Abstract:

We say that a field \( F \subseteq \overline{\mathbb{Q}} \) has the Bogomolov property, if there exists a positive lower bound for the logarithmic Weil height of non torsion points in \( F^* \). This property is in general not preserved under finite field extensions. The only known counterexample (due to Amoroso and Nuccio) comes from an extension of the totally real numbers \( \mathbb{Q}_{tr}^* \). After a short introduction on heights, we will discuss lower height bounds in arbitrary finite extensions of \( \mathbb{Q}_{tr}^* \). For an elliptic curve \( E \) defined over some number field we have the same definition of Bogomolov property if we use the Néron-Tate height on \( E(F) \) instead of the Weil height on \( F^* \). We will present an example, to show that also in this setting the Bogomolov property is not preserved under finite field extensions.