1096-76-2395 **Shilpa Khatri***, khatri@email.unc.edu, and **Roberto Camassa**, **Claudia Falcon**, **Richard McLaughlin**, **Jennifer Prairie**, **Brian White** and **Sungduk Yu**. *Settling of a Porous Particle in Stratified Flow.*

Marine snow, porous aggregates composed of phytoplankton, fecal pellets, sediment, detritus and other material found in the ocean, are fundamental to the carbon flux from the surface ocean to the deep ocean. Most of these macroscopic particles are extremely porous, allowing diffusion of a stratifying agent (heat or salt) from the ambient fluid to affect the density and therefore the settling dynamics of these particles. A first step in an ongoing investigation is to study the settling of a single porous particle through ambient density gradients, focusing on effects of porosity and salt diffusion. For linear stratification in viscosity dominated regimes, an explicit solution for the sphere's position in time is derived. For more general ambient fluid stratification, the sphere's position can be solved for numerically. A discussion about the competing effects of entrainment and diffusion will be included. A parametric study of the settling behaviors and comparisons with experiments will be presented. (Received September 17, 2013)