

Abstract Submitted  
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**Column Collapse of Rod-like Granular Materials** MELISSA  
TREPANIER, SCOTT FRANKLIN, Rochester Institute of Technology — We study  
the collapse of piles of rod-like granular materials, in particular how the particle as-  
pect ratio (length/width) and coefficient of friction affect the runoff. Rod particles  
can maintain the shape of their container, something round particles cannot, and  
we find transitional pile heights that determine the onset of collapse. For low aspect  
ratios, pile heights of less than a particle length do not collapse, implying that ver-  
tically oriented rods are anchoring the pile and providing stability. There is a broad  
transition range of pile heights in which the probability of collapse grows linearly  
from 0 to 1. The scaling of the runoff distance in and above this region is indepen-  
dent of aspect ratio and friction, depending only on the initial pile geometry. This  
work could have significant implications for construction of stable structures and  
understanding avalanches of needle-like snow crystals (hoar).

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