1014-20-1522 **Glenn H Hurlbert*** (hurlbert@asu.edu), Department of Mathematics and Statistics, Arizona State University, Tempe, AZ 85287-1804, and **Shawn Elledge**. *An Application of Graph Pebbling to Zero-Sum Sequences in Abelian Groups.*

A sequence of elements of a finite group G is called a zero-sum sequence if it sums to the identity of G. The study of zero-sum sequences has a long history with many important applications in number theory and group theory. In 1989 Kleitman and Lemke, and independently Chung, proved a strengthening of a number theoretic conjecture of Erdős and Lemke. Kleitman and Lemke then made more general conjectures for finite groups, strengthening the requirements of zero-sum sequences. In this paper we prove their conjecture (first obtained by Geroldinger) in the case of abelian groups. Namely, we use graph pebbling to prove that for every sequence $(g_k)_{k=1}^{|G|}$ of $|G|$ elements of a finite abelian group G there is a nonempty subsequence $(g_k)_{k\in K}$ such that $\sum_{k\in K} g_k = 0_G$ and $\sum_{k\in K} 1/|g_k| \leq 1$, where $|g|$ is the order of the element $g \in G$. This is joint work with Shawn Elledge. (Received September 28, 2005)