

ARITHMETIC ALGEBRAIC GEOMETRY - ONLINE SEMINAR

(organizers: Grzegorz Banaszak, UAM Poznań, Piotr Krasoń, US Szczecin)

Thursday, July 1, 2021 06:00 PM Warsaw

Speaker: Andrew Sutherland, MIT,
 ***l -adic images of Galois for elliptic curves
over Q***

Abstract: I will discuss some recent progress on Mazur's "Program B" that is joint with Jeremy Rouse and David Zureick-Brown. We obtain a provisional classification of the possible images of l -adic Galois representations for non-CM elliptic curves over Q that is provably complete barring the existence of unexpected rational points on modular curves associated to the normalizers of non-split Cartan subgroups and two genus 9 modular curves of level 49. As an application, we obtain a very efficient algorithm to compute the l -adic image of Galois of any non-CM elliptic curve over Q that we have applied to all such curves in the L-functions and modular forms database.

Preprint: <https://arxiv.org/abs/2106.11141>