Seminari Informal
de Matemàtiques de Barcelona

Speaker:	Enric Florit Zacarías.
University:	Universitat de Barcelona.
Date:	Wednesday, May 18th, 2022.
Schedule:	12:00, *virtual coffee break*; 12:20, talk.
Place:	UB (FMI aula B1) and Zoom.
Language:	English.
Title:	Let's twist again: the problem with fake abelian surfaces

Abstract: The paramodularity conjecture of Brumer and Kramer proposes a connection between abelian surfaces and Siegel paramodular forms. In this correspondence there are some restrictions, for example, we ask that all the eigenvalues of a paramodular form are in $\mathbb{Q}$. In theory, these forms could also correspond to fake surfaces, which are abelian fourfolds with quaternionic multiplication. This motivates the study of abelian varieties whose ℓ-adic representations have dimension 4, which is the case of abelian surfaces.

In this talk, I will explain the objects in the paramodularity conjecture: my goal is to put emphasis in the classification of abelian varieties of GL_4-type, and in particular the ones that have similar representations to those of abelian surfaces. I will also present the examples we currently have at our disposal. Finally I will explain the difficulty in working with fake surfaces.

About us: *SIMBa* is a youth mathematics seminar organized by graduate students in the Barcelona area. It is aimed towards graduate and last course undergraduate students. Our goals are divulging the knoweledge from different branches of mathematics for those interested and promote 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 from Univesitat Autònoma de Barcelona, CRM, IMUB and BGSMath.

Fore more information, visit at `www.ub.edu/simba/en/`.

If you have any doubt or comment do not hesitate to contact us by sending an email to *seminari.simba@gmail.com*.