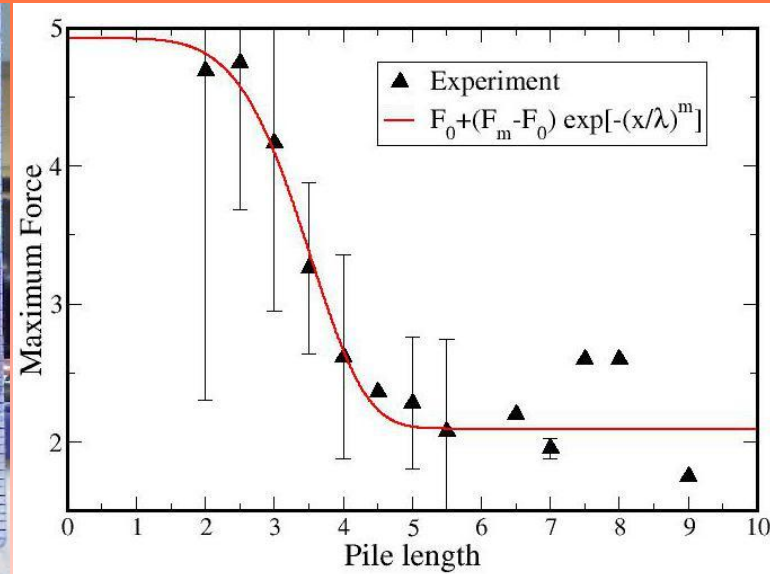


# Geometrically Cohesive Granular Materials: Experiment and Simulation

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Piles of U-shaped staples are surprisingly rigid, capable of forming piles many times taller than an individual particle. Nevertheless, tall piles are *less resistant* to extension forces than smaller piles, a behavior that can be explained with weakest link statistics (graph at far right.)



MD simulations of 2-d simple shear of U-shaped particles run in parallel on a Graphics Processing Unit. We study the resulting velocity profile and the formation of shear bands.