

Meeting: 1003, Atlanta, Georgia, SS 24A, AMS Special Session on Design Theory and Graph Theory, I

1003-05-670 **Connie M. Campbell*** (campbcm@millsaps.edu), Box 150086, Millsaps College, 1701 N. State Street, Jackson, MS 39210, and **William Staton**. *A new extension of the cage problem*. Preliminary report.

A $(2, n; a, b)$ -graph is any simple, non-directed graph G which satisfies the following three properties:

- The degree set of G is $\{2, n\}$.
- The length of a smallest odd cycle in G is a .
- The length of a smallest even cycle in G is b .

Now define $f(2, n; a, b)$ to be the smallest number of vertices for which there exist a $(2, n; a, b)$ -graph. We demonstrate upper and lower bounds on $f(2, n; a, b)$, and discuss progress we have made in evaluating this parameter for all values of n , a , and b . (Received September 27, 2004)