

SEMINÁRIO DE MECÂNICA

Numerical Simulations of Magnetic Granular Materials

Jorge Augusto Cassis Modesto e
Caio da Costa de Barros Pimentel Luke
Universidade de Brasília

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Abstract.

In this work, we present the basic mathematical model to simulate flows of magnetic granular materials. The mechanical basis of the simulations is the model proposed by Cundall and Strack (1979). Qualitative aspects of such models will be presented, alongside with adjustments made to obtain stability in stationary regimes of our simulations (E.g.: rolling friction models). We divide our studies in two main parts. The first one analyses the behavior of isolated groups of magnetic particles and the influence of the particle's initial conditions on the aggregation patterns observed in such systems. The second part discusses the dynamics of magnetic granular materials flowing down an inclined plane, i.e., in chute flows.