

Abstract: We consider the result:

Main Theorem: Let \overline{G} be the Mathieu group M_{12} and $\overline{\theta}$ an involution in the center of a Sylow 2-subgroup of \overline{G} . Assume G is a finite group and θ an involution in G such that $C_{\overline{G}}(\overline{\theta}) \cong C_G(\theta)$. Then one of the following holds:

- 1) $G \cong \overline{G}$
- 2) G has a normal subgroup isomorphic to E_8
- 3) $\{\theta\} = \theta^G \cap C_G(\theta)$.

This theorem has been established via modular representations in [1],[2]; our object is to prove the result using combinatorial methods. We show that if neither 2) nor 3) hold then $|G| = |\overline{G}|$ and we are now using representations of G on rank 3 geometries to establish the full result.