

The McKay correspondence is an interesting connection between many different areas of mathematics. The connecting element of the McKay correspondence is a special family of graphs called the Dynkin diagrams. In this thesis, we will study the classical McKay correspondence, which is an interesting connection between finite subgroups of $SL(2, \mathbb{C})$ and Dynkin diagrams without oriented edges. Moreover, there are two ways how to get the Dynkin diagrams from the groups. In the first chapter of the thesis, we will provide a classification for both the finite subgroups and Dynkin diagrams. The second chapter uses the tools of the representation theory to construct the corresponding graph from the irreducible representations of the group. In the third part, we let the group act on the two-dimensional complex vector space. We then factor out this action to construct an algebraic variety with one singular point and find the Dynkin diagram in this singularity.