1027-11-38 **Cormac O'Sullivan** and **Anthony Weaver*** (anthonyweaver@mac.com), University Ave and West 181st St., Bronx, NY 10453. *The largest non-genus of $\mathbb{Z}_{pq}$ and the Frobenius problem.* Preliminary report.

Finite groups, all of whose p-Sylow subgroups are cyclic, act on curves of all but finitely many genera. For such groups it is natural to ask for the *largest non-genus*, that is, the largest nonnegative integer g such that the group does not act on a curve of genus g. The general problem is very difficult. It is related (but not quite equivalent) to a (d-dimensional) *Frobenius problem:* given a set of $d > 1$ positive integers, all > 1, with greatest common divisor $= 1$, find the largest positive integer that cannot be represented as a positive integral linear combination of the integers in the given set. A general formula is known only when $d = 2$.

A formula for the largest non-genus of the (non-cyclic) metacyclic group of order pq was obtained by one of us (Weaver) in 2001. That case was easier because (i) there is the restriction that $p \equiv 1 \mod q$, and (ii) the associated Frobenius problem is 3-dimensional. Here we determine the largest non-genus of $\mathbb{Z}_{pq}$, and solve the associated 4-dimensional Frobenius problem, in the cases where q is sufficiently large (on the order of $2p^2$) with respect to p. We do the same for a large class of cases in which $q \leq 2p - 1$. This includes the class of twin primes. (Received February 01, 2007)