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Wall roughness effect on particle separation rate of the turbulent gas-solid flow in inclined pipes

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The effect of wall surface roughness on the separation of solid particles in the turbulent gas-solid flow in the pipes with different inclination angles is studied. Inclined pipes are used in many industrial applications such as pneumatic transfer lines, heat exchangers and gas transport pipelines. The numerical model for 3D pipe considering four-way interaction is used to solve turbulence intensities for dynamic field. The interaction of the particles with rough wall is modeled introducing available stochastic wall roughness models for the dispersed phase to the computational program. It is assumed that the particles collide the wall surface would be omitted. It is found that changes in the particle dispersion and particle concentration results in the separation rate change in the different regions of the pipe. Also, the wall roughness could affect the particle-wall collision and the solid particle separation rate.

Biography

Zohreh Mansoori completed her PhD in Mechanical Engineering from Amirkabir University of Technology (Polytechnic), Tehran, Iran. She is Associate Professor and the Head of Energy Research Center in Amirkabir University. She has published more than 35 papers in reputed journals and has been serving as an Editorial Board Member of reputed.

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