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Derivation and numerical treatment of the low-Mach number equations for two-phase granular mixtures CHRISTOS VARSAKELIS, MILTIADIS PAPALEXANDRIS, Universite catholique de Louvain — In this talk we present a methodology for the derivation of the low-Mach number equations for two-phase flows and apply it to a particular constitutive model for immiscible mixtures of a granular material and a fluid. The proposed methodology is based on non-dimensionalizing the governing equations with respect to a reference thermodynamic state of the phase with the smallest speed of sound. Further, we propose an algorithm for the numerical treatment of these equations. It belongs to the class of fractional-step algorithms and employs a generalized projection method for the momentum equation of each phase. Our discussion concludes with the presentation of some preliminary numerical results for constant density flows.

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