

Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Experimental measurement of the angle of repose of a pile of soft frictionless grains KLEBERT FEITOSA, DANIEL SHORTS, Dept. of Physics and Astronomy, James Madison University — It is well known that dry granular materials can flow like a liquid, but can also behave as a solid and sustain a finite angle of repose, partially as a result of inter-particle friction. Here we investigate the nature of piles formed with soft frictionless grains and measure its angle of repose. The pile is produced by a continuous bubbling of air into a soapy solution in a narrow container of rectangular cross section. We observe a gentle slope at the water-foam interface whose angle depends on the viscosity of the liquid. In contrast with sand piles, the fluidized region along the interface is several layers deep. We also find that, unlike sand piles, upon interruption of the gas flux, the slope relaxes back to zero as a result of bubble rearrangements and liquid drainage.

Klebert Feitosa
Dept. of Physics and Astronomy, James Madison University

Date submitted: 09 Nov 2015

Electronic form version 1.4