

Computing L-functions of superelliptic curves

Irene Bouw, Universität Ulm

Let Y be a superelliptic curve defined over a number field, i.e. Y is a cyclic cover of the projective line. In this talk I report on algorithmic results for computing the local L -factor and the conductor exponent of Y at the primes of bad reduction. The key ingredient is the calculation of the stable reduction of Y at the bad primes. As an application, we verify the functional equation numerically for a large class of examples. In particular, we consider a class of hyperelliptic curves of genus $g \geq 2$ defined over the rational numbers which have semistable reduction everywhere. This is joint work with Stefan Wewers and Michel Börner.