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**Turbulent boundary layer on a large freely moving particle suspended in high-Reynolds number isotropic turbulence** MARGARET BYRON, COLIN MEYER, GABRIELE BELLANI, EVAN VARIANO, University of California, Berkeley — We experimentally measure the flow surrounding neutrally buoyant particles freely moving in homogeneous, isotropic turbulence. Particle size is within the inertial subrange of the ambient turbulence. We measure the flow using stereoscopic particle image velocimetry which resolves 3 velocity components in a nearly 2-dimensional planar volume. We calculate ensemble average velocity statistics, conditional on the particle kinematics. Two-point statistics indicate the effect of the moving particle on the surrounding turbulent flow. We use these results to consider the impact of ambient turbulence on aquatic microorganisms, specifically those which are larger than the Kolmogorov timescale and small enough that swimming does not dominate transport.

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