

MAR11-2010-001042

Abstract for an Invited Paper
for the MAR11 Meeting of
the American Physical Society

Making a frothy shampoo or beer¹

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The terms “foam” and “froth” refer to a dispersion of gas bubbles in a liquid. Why do certain liquids show a tendency to foam while others do not? For example, bubbles can be produced in pure water by vigorous agitation, but then they rapidly coalesce and disappear. While foams cannot be produced with pure water, foams associated with beer or shampoo can persist for several minutes or even hours. What ingredient(s) in shampoo and beer make their foams stable, and what physical concepts control their stability? In this talk I’ll review three basic mechanisms underlying foam stability, and I’ll make connection with current research on coarsening by the diffusion of gas from smaller to larger bubbles.

¹With thanks to Srinivasa Raghavan, Adam Roth, and NASA Microgravity Fluid Physics Grant NNX07AP20G.