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Graduate Student Seminar

24 September, 12:15-13:00
Grosser Hörsaal, Mathematisches Institut

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Relative Manin-Mumford in additive extensions

Abstract

We will discuss the relative Manin-Mumford conjecture for families of two dimensional commutative algebraic groups. These will depend on one complex parameter λ and we are especially interested in the case of an additive extension of the Legendre family E_λ. We then have an exact sequence

$$0 \to \mathbb{G}_a \to \mathbb{G}_\lambda \to E_\lambda \to 0$$

where $\mathbb{G}_a$ is the additive group $(\mathbb{C}, +)$. In this context the relative Manin-Mumford conjecture states that the intersection of a curve in $\mathbb{G}_\lambda$ with the set of torsion points is at most finite unless it is contained in a smaller family of algebraic subgroups in $\mathbb{G}_\lambda$. It is possible to prove this by following the strategy employed by Masser and Zannier in their proof of the relative Manin-Mumford conjecture for the product of two Legendre families.