1060-05-87 **Lazaros D Kikas*** (lazkikas@gmail.com), University of Detroit Mercy, Dept. of Mathematics and Computer Science, 4001 W.McNichols, Detroit, MI 48221. *An Algebraic Approach to Finding Disjoint Paths in the Alternating Group Graph.*

Large symmetric interconnection networks are not only interesting in their own right, but they have practical applications in the area of large scale computing. Research into their graph theoretic properties have yielded many interesting results. Suppose that we have k pairs of vertices $(s_1, t_1), (s_2, t_2), ..., (s_k, t_k)$ and we wish to find k-disjoint paths each connecting exactly one pair. If in a graph G we can do this for any k pairs of vertices then we say that G has the k-**Disjoint Path Property**. A necessary condition for G to have the k-Disjoint Path Property is that G is $(2k-1)$-connected. In 2005, Cheng, Kikas, and Kruk showed that the alternating group graph AG_n has the $(n-1)$-Disjoint Path Property. In this talk we will give two algorithms for finding these paths. One algorithm exploits the algebraic properties of the alternating group graph and reduces routing to the factoring of elements while the other exploits the structure of AG_n. (Received March 22, 2010)