Abstract Submitted
for the DFD12 Meeting of
The American Physical Society

An Experimental Study of the Effect of Viscosity on Bouncing Soap Droplets onto a Horizontal Soap Film[1] AMY-LEE GUNTER, HOI DICK NG, Concordia University, Montreal, Canada — This experimental study aims to investigate the phenomenon of a bouncing soap droplet on a horizontal soap film, and how this behavior is affected by variations in the glycerol content of the solution for both the droplet and film. Direct visualization of the bouncing dynamics using high-speed photography allows determination of droplet size and rebound height as the viscosity is varied. In addition, the upper and lower limits of the mixture composition at which the viscosity of the fluid prevents the droplet from bouncing are determined. A thorough examination of this fluid trampoline was recently conducted by Gilet and Bush, the focus of which was to compare the effect of vibration in the soap film [T. Gilet and J.W.M. Bush, J. Fluid Mech. 625: 167-203, 2009]. A small amount of attention was given to the effect of viscosity changes in the droplet and film, and this work aims to expand on those findings.

[1]This work is supported by the Natural Sciences and Engineering Research Council of Canada (NSERC).

Hoi Dick Ng
Concordia University, Montreal, Canada

Date submitted: 03 Aug 2012 Electronic form version 1.4