

1106-15-1215      **Bryant G. Mathews\*** (bmathews@apu.edu). *The Tropical Orthogonal Labeling Problem.*

An orthogonal labeling of a graph is an assignment of vectors to the vertices such that the orthogonality of the vectors reflects the adjacency of the vertices. Such a labeling provides an upper bound on the minimum rank of the graph.

After showing how to define orthogonal labeling over the tropical semiring, we present results on the minimum dimension of a tropical orthogonal labeling for certain classes of graphs and compare these results to what is already known about orthogonal labelings over various fields. (Received September 11, 2014)