

Mini-curso 2: Rational points on rationally connected varieties over number fields

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Abstract:

A smooth projective variety X over a field k of characteristic 0 is called rationally connected if for every algebraically closed field extension K/k , every pair of K -points of X is connected by a rational curve defined over K . This notion, introduced at the beginning of the 1990s by Kollár, Miyaoka, and Mori and independently by Campana, played an important rôle in the geometric study of complex varieties. In this mini-course, we will study the questions of existence of rational points and weak approximation on rationally connected varieties over number fields. The goal will be to give a broad overview of some of the many techniques that are available, and how they interact. Among them; descent theory and universal torsors, inputs from analytic number theory, fibration methods for families of rationally connected varieties and for families of abelian varieties.