

# Multi-Scale Modeling of Dilute Two-Phase Flows with an Application to Turbulent Suspension of Sediment in an Open Channel Flow

**Professor Zhenhua Huang**

Department of Ocean and Resources Engineering  
University of Hawaii at Manoa

**POST 127**

**Wednesday, December 2, 2015**

**3:15-4:15 pm Seminar**

## **Abstract**

Turbulent dispersion causes sediment particles to be transported from high concentration regions to low concentration regions and determines the concentration distribution of suspended sediment. In this study, a new turbulent dispersion model is proposed for large-scale flows with suspended sediment. Two Stokes numbers are used to describe the turbulent dispersion through the Schmidt number: a Stokes number for fluid turbulence time scale, and a Stokes number for Kolmogorov time scale. The former is used to account for interaction between larger eddies and sediment particles, while the latter for smaller eddies. The new turbulent dispersion model is validated against experimental data available for open channel flows under a wide range of conditions for dilute flows.

To receive ORE Seminar announcements by e-mail, please visit  
[http://www.ore.hawaii.edu/OE/ore\\_news.htm](http://www.ore.hawaii.edu/OE/ore_news.htm)