Abstract Submitted
for the DFD16 Meeting of
The American Physical Society

Long-life of a bubble on the surface of a water-alcohol mixture GIBRAN RAGE, Universidad Nacional Autonoma de Mexico, J. FEDERICO HERNANDEZ-SANCHEZ, King Abdullah University of Science and Technology, MONICA M. WILHELMUS, University of California - Riverside, ROBERTO ZENIT, Universidad Nacional Autonoma de Mexico — The lifetime of superficial bubbles has been used traditionally to determine the alcohol content in destilled beverages and spirits. With the proper alcohol content, the bubbles, known as pearls, have a particularly long life which is much longer than that in either pure water or pure ethanol. To understand this peculiar behavior, we conducted controlled experiments in water-ethanol mixtures and in samples of mezcal, an artisanal agave spirit. We assess the effect of the changes in viscosity, surface tension and density of the liquids. Also, we analyzed the effects of surfactants and evaporation rate differences, which lead to Marangoni convection in the draining film.

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Date submitted: 26 Jul 2016 Electronic form version 1.4