

1135-VS-2247 **Sonny Arora*** (sza149@psu.edu). *Constructing Picard Curves with Complex Multiplication.*

For applications to cryptography, one is interested in constructing curves of genus less than or equal to 3 over finite fields whose Jacobians have complex multiplication. Several algorithms exist in the cases of elliptic curves and genus 2 curves, however, less is known in the genus 3 case. An interesting test case for such an algorithm is the case of Picard curves which are genus 3 curves of the form $y^3 = f(x)$ where f is a separable polynomial of degree 4. We discuss some difficulties encountered in the genus 3 case and present an algorithm to construct Picard curves with complex multiplication using a Chinese Remainder Theorem approach. This is joint work with Kirsten Eisenträger. (Received September 25, 2017)