1077-05-45   **Patrick Bahls*** (`pbahls@unca.edu`), Department of Mathematics, University of North Carolina, Asheville, CPO #2350, Asheville, NC 28804-8511, and **Nicole A. Gin**. *Clawfreeness of powers of graphs.* Preliminary report.

The question of whether a graph G contains the *claw* $K_{1,3}$ as an induced subgraph is an interesting one. For instance, a good deal is known about the hamiltonicity and more general cycle structure of claw-free graphs, and clawfreeness implies nice properties about certain graph polynomials. The *powers* G^n of a graph G play a similarly important role in many areas of graph theory.

For any $n \in \mathbb{N}$ we determine a minimal collection $\mathcal{G}_n$ of graphs such that $|\mathcal{G}_n| = n$ and if the power G^n contains a claw then some $H \in \mathcal{G}_n$ appears as an induced subgraph of G. We use this result to describe precisely those powers of a tree T which are claw-free and close with several open problems concerning more general graphs G. (Received July 06, 2011)