1125-05-226 **Sarah Loeb*** (sloeb2@illinois.edu) and **Douglas B. West**. *Fractional Separation Dimension.*

Given a linear ordering σ of $V(G)$, say that a pair of nonincident edges is *separated* by σ if both vertices of one edge precede both vertices of the other. The *separation dimension* $\pi(G)$ of a graph G is the minimum size of a set of vertex orderings such that every pair of nonincident edges is separated in some ordering. The *fractional separation dimension* $\pi_f(G)$ is the infimum of $|\mathcal{F}|/l$ over all $l \in \mathbb{N}$ and all lists $\mathcal{F}$ of vertex orderings such that every pair of nonincident edges is separated in at least l orderings in $\mathcal{F}$.

We show that $\pi_f(G) \leq 3$ for every graph G, with equality if and only if $K_4 \subseteq G$. On the other hand, there is no sharper upper bound even for triangle-free graphs; we show $\pi_f(K_{m.m}) = \frac{3m}{m+1}$. Additionally, we show that the fractional separation dimension of graphs without cycles is at most $\sqrt{2}$. (Received August 15, 2016)