Abstract Submitted
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Friction, force chains, and falling fruit[1] JACQUELINE KRIM[2], ROBERT BEHRINGER, Duke University — Friction is of great concern from both a national security and quality-of-life point of view, and the economic impact of energy efficiency, wear, and manufacturing cannot be underestimated. Theorists have always believed that friction plays a great role in avalanche-like collapse of a granular piles, but the predictions have proven difficult to test. We devised an experimentally controlled way to prove it, accessible to all who dare try, and report on it here [1,2]. With the aid of a middle school assistant, we studied and filmed piles of apples, oranges, and onions as one or more pieces of fruit were removed. Among other things, we discovered that increasing the friction of the onions (by peeling them) vastly decreased the likelihood of collapse. Our work includes videos written by, produced, and starring our seventh grade assistant, some of which are posted on the Physics Today YouTube channel [1] and featured in the Sept. 2009 issue of Physics Today [2].

[1] Youtube.com, keywords "unpeeled onions", with full set at www.dukefruit.info.
[2] J. Krim and R.P. Berhinger, Physics Today (Sept., 2009) volume 62, pp.66-67

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