On Subgraphs With Proper Connection Number 2

Garry L. Johns

Department of Mathematical Sciences, Saginaw Valley State University, MI 48710-0001
glj@svsu.edu

An edge coloring of a connected graph G, where adjacent edges can be colored the same, is a proper-path coloring if every two vertices of G are connected by a properly colored path. The minimum number of colors required of a proper-path coloring of G is its proper connection number $pc(G)$. For many graphs, this number is 2. If H is a connected spanning subgraph of G, then $pc(H) \geq pc(G)$. For several classes of graphs G for which $pc(G) = 2$, the minimum size of a connected spanning subgraph H of G with $pc(H) = 2$ is determined. This is a joint work with Z. Bi, G. Chartrand, and P. Zhang.