1116-11-762 **Kirsten Eisentraeger*** (eisentra@math.psu.edu), Department of Mathematics, Penn State University, University Park, PA 16802. *Constructing genus 2 curves over finite fields.*

We present an algorithm for constructing genus 2 curves over a finite field with a given number of points on its Jacobian. This has important applications in cryptography, where groups of prime order are used as the basis for discrete-log based cryptosystems. For a quartic CM field K with primitive CM type, we compute the Igusa class polynomials modulo p for certain small primes p and then use the Chinese remainder theorem and a bound on the denominators to construct the class polynomials. We will also discuss some improvements to this. (Received September 11, 2015)