Channel Formation in 2-D Particle Layer

yusaku nagata [1], Kazuya Kimura [2], Masaki Kato [3], Akihiro Kawakita [4], Ryuji Takaki [1]

[1] System Mech.,TUAT, [2] Yamakei Pub., [3] P&G, [4] System Mech,TUAT

Particle layer in fluid has been studied as uniformly porous layer. But in particle layer, porosity is not so uniform. And channel structure is made in the layer, if sufficiently strong flow blows inside. In these cases, particle layer can treat no more as uniformly porous layer.

To investigate such behaviors of particle layer, we experiment 2-dimentional fluidized bed. Particles motions are recorded by video-camera and analyzed by digital processing. And pressure difference between upstream and downstream are measured.

As a result, spectrum of the timewise variation of pressure difference tends 1/(square of f)and cluster size are 1/f fluctuation.