Meeting: 1003, Atlanta, Georgia, MAA CP X1, MAA General Contributed Paper Session, I

1003-X1-422 **J Villalpando*** (`villalpando@gonzaga.edu`), Gonzaga University, Department of Mathematical Sciences, Spokane, WA 99258, and **R Laskar**. *Irreducibility of L(2,1)-coloring.*

The channel assignment problem is the problem of assigning radio frequencies to transmitters while avoiding interference. This problem can be modeled and examined using graphs and graph colorings. L(2,1)-colorings were first studied by J.Griggs and R.Yeh as a model of a variation of the channel assignment problem proposed by Roberts. A no-hole coloring is defined to be an L(2,1)-coloring of a graph which uses all the colors from $\{0, 1, \ldots, k\}$ for some integer k. An L(2,1)-coloring is irreducible as defined by Fishburn at al. if no colors of vertices in the graph can be decreased and yield another L(2,1)-coloring. A graph G is inh-colorable if there exists an irreducible no-hole coloring on G.

In this paper we examine the irreducible property and its relationship to the span. We discuss some classes of graphs such as, unicyclic and hex graphs, and show that these classes of graphs are inh-colorable. For unicyclic graphs the proof of inh-colorability will provide fairly tight bounds for the lower inh-span. The algorithm for coloring the hex graphs will provide an upper bound for the lower inh-span of the hex graph. (Received September 14, 2004)