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Michael Ferrara* (michael.ferrara@ucdenver.edu), **Timothy Morris** and **Paul Wenger**.
Pancyclicity of 4-Connected, Claw-Free, P_{10} -Free Graphs.

In 1984, Matthews and Sumner conjectured that every 4-connected claw-free graph is hamiltonian. This conjecture remains one of the foremost open problems on hamiltonian graphs and has spurred a great deal of additional interest in the cycle-structural properties of highly connected claw-free graphs.

A graph G is said to be *pancyclic* if G contains cycles of all lengths from 3 to $|V(G)|$. We show that if G is 4-connected, claw-free, and P_{10} -free, then G is either pancyclic or it is the line graph of the Petersen graph. This implies that every 4-connected, claw-free P_9 -free graph is pancyclic, which is best possible and extends a result of Gould, Łuczak, and Pfender [R. Gould, T. Łuczak, and F. Pfender, Pancyclicity in 3-connected graphs: Pairs of forbidden subgraphs, *J. Graph Theory* **47** (2004), 183-202]. If time permits, we will also discuss some additional results on the pancyclicity of 4-connected claw-free graphs without a generalized net. (Received August 19, 2011)