1135-VP-1233 **Karrolyne Fogel***, kfogel@callutheran.edu, and **Aparna Higgins**, **William Higgins** and **John Villalpando**. *Irreducible L(2,1)-Colorings for Products of Paths and Cycles.* Preliminary report.

An $L(2,1)$-coloring of a graph is a labeling of the vertices using non-negative integers such that adjacent vertices differ in label by at least 2 and distance two vertices differ in label. An $L(2,1)$-coloring of a graph is irreducible if reducing the label on any vertex violates an $L(2,1)$-coloring condition. The invariant icap is the least number of color classes required to create an irreducible $L(2,1)$-coloring on a given graph. We determine the value of icap for $P_2 \Box C_n$ and examine bounds for icap of $P_m \Box C_n$ for other values of m and n. (Received September 20, 2017)