Abstract

Code loops and conjugacy closedness

Aleš Drápal

Dep. of Mathematics, Charles University, Sokolovská 83, 186 75 Praha, Czech Rep.

Code loops were defined by Griess as a generalization of the Parker loop (the loop which can be used to construct the Monster and is derived from the binary Golay code). Such loops have order that is a power of two. Later Richardson defined odd code loops and used them to construct explicitly p-local subgroups of the Monster. Recently I have described all extraspecial LCC loops. It turns out that they form a class that slightly expands the union of code loops of both odd and even order. LCC (left conjugacy closed) loops are those loops Q, in which the left translations L_x, $xinQ$, are closed for conjugation (i.e. for all $x, y \in Q$ there exists $z \in Q$ such that $L_z = L_x L_y L_x^{-1}$). The loop Q is extraspecial, if $Q/Z(Q)$ is an elementary abelian p-group and $Z(Q)$ is of order p. In the talk I intend to reexamine the connections of loops, groups and self-orthogonal codes in the light of the newly obtained description of code loops.