1127-05-242 **Jeffery J Boats*** (boatsjj@udmercy.edu), Chair, UDM Dept. Math-CS, 4001 W. McNichols Road, Detroit, MI 48221-3038. *Expected Value for Routable Disjoint Paths Given Random Terminal Selections.*

The k-Disjoint Path Problem has been studied for a variety of graphs: determine k, the largest number which, for any starting vertices s_1,s_2,. . .,s_k and any corresponding ending vertices t_1,t_2,. . .,t_k in graph G, it can be guaranteed that vertex-disjoint paths can be routed, connecting the (s_i, t_i) pairs. The guarantee of k disjoint paths in a network guarantees faster communications by avoiding queuing. But often, more than k disjoint paths can be simultaneously routed, depending on the selection of the (s_i, t_i) pairs and properties of G.

This talk introduces the concept of the pansophy of a graph G – the expected value for the number of disjoint paths which can be simultaneously routed in G given random selections of (s_i, t_i) pairs. The object is to create a mechanism for evaluating the efficiency of algorithms which aim to route communications within a network without queuing. Care is taken is defining terms and discussing how they relate to algorithmic performance. The pansophies of several simple graphs are then combinatorially computed as demonstrations. (Received February 04, 2017)