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([m.conder@auckland.ac.nz](mailto:m.conder@auckland.ac.nz)), Mathematics Department, University of Auckland, Private Bag 92019, Auckland, 1023, New Zealand. *Extendability of group actions on non-orientable surfaces.*

Suppose the finite group  $G$  acts faithfully on some compact non-orientable surface  $S$ . Under what conditions does this action extend to a faithful action of some larger group on the same surface? This question will be considered, with particular attention to the case where the group  $G$  is cyclic. If such a cyclic group action is realised by means of a non-maximal NEC signature, then the action always extends, but in some other cases, the group  $G$  can be shown to be the full automorphism group of  $S$ . We can also find, for example, the largest cyclic group that is the full automorphism group of such a surface of given algebraic genus  $g$ , and the smallest algebraic genus of a non-orientable surface on which a given cyclic group  $C_n$  acts as the full automorphism group, or indeed the entire genus spectrum of such actions of  $C_n$ . (Received August 18, 2009)