Numerical analysis of the equilibrium behavior of two-phase granular mixtures CHRISTOS VARSAKELIS, MILTIADIS PAPALEXANDRIS, Universite Catholique Louvain — In this talk we present a numerical analysis of the the equilibrium behavior of two-phase granular mixtures, as predicted by the model in *M.V. Papalexandris, J. Fl. Mech. (2004), 517, 103-112.* The equilibrium equations consist of an overdetermined system of quasi-linear partial differential equations with respect to the pressure and the volume fraction of the granular phase. Based on the Helmholtz decomposition and Ladyzhenskaya's decomposition theorem we develop a projection-type numerical method that overcomes the overdeterminacy of the system. The proposed method is proven to be both stable and consistent, hence, convergent. Further, it is general enough and can be applied to a variety of continuum models of complex, non-Newtonian mixtures. The talk concludes with the presentation of representative numerical results.

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