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**John Asplund\*** (jasplund@daltonstate.edu), 650 College Drive, Dalton, GA 30736, and **Brad Fox**. *The Minimum Coprime Number and Graph Operations*.

Graph labeling is a large topic of research as evidenced by the seminal 430+ page survey on the topic by Joe Gallian. In this talk, I will focus on one small sector of this larger topic: prime labelings. We say a graph has a *prime labeling* if we can label the vertices of a graph of order  $n$  with distinct labels from  $\{1, 2, \dots, n\}$  so that the labels on adjacent vertices are relatively prime.

Many graphs are not prime, including all but one of the complete graphs. To be as inclusive as possible, we will primarily discuss coprime labelings in this talk. A *coprime labeling* of a graph is the same thing as a prime labeling except we use the labels  $\{1, 2, \dots, m\}$  for some  $m > n$  instead of the labels  $\{1, 2, \dots, n\}$ . To make this more interesting, we care about making  $m$  as small as possible and call a labeling of the vertices of a graph using distinct  $m$  positive integers ( $m$  is minimized) with relatively prime adjacent vertex labels a *minimum coprime labeling*. Finding this minimum coprime labeling will be our main focus in this talk. A secondary focus of this talk will be to discuss some of the faults within the literature on prime labeling. (Received September 08, 2017)