

## Velocity Profiles During Granular Avalanches

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Instantaneous velocity profiles of grain motion during glass beads avalanches are obtained with a high speed camera and by Particle Image Velocimetry (PIV) in a rotating drum set-up. When the pile is seen from above the surface velocity profile is curved with a strong slip on the two lateral smooth walls. When observed from the side, the in-depth velocity profile at the wall is found exponential with a characteristic length of two grain diameters. These profiles are time resolved (1/250 sec.) and show that their shapes are determined as soon as the avalanches start. Velocity measurements are in good agreements with global flow rate measurement deduced from the pile angle decrease.

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