

Abstract Submitted  
for the MAR10 Meeting of  
The American Physical Society

**Clogging Transition in a Tilted Silo** CHARLES THOMAS, DOUGLAS DURIAN, University of Pennsylvania — Granular media flow freely from large horizontal holes at the bottom of a container. However, if the hole is too small, or tilted too far from horizontal, a clog will eventually form at the exit and halt the flow. The number of beads which exit before a clog forms follows an exponential distribution. The average of this distribution increases with increasing hole size and with decreasing angle from horizontal, diverging above a critical hole size. We measure these hole sizes at different angles. The critical hole size as a function of angle constitutes the system's phase transition on a clogging phase diagram. In comparison, the hole sizes where the Beverloo equation predicts the flux to vanish are less than half these critical hole sizes.

Charles Thomas  
University of Pennsylvania

Date submitted: 19 Nov 2009

Electronic form version 1.4