Baranets, V.; **Kizilova, N.**

Mathematical modeling of particle aggregation and sedimentation in the inclined tubes.
(English) Zbl 1449.76065

Visn. Khark. Univ., Ser. Mat. Prykl. Mat. Mekh. 90, 42-59 (2019).

Summary: Sedimentation of the aggregating particles of different technical suspensions, blood and nanofluids in the gravity is investigated. The dependence of the sedimentation rate on the angle of inclination is considered. The two phase model of the aggregating particles is generalized to the inclined tubes. In the suggestion of small angles of inclination the equations are averaged over the transverse coordinate and the obtained hyperbolic system of equations is solved by the method of characteristics.

MSC:

76T20 Suspensions
76Zxx Biological fluid mechanics
83C55 Macroscopic interaction of the gravitational field with matter (hydrodynamics, etc.)
76S05 Flows in porous media; filtration; seepage

Keywords:

Boycott effect; suspension; aggregation; sedimentation; medical diagnostics