

One can ask what the Zariski closure is of the Hecke orbit of a point in the moduli space of abelian varieties. A conjecture which says what this should be (FO, 1993) has recently been proved in joint work with Ching-Li Chai, using a result of C.F. Yu.

In my talk I will spend most of the time explaining the problem, introducing the concepts needed: elliptic curves, abelian varieties, moduli spaces, isogenies and Hecke orbits. I will work out some examples. I hope this explanation will motivate you to understand this beautiful problem. It would be nice if the audience has knowledge of some basic facts of algebraic geometry. I will explain the general outline of the proof, and I hope to be able to show you at least one of the details. Material of this talk should be understandable, at least a large part, for advanced students in algebraic geometry.