1041-11-137 **Rachel Pries*** (pries@math.colostate.edu). *The p-rank and a-number of curves in characteristic p with non-trivial automorphism group.* Preliminary report.

The Jacobian of a complex curve of genus g has p^{2g} points that are p-torsion points. The situation is different over an algebraically closed field of characteristic p where the number of p-torsion points on the Jacobian of a curve of genus g is p^f for some integer f, called the p-rank, such that $0 \leq f \leq g$. There are many open questions about the p-rank of curves; for example, it is unknown in general what restrictions there are on the automorphism group or the a-number of curves with a given p-rank. In this talk, I discuss recent existence and non-existence results on this topic. (Received August 08, 2008)