1096-00-270 **Ilse Haim** (ihaim@terpmail.umd.edu), **Robert Strichartz** (str@math.cornell.edu) and **Travis Westura*** (tsw52@cornell.edu). *Sandpile Models on Fractal Graphs.* Preliminary report.

The Abelian Sandpile Model involves an initial configuration of chips on a graph $G = (V, E)$. If $x \in V$ has more chips than its degree, then, in a procedure called toppling, one chip is distributed to each neighboring vertex. This process continues until the system reaches a stable configuration in which no more topplings can take place. When using a sufficiently large number of chips on $\mathbb{Z}^2$, the resultant stable configuration has an interesting fractal structure.

We simulate toppling distributions on fractal graphs, emphasizing the Sierpinski Gasket and Carpet. Varying the initial configurations, we characterize numerous patterns in the resulting stable states. This process involves generating complex images of fractal structures, revealing an assortment of patterns not appearing on $\mathbb{Z}^2$.

Also, we examine a model of randomly adding chips to the vertices of a Gasket and stabilizing the system. This process results in a number of recurrent chip configurations that form an abelian group. We investigate this group structure and identify important characteristics of it. Additionally, we discover a relationship between the elements of this group and the configurations that appear when a stack of n chips is placed on one vertex and toppled. (Received August 25, 2013)