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Thomas Ansell, Bonnie Jacob (bcjntm@rit.edu), **Jaime Penzellna** and **Daniel Saavedra*** (dxs6040@rit.edu). *Failed zero forcing and failed skew zero forcing on graphs.*

Given a graph G , the zero forcing number of G , $Z(G)$, is the smallest cardinality of any set S of vertices on which repeated applications of the color change rule results in all vertices joining S . The color change rule is: if a vertex v is in S , and exactly one neighbor u of v is not in S , then u joins S in the next iteration. The skew zero forcing number of G , $Z^-(G)$, is the same, but with a slightly modified color change rule, namely that the vertex v itself need not be in S .

We have introduced two new graph parameters: the failed zero forcing number, $F(G)$, and the failed skew zero forcing number $F^-(G)$. The failed zero forcing number of G , $F(G)$, is the maximum cardinality of any set of vertices on which repeated applications of the color change rule will never result in all vertices joining the set. $F^-(G)$ is defined similarly, but under the modified color change rule.

In this talk, we establish bounds on $F(G)$ and $F^-(G)$. We determine formulas for the failed zero forcing numbers and failed skew zero forcing numbers of several families of graphs, and compare properties of these two parameters. (Received September 17, 2013)