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On the minimum genus problem on bordered Klein surfaces for automorphisms of even order

Abstract The minimum genus problem consists on determining the minimum algebraic genus of a surface on which a given group G acts. For cyclic groups G this problem on bordered Klein surfaces was solved in 1989. The next step is to fix the number of boundary components of the surface and to obtain the minimum algebraic genus, and so the minimum topological genus. It was achieved for cyclic groups of prime and prime-power order in the nineties.

In this work the corresponding results for cyclic groups of order $N = 2q$, where q is an odd prime, are obtained. There appear different results depending on the orientability of the surface.