1116-05-277 **Nathaniel Karst**, **Jessica Oehrlein*** (jessoehrlein@gmail.com), **Denise Sakai Troxell** and **Junjie Zhu**. *The minimum span of $L(2,1)$-labelings of generalized flowers.*

Given a positive integer d, an $L(d,1)$-labeling of a graph G is an assignment of nonnegative integers to its vertices such that adjacent vertices must receive integers at least d apart, and vertices at distance two must receive integers at least one apart. The λ_d-number of G is the minimum k so that G has an $L(d,1)$-labeling using labels in $\{0,1,\ldots,k\}$. Informally, an amalgamation of two disjoint graphs G_1 and G_2 along a fixed graph G_0 is the simple graph obtained by identifying the vertices of two induced subgraphs isomorphic to G_0, one in G_1 and the other in G_2. A flower is an amalgamation of two or more cycles along a single vertex. We provide the exact λ_2-number of a generalized flower, which is the Cartesian product of a path P_n and a flower, or equivalently, an amalgamation of cylindrical rectangular grids along a certain P_n. In the process, we provide general upper bounds for the λ_d-number of the Cartesian product of P_n and any graph G, using circular $L(d+1,1)$-labelings of G where the labels $\{0,1,\ldots,k\}$ are arranged sequentially in a circle and the distance between two labels is the shortest distance on the circle. (Received August 20, 2015)