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Particle suspension by a vortex ring convecting parallel to a planar surface MARIA-LAURA BENINATI, Bucknell University, MICHAEL MCERLEAN, ARNOLD FONTAINE, MICHAEL KRANE, Pennsylvania State University — Experiments to qualitatively characterize the flow disturbance due to a vortex ring at the surface of a plane horizontal solid wall are described. The ultimate goal of this study is to characterize the role of turbulent boundary layer coherent structures in suspending particles into the flow. Experiments were performed by introducing vortex rings into a stationary fluid. The motion of the rings, tagged with dye, was recorded with digital video. The current study focuses on the effect of the planar wall on the vortex ring trajectory and topology, as well as the velocity and pressure disturbances induced at the wall by the ring. These observations are reported for a range of vortex ring strengths and distances between the vortex ring and the wall.

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