

Seminari Informal de Matemàtiques de Barcelona

Speaker: Francesca Gatti.
University: Universitat Politècnica de Catalunya.

Date: Wednesday, 6th of March.
Schedule: 12:00, *coffee break*; 12:20, talk.
Place: B1 classroom, *Facultat de Matemàtiques* of UB.
Language: English.

Title: Elliptic curves over \mathbb{Q} and the Birch and Swinnerton–Dyer conjecture.

Abstract: An elliptic curve E over \mathbb{Q} is a nonsingular cubic of equation

$$y^2 = x^3 + Ax + B,$$

with $A, B \in \mathbb{Z}$. Let $E(\mathbb{Q})$ the set of points on E having rational coordinates. We will see how to define a group law $+$ on $E(\mathbb{Q})$. By Mordell-Weil Theorem, $(E(\mathbb{Q}), +)$ is a finitely generated abelian group. the "size" of the free part of $E(\mathbb{Q})$ is called the *algebraic rank* of E over \mathbb{Q} . The Birch and Swinnerton-Dyer conjecture says that one should recover this algebraic rank computing an analytic invariant, called the *analytic rank* of E over \mathbb{Q} .

About us: The SIMBa is a young seminar organized by the PhD students of the Faculties of Mathematics and Computers of Barcelona. It is aimed at doctoral, master's degree students and, also, for those who are in the last grade courses. Our goal is that each one can make known the research which they are doing, as well as, to get new knowledge of other areas of mathematics other than his own..

More information at www.ub.edu/simba/en/.

If you have any doubt or comment, do not hesitate to contact us by sending an email to the email address seminari.simba@ub.edu.