

INVESTIGATION ON A SUITABLE NUMERICAL METHOD FOR THE RESOLUTION OF LARGE DISPLACEMENT AND LARGE DEFORMATION PROBLEMS

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Abstract: *We propose a numerical method for the resolution of non-linear Boundary Value problems, where the non-linearity can be caused by the geometry and the constitutive equations. In this work we consider problems where large displacement and large deformation are involved; more specifically applications, which consider the movement of granular materials. Some examples of practical interest could be the industrial case of a silo discharge or the environmental case of inception and propagation of a landslide. These two examples, so apparently different, have in common the involvement of granular material, subjected to large displacements and characterized by the ambiguous solid-like and fluid-like behaviour depending on whether the strain rate has achieved a limit value or not.*

In the present work we individuate a suitable numerical technique able to solve such problems, while a suitable constitutive law is still missing.