ON IRREDUCIBLE NO-HOLE L(2,1)-COLORING OF TREES

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An L(2,1)-coloring of a graph is a coloring of its vertices so that the colors of adjacent vertices differ by at least two and the colors of vertices with a common neighbor differ by at least one. The span of a graph G, denoted $\lambda(G)$, is the smallest number λ such that there is an L(2,1)-coloring of G using the integers $0, \ldots, \lambda$. Such colorings were first studied by Griggs and Yeh where they show that $\Delta+1 \leq \lambda(T) \leq \Delta+2$ for all trees T.

Recently, Laskar and Villalpando defined the notion of irreducible no-hole colorability. An L(2,1)-coloring f is said to be no-hole provided all colors $0, \ldots, k$ are used, for some k; it is irreducible provided that decreasing the color of any vertex results in a coloring that is no longer an L(2,1)-coloring. The inh-span of an graph G, denoted $\lambda_{inh}(G)$, is the smallest number λ such that there is an irreducible no-hole coloring of G using the integers $0, \ldots, \lambda$. Laskar and Villalpando proved that if T is a tree that is not a star, then $\Delta + 1 \leq \lambda_{inh}(T) \leq \Delta + 2$.

In this talk, we show that for most trees T, the inh-span of T is equal to its span, that is, $\lambda_{inh}(T) = \lambda(T)$.