

Generating maximal subgroups of sporadic almost-simple groups

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Abstract

The definition of “standard generators” for the sporadic simple groups and their automorphism groups has made it straightforward to transfer group computations from large representations into smaller ones. In particular, generators for maximal subgroups can be computed once and for all as words in the standard generators in a small permutation representation. We describe computer-aided techniques and heuristics for finding such generators, and present some results for the almost-simple groups $M_{12}.2$, $M_{22}.2$, $HS.2$, $McL.2$, $J_2.2$, $Suz.2$, $Fi_{22}.2$, $Fi'_{24}.2$, $He.2$, $O'N.2$, $J_3.2$ and $HN.2$.