CECILIA SALGADO (UNIVERSITY OF GRONINGEN, NETHERLANDS)

Mordell-Weil rank jumps on families of elliptic curves

We will give an overview of the recent developments around the variation of the Mordell-Weil rank in 1-dimensional families of elliptic curves, by studying them in the guise of elliptic surfaces. In particular, we will discuss elliptic surfaces in the light of the Enriques-Kodaira classification of algebraic surfaces, different methods to study the variation of Mordell-Weil ranks and potential obstructions due to the geometry of the underlying surface, treating rational, K3's and surfaces of Kodaira dimension 1.