

1067-90-1378

Peh H. Ng* (pehng@morris.umn.edu), Division of Science and Mathematics, University of Minnesota - Morris, 600, East 4th Street, Morris, MN 56267, and **Herve L. Kerivin** (kerivin@clemsun.edu), Department of Mathematical Sciences, Clemson University, Clemson, SC 29634. *Maximum-Weight Connected-Subgraph Problems.*

Given a simple and connected undirected graph $G = (V, E)$ with a rational weight function on the edge set, the *Maximum Weight Connected Subgraph Problem* (MWCSP) consists of finding a connected subgraph of G induced by a subset of edges in such a way that the total weight of the edges in the subgraph is maximized. We show that (MWCSP) is an NP-Hard problem, and we also show that (MWCSP) is equivalent to the *Prize-Collecting Steiner Tree Problem* (PCSTP). We also present efficient or polynomial-time algorithms to solve (MWCSP) on subclasses of graphs. (Received September 20, 2010)