Minimum Coprime Labelings of Graphs
N. Bradley Fox[1]

[1]) Austin Peay State University
foxb@apsu.edu

A prime labeling of a graph of order n is a way label the vertices with the integers $\{1, 2, ..., n\}$ such that the labels of any adjacent vertices are relatively prime. These labelings have been studied for over thirty years with a vast array of graphs having been shown to be prime, but many graphs have also been found to not be prime. This talk will focus on the latter set of graphs where we expand the set of labels to be from a set $\{1, 2, ..., m\}$ for some $m > n$ and attempt to label the graph so that we satisfy the relatively prime adjacency condition while minimizing the value m, which we call a minimum coprime labeling. Graphs that we will consider include complete graphs, wheels, and the results of applying the union, square, and join operations to paths and cycles.