

Weekly Seminar: Fall 2009

Date: November 6

Time: 11:00 AM

Location: Maryland Hall 110

Speaker: Prof. Sutanu Sarkar (University of California, San Diego)

Title: "Turbulence and internal waves in a stratified environment"

Abstract

Background fluid stratification, often prevalent in the environment, inhibits vertical turbulent motion, allows wave-like motion, and promotes the formation of coherent structures. Numerical simulations allow the investigation of environmental flows in unprecedented detail and enable a high-fidelity description of transport processes. An overview of our recent work on turbulent flows in the environment that includes the wake of a self-propelled submersible, a jet and an oscillatory boundary layer will be presented. We will highlight the role of stratification in altering the dynamics of these fundamental turbulent shear flows.

Speaker background: Sutanu Sarkar received his Ph.D. from the Mechanical and Aerospace Engineering Department at Cornell University in 1988. He spent the following years until 1992 as a staff scientist in the Institute for Computer Applications in Science and Engineering (ICASE) at NASA Langley Research Center. He has been on the faculty at the Mechanical and Aerospace Engineering department at UC San Diego as Assistant Professor (1993-95), Associate Professor (1995-1999) and Professor (1999-current). His primary research interests are in the areas of computational fluid mechanics and turbulence. Applications include transport and mixing in the natural environment, in reacting flows and in high-speed flows.