Abstract Submitted
for the DFD08 Meeting of
The American Physical Society

Reverse draining of a magnetic soap-film: Experiment JOHN PELESKO, University of Delaware, DEREK MOULTON, University of Arizona — The draining of vertically suspended soap films under the action of gravity has been studied since at least the time of Newton. Today, understanding this draining is of interest in a variety of areas including the study of foams, the study of rupture, and the study of non-Newtonian fluids. Here, we present experimental results on the drainage of a magnetic soap film. An ordinary soap bubble solution was mixed with an aqueous suspension of magnetic nanoparticles in order to form a magnetic soap solution capable of producing a stable thin film. The film was suspended vertically and the thinning behavior studied in the presence and absence of a magnetic field. Both flat films and cylindrical films were studied. In the absence of a magnetic field, the film thins most at the top and produces a region known as "black film." In the presence of a magnetic field, we show that this black film may be produced at the bottom of the film indicating reverse draining.

John Pelesko
University of Delaware

Date submitted: 06 Aug 2008 Electronic form version 1.4