

The Trivial Notions Seminar
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The Grothendieck period conjecture

A talk by
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Abstract

Given a smooth projective variety over some number field, there is a set of transcendental numbers, the so-called “periods”, which captures some arithmetic feature of this variety. The Grothendieck period conjecture relates the transcendence degree of this set to algebraic cycles of this variety. The whole conjecture seems to be out of reach so far (quoted from a survey paper by Ayoub), but based on a theorem of Schneider and Lang or results of Wustholz, one can obtain the $\bar{\mathbb{Q}}$ -linear independence of abelian periods. In this talk, I will focus on the case when the given variety is an abelian variety and state the above result in an explicit way. To prove this result, Bost applies the theorem of Schneider and Lang to the universal vector extension of the given abelian variety. I will give the definition of the universal vector extension and mention some basic properties that we need for the proof. If time permits, I will talk about related results for products of curves and K3 surfaces due to Bost and Charles.

Wednesday April 8th, at 1:00 pm
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