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**Unusual Particle Drift in a Rotating Flow.** ANTONINO CARNEVALI, MSU Space Science Center, REBECCA SCOTT[1], Morehead State University — An unexpected, asymmetry-induced steady particle drift in viscous liquids filling a horizontal cylinder rotating around its axis was first reported by Bluemink *et al.* [Physics of Fluids **17**, 2005]. We have explored the motion further, particularly its dependence on the aspect ratio (L/r) of the cylinder. Experiments at smaller aspect ratio show that the drift is not steady, rather it is formed of repeated leaps, which are associated with the changing axial tilt of the particle or air bubble. We investigate the forces acting on the particle and the possible sources of this particular motion.

[1]Undergraduate student

Antonino Carnevali
MSU Space Science Center

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