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# TOWARDS A CLASSIFICATION OF ADELIC GALOIS REPRESENTATIONS ATTACHED TO ELLIPTIC CURVES OVER $\mathbb{Q}$

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## Abstract

Let  $E$  be an elliptic curve defined over  $\mathbb{Q}$ . The adelic Galois representation attached to  $E$  (this object will be defined during the talk) captures all sorts of interesting information about the arithmetic of the points on  $E(\overline{\mathbb{Q}})$ , including data about the torsion subgroup, isogenies, and other finer invariants of the curve and its isogeny class. In this talk, we will give a summary of recent results towards the classification (up to isomorphism) of the possible adelic Galois representations that arise from elliptic curves over  $\mathbb{Q}$ , and present some recent results of the author and his collaborators (Garen Chiloian, Harris Daniels, Jackson Morrow) in this area.

**Date :** Friday, May 21, 2021

**Time:** 16:00