EFFECT OF PARTICLE SHAPE ON AVALANCHE DYNAMICS. ***J. Gallagher****, S. Franklin*, Department of Physics, jrg0235@rit.edu, svfsps@rit.edu*

This project investigates jamming in granular materials through a study of avalanches of long thin rods of varying sizes and aspect ratios (length/diameter). The particle aspect ratio directly influences the behavior of the avalanche, determining whether it flows or slumps. Small aspect ratios (less than 10) have a thin freely flowing layer during an avalanche while large aspect ratios (greater than 20) exhibit a slumping behavior. The thin rods are enclosed in a cylinder with a video camera mounted along the horizontal axis of the cylinder views the pile end-on. This allows for determination of the angle when the avalanche starts (the critical angle) and the angle when the avalanche stops (the angle of repose). We analyze the boundary of the material to calculate the mass flow rate and the number of straight lines required to accurately represent the surface profile, finding that the boundary develops two or more defined slopes with increasing aspect ratio (small aspect ratios have a single well defined slope). Future work will use glowing tracer particles to investigate the motion of individual rods through the pile.