1106-VG-2225 **Matthew R. Cessna*** (matthew.cessna@cgu.edu). *Effects of the Lubrication Force on a Bouncing Droplet.*

In our laboratory experiments, a shallow bath of silicon oil of a particular viscosity was placed on an electromagnetic shaker where it was driven by a constant frequency just below the threshold of Faraday instability. A small droplet was then manually created on the surface of the vibrating bath and the bouncing behavior of the droplet was observed and recorded with the aid of a high-speed camera. Droplets of sufficient size do not coalesce with the bath due to a thin air film that forms between them. Coalescence is avoided when the time for the bath to accelerate the droplet back into ballistic motion is shorter than the time required for the thin air film to deplete. Computer software was utilized to process the images and plot the dynamics of the droplet. The experimental data revealed that the acceleration of the droplets measured below -1 g at the moment when a droplet was being launched back into flight by the oscillating bath. In this presentation, we investigate whether lubrication theory accounts for these measurements. We use Matlab to plot the effects of different lubrication forces acting on simulated droplets of various radii. Finally, we model a bouncing droplet on a vibrating bath of the same viscosity with a lubrication force to reproduce our experimental data. (Received September 16, 2014)