

Singapore Stanford Partnership Programme

MS Project MS08-05

Flow-Particle Interaction in Homogenous Turbulence

Nian-Sheng Cheng

The suspension of solid particles in turbulent flows is involved in many industrial processes, in addition to its traditional applications in geophysical fluid mechanics. Understanding of the particle behavior that could be described by hydrodynamic parameters is essential for the computer modeling and design of industrial processes. However, the relevant information is very limited largely due to considerable experimental difficulties. The proposed work is to be conducted in a simplified turbulent environment using a laser-based data-sampling technique. Potential results could serve to show how the settling velocity differs in turbulence and if the turbulence effect can be associated with typical length scales of the turbulent motion.