
ARI SHNIDMAN,

Selmer groups of genus 2 Jacobians with root 3 level structure

We give an explicit parameterization of the universal genus two curve with "square root three" multiplication and level structure. Using this, we produce a large family of Jacobians having the property that a positive proportion of their quadratic twists have non-trivial Tate-Shafarevich groups. We also construct a universal family of abelian surfaces with "fake real multiplication," and study the Mordell-Weil ranks of their quadratic twists. Joint work with Nils Bruin and Victor Flynn.