Galois representations attached to elliptic curves and the Open Image Theorem

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Week 8 - Term 1

WARWICK MATHEMATICS

POSTGRADUATE SEMINAR

Abstract

A Galois representation is a homomorphism $\rho : Gal(\overline{K}/K) \longrightarrow Aut(V)$ where V is a finite dimensional vector space or a free module of finite rank. These objects are of great importance in number theory due to their connections with elliptic curves, modular forms and L-functions.

We will introduce the mod-ℓ, ℓ-adic and adelic Galois representations attached to a non-CM elliptic curve and discuss the structure of their image. The ℓ-adic open image does not a priori imply the adelic open image but as we will see, it all boils down to the surjectivity of the more innocent sounding mod-ℓ representation.

Time

12 pm, 23rd November 2022

Location

Room B3.02

Organisers

Alvaro Gonzalez Hernandez
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