

1154-11-1722 **Daniel Rayor Hast*** (drhast@bu.edu). *Rational points on varieties and the unipotent Albanese map*. Preliminary report.

By Faltings' theorem, any curve of genus at least 2 over a number field has only finitely many rational points. Provably computing the set of all rational points remains a major open problem. We will survey recent progress and ongoing work using the Chabauty–Kim method, which uses the fundamental group to construct p -adic analytic functions that vanish on the set of rational points. In particular, we present a new proof of Faltings' theorem for superelliptic curves over the rational numbers (due to joint work with Jordan Ellenberg), and a conditional generalization of the Chabauty–Kim method to number fields and higher dimensions. (Received September 16, 2019)