1146-05-143   **Emily Marshall** and **Michael Santana*** (`santanmi@gvsu.edu`). *Sharp conditions for the existence of disjoint theta graphs.* Preliminary report.

In 1999, Kawarabayahsi showed that if G is a graph on exactly $4k$ vertices with $\delta(G) \geq \lceil \frac{5}{2}k \rceil$, then G contains k vertex-disjoint theta graphs (i.e., G contains a K_4^--factor). In 2014, Chiba et al. showed that if G has a large number of vertices $(\Omega(k^{3k}))$ and $\delta(G) \geq 2k+1$, then G also contains k vertex-disjoint theta graphs. The minimum degree conditions in both results are best possible for the number of vertices considered. In this talk, we extend the result of Kawarabayashi by showing that every graph G on at least $4k$ vertices with $\delta(G) \geq \lceil \frac{5}{2}k \rceil$ contains k vertex-disjoint theta graphs, and show this is best possible for all n-vertex graphs where $4k \leq n < 5k$. We also discuss when the minimum degree threshold potentially transitions from $\lceil \frac{5}{2}k \rceil$ to $2k+1$. (Received January 17, 2019)