**Meeting:** 1003, Atlanta, Georgia, SS 9A, AMS-MAA-SIAM Special Session on Research in Mathematics by Undergraduates, I

1003-05-724 **Annalies Vuong*** (azv@umail.ucsb.edu) and **Ian Wyckoff**. *Conditions for weighted cover pebbling of graphs.* Preliminary report.

In a graph $G$ with a distribution of pebbles on its vertices, a pebbling move is the removal of two pebbles from one vertex and the addition of one pebble to an adjacent vertex. A weight function on $G$ is a non-negative integer-valued function on the vertices of $G$. A distribution of pebbles on $G$ covers a weight function if there exists a sequence of pebbling moves that gives a new distribution in which every vertex has at least as many pebbles as its weight. In this paper we give some necessary and some sufficient conditions for a distribution of pebbles to cover a given weight function on a connected graph $G$. As a corollary, we give a simple formulation for the 'weighted cover pebbling number' of a weight function $W$ and a connected graph $G$, defined by Crull et al. to be the smallest number $m$ such that any distribution on $G$ of $m$ pebbles is a cover for $W$. Also, we prove a cover pebbling variant of Graham's Conjecture for pebbling. (Received September 28, 2004)