HARDWARE FOR STUDYING THE DEMIXING OF AQUEOUS POLYMER TWO-PHASE SYSTEMS IN LOW GRAVITY

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The gravity-free demixing behavior of aqueous polymer two-phase systems (APTPS's) has been studied on Earth, and onboard KC-135 aircraft and the Space Shuttle. Results suggest a good correlation between the demixing behavior of isopycnic systems on Earth and the low g behavior of systems exhibiting phase density differences. The short term (20 s) behavior of ATPS's onboard KC-135 aircraft has been shown to mimic their initial demixing behavior in space. It appears that the few minutes of low g provided by parabolic rocket flight will be sufficient to study all but the latter stages of demixing of APTPS's. We are therefore turning our attention toward the design and use of hardware for studying the demixing of APTPS's onboard sounding rockets.

This seminar will discuss the evolution of our hardware and research from hand-held KC-135 and Shuttle hardware through to automated hardware designed for utilization of KC-135, sounding rocket, and Space Shuttle Mid-deck Locker flight opportunities.

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