

Abstract Submitted  
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**Behavior of particles in turbulence over a wavy wall** HEA EUN LEE, CHANGHOON LEE, Yonsei University — Particle motion in near-wall turbulence plays an important role in many physical processes such as sediment transport and pollution control. There have been many studies which focused on particles in turbulence over a flat wall. Behavior of particles over a rough wall, however, was not investigated much. In this study, particle motion in turbulent flow over a wavy wall is investigated using direct numerical simulation. The wave-induced variation of flow is simulated by spectral method and compared with the flow over a flat wall. The virtual boundary method proposed by Goldstein et al. (1995) is applied to impose no-slip condition at wavy boundary. To begin with, we focused on the differences between turbulence generated at a wavy boundary and one at a flat wall such as friction factors, velocity fluctuations, and vortical structures associated with shear layers that form behind the wave. Also, focusing on the mechanism controlling the inertial particles in turbulence, particle motion in turbulence over wavy wall is investigated. Due to the turbulent structure modified by wavy geometry, inertial particles are clustering in upslope part of the wall which is the region with high shear stress. Detailed particle statistics over a wavy wall will be discussed in the meeting.

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