Center for Fluid Mechanics Seminar

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Two Computational Methods for Multiphase Flow

The talk describes two methods to carry out direct numerical simulations of flows with solid particles or gas bubbles. In the case of solid particles a locally valid modified Stokes solution near each particle is matched to a finite-difference Navier-Stokes solution near, but away from, the particle surface. In the case of gas bubbles, we combine ideas from the front-tracking, volume-of-fluid, and ghost-fluid methods to develop a new approach which maintains the gas-liquid interface sharp and can deal with arbitrary gas-liquid density differences. Some benchmark computations using boundary-fitted coordinates will also be briefly described.

October 28, 2003
Barus & Holley, Room 190
4:00pm