Emily Marshall* (marshalle@arcadia.edu) and Michael Santana. Finding disjoint theta graphs. Preliminary report.

For a graph $G$ on exactly $4k$ vertices, Kawarabayashi proved that if $\delta(G) \geq \frac{5}{2}k$, then $G$ contains $k$ vertex-disjoint theta graphs. We extend this result and show that every graph $G$ on at least $4k$ vertices with $\delta(G) \geq \frac{5}{2}k$ contains $k$ vertex-disjoint theta graphs; this result is best possible when $4k \leq n < 5k$. For graphs on a large number of vertices, however, Chiba et al. proved that if $\delta(G) \geq 2k$, then $G$ contains $k$ vertex-disjoint theta graphs. We discuss when this minimum degree threshold might transition from $\frac{5}{2}k$ to $2k$. This work is joint with Michael Santana. (Received September 17, 2018)