1133-05-143 **Carl Yerger*** (cayerger@davidson.edu). *Extensions of Steinberg's conjecture for surfaces.*

Steinberg's conjecture states that every planar graph with no cycles of length four or five is 3-colorable. Recently this conjecture was disproved. However, there are many other interesting questions with this framework. Specifically, we are interested in related questions for graphs embedded on a fixed surface. We will describe results related to the history of this idea.

In this talk, we aim to give baseline results given similar conditions for a graph embeddable on a fixed surface. In particular, we show that if G is drawn in surface Σ with Euler genus g, is 4-critical and has no cycles of length four through ten, then $|V(G)| \leq 2442g + 37$. We also discuss potential improvements to this work. (Received July 21, 2017)