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This talk is Galois-entangled with Harris Daniels' talk

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, and in Harris Daniels' 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 authors and their collaborators (Garen Chiloian, Harris Daniels, Jackson Morrow) in this area. Our talks will be mostly self-contained, but very much related... entangled, if you will.