1106-05-2529 **Jian Shen*** (js48@txstate.edu). *Destroying Cycles in m-free Circular Interval Digraphs.* Preliminary report.

A digraph G is m-free if G contains no (directed) cycles of length less than or equal to m. Let $\beta(G)$ be the minimum number of edges needed to be deleted from a digraph G to break all (directed) cycles of G. Let $\gamma(G)$ be the number of missing edges of G. In her Ph.D thesis (Princeton University, 2008), Sullivan conjectured that $\beta(G) \leq \frac{2}{(m-2)(m+1)}\gamma(G)$ for all m-free digraphs G. In a special case when G is an m-free circular interval digraph, Sullivan proved that $\beta(G) \leq \frac{1}{2(m-2)}\gamma(G)$. We report some initial result on this special case of the conjecture. This is joint work with three undergraduate students (James Dix of UT-Austin, Marcos Munoz of MIT, and Bobby Shen of MIT) in a 2014 summer undergraduate research program. (Received September 16, 2014)