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Laboratory studies of ocean mixing by microorganisms MONICA MARTINEZ-ORTIZ, Mechanical Engineering, California Institute of Technology, JOHN O. DABIRI, Graduate Aeronautical Laboratories and Bioengineering, California Institute of Technology — Ocean mixing plays a major role in nutrient and energy transport and is an important input to climate models. Recent studies suggest that the contribution of fluid transport by swimming microorganisms to ocean mixing may be of the same order of magnitude as winds and tides. An experimental setup has been designed in order to study the mixing efficiency of vertical migration of plankton. To this end, a stratified water column is created to model the ocean's density gradient. The vertical migration of *Artemia Salina* (brine shrimp) within the water column is controlled via luminescent signals on the top and bottom of the column. By fluorescently labelling portions of the water column, the stirring of the density gradient by the animals is visualized and quantified. Preliminary results show that the vertical movement of these organisms produces enhanced mixing relative to control cases in which only buoyancy forces and diffusion are present.

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