1056-05-1466 **Jobby Jacob*** (jxjsma@rit.edu) and **Renu Laskar**. *Irreducible No-Hole $L(2,1)$ labelings of some classes of graphs.*

Let G be a graph. A labeling $f : V(G) \to \{0, 1, \ldots, k\}$ of G is an $L(2,1)$ labeling if $|f(u) - f(v)| \geq 2$ when u and v are adjacent in G, and $|f(u) - f(v)| \geq 1$ when u and v are at distance two in G. An $L(2,1)$ labeling f is a no-hole $L(2,1)$ labeling if f is onto. An $L(2,1)$ labeling is irreducible if reduction of any label to a smaller label violates the conditions of $L(2,1)$ labeling.

In this talk we will discuss some results regarding irreducible no-hole $L(2,1)$ labelings of some classes of graphs including Cartesian products. (Received September 21, 2009)