

## Abstract

The aim of this thesis is to study  $z$ -classes in  $p$ -groups. Given a group  $G$ , two elements  $x, y \in G$  are said to be  $z$ -equivalent, if their centralizers are conjugate. Apart from its origin from dynamics of geometries, classifying  $z$ -classes in groups is of independent interest as well. In this thesis we have specifically studied  $z$ -classes in finite  $p$ -groups.