

# Are these graphs the same ?

Krystal Guo

A graph is a set of nodes, some pairs of which are joined by edges. A fundamental problem in the study of graphs is to determine when two graphs are the same. In this talk, we will give an overview of how graph theorists have tried to tell graphs apart and then consider a specific algorithm for this problem. The Weisfeiler-Lehman algorithm was introduced in the 1970's as a potential solution to the Graph Isomorphism problem. We will look at the algorithm and cases where it works and the families of graphs where it does not work, in which linear algebra plays an important role.