1096-VN-1132 **Brad Bailey***, UNG Department of Mathematics, 82 College Circle, Dahlonega, GA 30597, and **Dianna J. Spence**, UNG Department of Mathematics, 82 College Circle, Dahlonega, GA 30597.

Path Elongation of Graphs. Preliminary report.

For a graph G with cutting number 1, we define the term path-elongation as follows. First, let C be a cycle in G and let u and v be vertices of G. Next, let $G \setminus C$ refer to the subgraph of G that results from removing only the edges of C. Then $pe(u, v, C, G) = \text{dist}(u, v, G \setminus C) - \text{dist}(u, v, G)$ and then $pe(u, v, G) = \max\{pe(u, v, C, G) : C \text{ is a cycle of } G\}$. In words, how much longer is the shortest path from u to v after C is removed? Finally, $pe(G) = \max\{pe(u, v, G) : u, v \in G\}$.

In this talk, we establish the path elongations for graphs with certain structures. We also show that path elongation is not bounded. We also respond to the following question: Can a single graph G have pairs of vertices (u_i, v_i) so that $pe(u_i, v_i, G) = i$ for each $i = 0, \ldots, k$ for any k? (Received September 13, 2013)