1046-05-1042   **Craig Larson*** (`clarson@vcu.edu`), VCU Dept. of Mathematics, Oliver Hall, 1001 W. Main Street, P.O. Box 842014, Richmond, VA 23284-2014. *The Critical Independence Number of a Graph and an Independence Decomposition.*

The critical independence number of a graph is the cardinality of a maximum independent set I, where $|I| - |N(I)| \geq |J| - |N(J)|$, for any independent set J. This number is a lower bound for the independence number and can be computed in polynomial-time. Any graph can be decomposed into two subgraphs where the independence number of one subgraph equals its critical independence number, where the critical independence number of the other subgraph is zero, and where the sum of the independence numbers of the subgraphs is the independence number of the graph. (Received September 14, 2008)