
LOREN SPICE, Texas Christian University

Fixed points under quasisemisimple and locally quasisemisimple actions

The notion of quasisemisimplicity is a generalization of semisimplicity, due to Steinberg, that allows us to describe nicely behaved outer automorphisms. The geometric behaviour of fixed-point groups under a single quasisemisimple automorphism was first investigated by Steinberg. In joint work with Adler and Lansky, we investigated generalisations in several directions: first, dealing with the rational theory (over a non-algebraically closed base field); second, dealing with the jointly quasisemisimple actions; and, third, dealing with the more general class of locally quasisemisimple actions. In this talk, we will try to give the flavour of this third generalisation, including how it turns out to involve surprisingly deep results in the theory of abstract finite groups.

The work being described has as its motivation lifting results by Adler and Lansky for finite groups of Lie types, and hence of depth-zero Moy–Prasad types, but the talk will focus almost exclusively on the structure theory.