1046-15-1403   **Rana Mikkelson*** (`ranam@iastate.edu`), Department of Mathematics, 396 Carver Hall, Iowa
State University, Ames, IA 50011. *Minimum Rank of Looped Graphs with Cut Vertices.*

If we associate a set of matrices over a field with a graph, such that the i, j entry of any matrix in the set is nonzero if and only if $\{i, j\}$ is an edge in the graph, then minimum rank is the minimum among the ranks of the matrices in the associated set. The Minimum Rank problem has been studied extensively for simple graphs and is solved for simple trees over any field. It is also known that the minimum rank of a simple graph with a cut vertex can be computed using a cut-vertex reduction, i.e. by breaking the graph up into pieces and calculating the minimum rank of each piece. We extend the cut vertex reduction to graphs that allow loops over any field with more than two elements and use it to prove that the minimum rank of a tree that allows loops over any field with more than two elements can be found using a known algorithm for computing minimum rank over the reals. (Received September 15, 2008)