1113-05-159 **Neal Bushaw*** (neal@asu.edu), SoMSS, Arizona State University, PO Box 871804, Tempe, AZ 85287, and **Nathan Kettle**. *Threshold Pebbling on Grids of Arbitrary Dimension.*

We discuss zero sum sequences and their surprising connection to graph pebbling. In particular, we discuss recent work on the randomized 'threshold pebbling' problem for grids of arbitrary dimension.

Given a connected graph G and a configuration of t pebbles on the vertices of G, a q-pebbling step consists of removing q pebbles from a vertex and adding a single pebble to one of its neighbors. Given a vector $q = (q_1, \ldots, q_d)$, q-pebbling consists of allowing q_i-pebbling in coordinate i. A distribution of pebbles is called solvable if it is possible to transfer at least one pebble to any specified vertex of G via a finite sequence of pebbling steps.

In this talk, we will discuss recently joint work with N. Kettle in which we prove a weak threshold result for q-pebbling on the sequence of grids $[n]^d$ for fixed d and q as $n \to \infty$. Further, we determine the strong threshold for q-pebbling on the sequence of paths of increasing length.

This improves recent results of Czygrinow and Hurlbert, and Godbole, Jablonski, Salzman, and Wierman. It is the randomized version of much earlier deterministic results due to Chung. (Received August 19, 2015)