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Quantitative DEM of granular packings[1] NICOLAS BRODU, JOSHUA DIJKSMAN, ROBERT BEHRINGER, Duke University — We introduce a new model for simulating granular assemblies. This model explicitely accounts for the cross-influence of multiple contacts on grains. It maintains the surface deformations of the grains induced by the contacts, improving on the classical non-deformable interpenetrable spheres model, for a reasonable computational cost. We show that both multiple contacts and surface deformations are necessary for reproducing quantitatively the 3D force measurements we recently demonstrated. We also show that friction has a dramatic effect on the forces and number of contacts, so it cannot be ignored even for very small values.

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