

1035-20-440

Natalie J. Bowlus* (nbowlus1@gmail.com), Swarthmore College, 500 College Ave., Swarthmore, PA 19081, and **Alex Halperin***. *Classification of Subgroups of a Matrix Group of Prime Power Order*. Preliminary report.

Let p be prime. Consider the additive group M of all $p \times p$ matrices with entries in Z_{p^2} . We want to find all subgroups of M that are invariant under two particular endomorphisms. By examining factor groups of M and relying on the fact that Z_p is a field, we were able to attack the problem using concepts from linear algebra and group theory. So far we have solved 20 of the 98 total cases of the problem for prime $p = 3$. This study has connections with classification problems for certain subgroups of wreath product finite groups of prime-power order. (Received September 07, 2007)