

The logo for SIMBa, consisting of the text "SIMBa" in a bold, black, serif font on a solid orange rectangular background.

# Seminari Informal de Matemàtiques de Barcelona

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**Speaker:** Eloi Torrents Juste.

**University:** Universitat Autònoma de Barcelona.

**Date:** Wednesday, November 8th, 2023.

**Schedule:** 13:00, *coffee break*; 13:20, talk.

**Place:** UAB (aula petita CRM) and Zoom.

**Language:** English.

**Title:** Fundamental domains for the Bruhat-Tits tree for  $GL_2(F_p)$

**Abstract:** The computation of fundamental domains of the Bruhat-Tits tree by the action of quaternionic groups allows the computation of harmonic cocycles on it. These are related to automorphic forms and from this fact are derived several applications, as for example the computation of points on Shimura curves and Heegner points on elliptic curves as done by M. Greenberg and later generalized by C. Franc and M. Masdeu. In this talk we will review these concepts, and we will explain how to apply them in the computation of Heegner points on elliptic curves in cases where the Heegner hypothesis is not satisfied, and therefore the classical arquimedean construction of these points is difficult to compute.

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**About us:** *SIMBa* is a 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 knowledge 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/](http://www.ub.edu/simba/en/).

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