

1077-11-777

Ralph Greenberg, Karl Rubin, Michael Stoll and Alice Silverberg* (asilverb@uci.edu),
asilverb@uci.edu. *The rational points on a recalcitrant genus 12 curve.*

We use the method of Chabauty to determine exactly the set of rational points on the genus 12 curve

$$w^7 = (v^3 - 2v^2 - v + 1)/(v^3 - v^2 - 2v + 1).$$

This computation allowed us to show that the images of 7-adic representations of elliptic curves over \mathbf{Q} with a rational subgroup of order 7 are always “as large as possible”. The quest for the exact set of rational points took a circuitous route with some interesting twists and turns, and was helped by Bjorn Poonen, Jennifer Balakrishnan, Kiran Kedlaya, Michael Rubinstein, Andrew Sutherland, and Joseph Wetherell. (Received September 15, 2011)