

1106-05-733

Kara L Shavo* (klshavo@presby.edu), Clinton, SC 29325, and **Heather Russell, Ruth Haas, Julie Beier, Janet Fierson** and **Carl Lienert**. *Induced Subgraphs of Coloring Graphs*.

This will be a continuation of Heather Russell's talk, "Classifying Coloring Graphs." For a simple graph G and a positive integer k , the k -coloring graph of G , denoted $\mathcal{C}_k(G)$, is the graph whose vertex set is the set of all proper k -colorings of the vertices of G , with two k -colorings adjacent if they differ in color on exactly one vertex of G . A graph H is called a *coloring graph* if there exists a graph G and a positive integer k such that $H = \mathcal{C}_k(G)$. We will focus on those graphs that cannot be induced subgraphs of coloring graphs, called *forbidden* subgraphs, and those that are induced subgraphs of coloring graphs, called *allowable* subgraphs. A forbidden subgraph is *minimal* if the removal of any vertex results in an allowable subgraph. Several useful lemmas for detecting forbidden subgraphs will be proved, as well as a technique for labeling vertices to identify allowable subgraphs. In addition to the cycle of length 5, several more minimal forbidden subgraphs of small order will be given, as well as an infinite class of minimal forbidden subgraphs. Thus, we will show that there exist an infinite number of minimal forbidden subgraphs. (Received September 05, 2014)