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The Average Connectivity of Graphs and Digraphs

The connectivity between a pair u, v of vertices in a graph G is the maximum number of pairwise internally disjoint $u-v$ paths in G . The average connectivity of G is the average connectivity between pairs of vertices of G taken over all pairs. Analogous concepts can be defined for digraphs. We survey known results on this subject and present several open/partially solved problems including: (i) the problem of finding the maximum connectivity of a subgraph in a graph with a given average connectivity; (ii) the problem of finding the maximum average connectivity among all orientations of a given graph G ; (iii) the maximum average connectivity among all graphs with a given degree sequence.