COLIN WEIR, Tutte Institute for Mathematics and Computing
Classifying the p-torsion of Jacobians and Pryms

The distinction between elliptic curves being either supersingular or ordinary is essentially a distinction between their respective p-torsion group schemes. In higher dimensions more than those two possibilities can occur; there are 2^g possible isomorphism classes of p-torsion group schemes of dimension g in characteristic p. In this talk we will present an algorithm which, given a curve in characteristic p, will compute the isomorphism type of the p-torsion of its Jacobian. We will also discuss a Magma package that efficiently implements this algorithm together with several other useful methods. In particular, we will show how these techniques can be used to classify the p-torsion of Prym varieties as well. This is joint work with Mark Bauer.