

C-groups of $\mathrm{PSL}(2, q)$ and $\mathrm{PGL}(2, q)$

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C-groups are smooth quotients of Coxeter groups. It is well known that there is a one-to-one correspondence between string C-groups and abstract regular polytopes.

Recently, some results were obtained in the more general case of C-groups without any condition on the diagram.

I will present the classification of C-group representations of the groups $\mathrm{PSL}(2, q)$ and $\mathrm{PGL}(2, q)$. We obtain that the C-rank of $\mathrm{PSL}(2, q)$ and $\mathrm{PGL}(2, q)$ is 3 except when $q \in \{7, 9, 11, 19, 31\}$ for $\mathrm{PSL}(2, q)$ and when $q = 5$ for $\mathrm{PGL}(2, q)$, in which case it is 4. We provide all representations of rank four.