool that allows us to establish modularity by comparing Galois representations. The key idea is that, under suitable conditions, two representations can be shown to be isomorphic by checking only finitely many pieces of arithmetic data. I will explain the intuition behind this method and illustrate how it can be used to prove modularity in concrete examples.

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***.