

## **Direct numerical simulation of turbulent particulate flow**

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In this talk we present a method for computing the temporal evolution of rigid particles suspended in an incompressible viscous fluid. A variant of the immersed boundary method is employed which allows for the efficient and accurate direct numerical simulation of large-scale systems.

The specific case which we consider is turbulent flow of a dilute suspension of heavy particles in a vertical plane channel. Of major interest is the effect of particles upon the fluid turbulence and vice versa. For this purpose we analyze the structure of both phases by means of various statistical correlations for the Lagrangian and Eulerian quantities.