

FORMALISING THE L-ADIC COHOMOLOGY

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Time: Tuesday, October 13th, 16:00-17:00

Venue: Room 102, SCMS

Abstract:

Building on foundational work of Artin and Grothendieck, Deligne proved the Weil conjectures in 1974 using the l -adic cohomology of a variety. Classically, these cohomology groups are defined as an inverse limit of étale cohomology groups with finite coefficients. In `mathlib`, l -adic cohomology is instead defined through the pro-étale site of Bhatt and Scholze. In this talk I will describe the recently completed formalisation of the comparison between the two constructions, and explain how it fits into `mathlib`'s development of algebraic geometry. I will also discuss how methods of auto-formalisation are changing this process, and how we used them to accelerate our work. Joint work with Christian Merten (Utrecht University).