A new unicity theorem and Erdös' problem for polarized semi-abelian varieties (joint with P. Corvaja).

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Abstract

I will speak on the following: Main Theorem. Let $f_i : \mathbb{C} \to A_i$ $(i = 1, 2)$ be non-degenerate holomorphic curves.

(i) Assume that

$$\underline{\mathrm{Supp} f_1^* D_1}_{\infty} \subset \underline{\mathrm{Supp} f_2^* D_2}_{\infty}, \tag{1}$$

$$N_1(r, f_1^* D_1) \sim N_1(r, f_2^* D_2)||. \tag{2}$$

Then there is a (finite) étale morphism $\phi : A_1 \to A_2$ such that $\phi \circ f_1 = f_2$ and $D_1 \subset \phi^* D_2$.

(ii) If equality holds in (1), then $\phi : A_1 \to A_2$ of (i) is an isomorphism and $D_1 = \phi^* D_2$. Roughly speaking, the germ of the distribution $f_i^{-1} D_i$ at the infinity of the Gaussian plane determines the pair $A_i, D_i)$ (moduli point). When A_i are abelian varieties, (ii) is due to Yamanoi (2004). In arithmetic analogue, there was a conjecture posed by P. Erdos (1988), which was proved by Corrales-Rodorigáñez and R. Schoof (1997) for one dimensional semi-abelian variety. We will give a theorem analogous to the main theorem for linear tori over an algebraic number field; the case of general semi-abelian varieties remains as an open conjecture.