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Anthony Weaver* (anthony.weaver@bcc.cuny.edu). *A combinatorial approach to the conjugacy class count for elementary abelian subgroups of the mapping class group.*

It is notoriously difficult to count conjugacy classes of subgroups of mapping classes in a given genus g , even when one restricts to the simplest kinds of groups such as elementary abelian p groups. One reason to be interested in such counts is the bijection between conjugacy classes of finite subgroups of the mapping class group and topological equivalence classes of actions of the corresponding group on compact surfaces of genus g . Here we study fully ramified actions of Z_p^k , the elementary abelian p group of rank $k \geq 2$. We adopt a constructive/combinatorial approach, and obtain explicit counts. We introduce a new topological invariant, the *partition type*, which encodes, in the form of an additive partition, the number of points fixed by each non-trivial cyclic subgroup in a given Z_p^k action. It turns out to be easier to count topological types when the partition type is fixed in advance. We focus on the case $k = 2$.

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