DFD16-2016-020021

Abstract for an Invited Paper
for the DFD16 Meeting of
the American Physical Society

**Settling and swimming in density stratified fluids**

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Many aquatic environments are stratified, characterized by regions of vertical variation in fluid density caused by gradients in temperature or salinity. In oceans and lakes, intense biological activity and accumulation of particles and organisms are associated with pycnoclines and the occurrence of important environmental and oceanographic processes is correlated with stratification. We explore the effects of stratification on the fundamental hydrodynamics of small organisms, settling particles, and rising drops. These results demonstrate an unexpected effect of buoyancy, potentially affecting a broad range of processes at pycnoclines in oceans and lakes. In particular, stratification has a major effect on the flow field, energy expenditure and nutrient uptake of small organisms. We show that elongation affects both the settling orientation and the settling rate of particles in stratified fluids, which will have direct consequences on the vertical flux of particulate matter and carbon flux in the ocean.