A New Continuum Model for Dense Granular Deformations

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Abstract: This talk will present the results of a newly constructed continuum law for the flow of dense, dry granular materials. The law is obtained by compiling the recent findings of two European rheology groups into a complete elasto-plasticity model. The independently proposed elastic and plastic responses are united under the rigorous framework of amorphous continuum mechanics. The model is then simulated in multiple geometries as a user material in ABAQUS/EXPLICIT. Validity checks are carried out by comparing solutions with experimental results and Discrete Element Method simulations.