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Numerical model for the motion of large object in fluidized bed TAKUYA TSUJI, KYOHEI HIGASHIDA, TOSHITSUGU TANAKA, Osaka University, OSAKA UNIVERSITY TEAM — The motion of large object in fluidized beds is quite complex because it is influenced by the fluid force, buoyant force in addition to the contact force from emulsion particles, other immersed objects and walls. Its behavior is expected to change depending on its shape, density and size along with the condition of fluidized bed. It is a physically interesting problem and it also has a practical importance in several engineering applications such as gasification, mixing, separation and granulation. In the present study, a numerical model which predicts the motion of large object in fluidized bed is developed. We concentrate on objects larger than surrounding emulsion particles by one order of magnitude at least. The basic concept of a proposed numerical model is presented and its performance is tested for fundamental problems such as sedimentation of single spherical object in a bubbling fluidized bed.

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