1096-05-1098 **Nathaniel Karst**, **Jessica Oehrlein*** (jessoehrlein@gmail.com), **Denise Sakai Troxell** and **Junjie Zhu**. *$L(d,1)$-labelings of Edge-Path-Replacements by Factorization of Graphs.*

For an integer $d \geq 2$, an $L(d,1)$-labeling of a graph G is a function f from the vertex set to the non-negative integers such that if vertices x and y are adjacent, $|(f(x) - f(y)| \geq d$, and if x and y are at distance two, then $|f(x) - f(y)| \geq 1$. The λ_d-number is the minimum span over all $L(d,1)$-labelings of G. For an integer $k \geq 2$, an edge-path-replacement of G or $G(P_k)$ is the graph obtained by replacing each edge of G with a path on k vertices. We show that the edges of G can be colored using $\lceil \Delta(G)/2 \rceil$ colors so that each monochromatic subgraph has maximum degree at most 2, and we use this fact to provide general upper bounds for $\lambda_d(G(P_k))$ for $k \geq 4$. As a corollary, we settle a conjecture by Lü concerning $\lambda_2(G(P_4))$ and show that the class of graphs $G(P_k)$ with $k \geq 4$ satisfies a conjecture by Havet and Yu on $(d,1)$-total labeling of graphs. (Received September 12, 2013)