1135-VP-1894   **James M Hammer*** (`jmhammer@cedarcrest.edu`), 100 College Drive, Allentown, PA 18104, and **Joshua Harrington**. *Graph Polynomials for a Class of DI-Pathological Graphs.*

Let $G = (V, E)$ be a simple graph. A dominating set $D \subseteq V$ is a set such that the closed neighborhood of D is the entire vertex set. An independence set of a graph G is a subset of vertices that are pairwise non-adjacent. A DI-pathological graph is a graph where every minimum dominating set intersects every maximal independent set. Let $d(G, i)$ denote the number of dominating sets of G of size i. The domination polynomial of a graph G is defined by $D(G, x) = \sum_{i=\gamma(G)}^{|V|} d(G, i) x^i$. Let $s(G, i)$ denote the number of independent sets of size i in a graph G. The independence polynomial is defined by $I(G, x) = \sum_{i=0}^{\alpha(G)} s(G, i) x^i$. We will examine the domination polynomial and the independence polynomial of an extremal family of DI-pathological graphs. We will further define an independent dominating set and examine the corresponding independent domination polynomial for these graphs. (Received September 25, 2017)