

FIM

Minicourse

Damian Rössler (Université Paul Sabatier, Toulouse)

On the periods of CM abelian varieties. An introduction to P. Colmez's article „Périodes des variétés abéliennes à multiplication complexe“

April 7 - 10, 2014

Mon	April 07,	15:30 - 16:30	HG G 19.2
Tue	April 08,	14:00 - 15:00	HG G 19.1
Wed	April 09,	10:00 - 11:00	HG G 19.1
Wed	April 09,	15:30 - 16:30	HG G 19.1
Thu	April 10,	10:00 - 11:00	HG G 19.2

ETH Zürich, Rämistrasse 101

Abstract

The aim of this mini-course is to provide an overview of the article “Périodes des variétés abéliennes à multiplication complexe” of P. Colmez (Annals of Math. 138, no. 3, 625–683). In this article, the author generalises (in part conjecturally) the formula of Chowla and Selberg to any abelian variety with complex multiplication. We shall consider the following topics:

- (1) the conjectural “product formula” of P. Colmez
- (2) formal groups with complex multiplication; Cartier's generalisation of Lubin-Tate formal groups
- (3) the computation of the valuations of the p -adic periods of formal groups with CM; the p -adic periods of abelian varieties with CM
- (4) the distribution relations of p -adic and classical periods of CM abelian varieties
- (5) the periods of Fermat curves; proof of the product formula in the case of abelian CM extensions of \mathbb{Q}
- (6) [if there is enough time] the link with Arakelov theory; the arithmetic fixed point formula (this is not part of Colmez's article)

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Eidgenössische Technische Hochschule Zürich
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