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Two mechanisms for avalanche dynamics in inclined granular layers ROBERT ECKE, TAMAS BORZSONYI, Los Alamos National Lab — We report on our recent experimental results on avalanche dynamics on a rough inclined plane. Studies on a set of materials with different grain shapes (sand, salt, glass beads and copper particles with four different shapes ranging from spherical beads to very anisotropic dendritic forms) confirm that the properties of avalanches depend dramatically on the shape of the grains. At one end of the spectrum (for spherical beads) we find smaller avalanches with less kinetic energy and material failure ahead of the front, while on the other end (for highly anisotropic particles) bigger "overturning" avalanches with large kinetic energy and dynamic grain motion. Comparisons are made with avalanche flow in narrow channels where the subsurface flow can be measured.

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