# Liquid Configuration in Angular Pores under Microgravity. (S01-tuller212137-Poster)

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## Abstract:

Understanding liquid behavior in plant growth media is of interest for design of advanced life support systems as part of NASA's long-duration space missions. Reduced gravity conditions could affect pore-scale liquid organization by enhancing phase entrapment and changing interfacial configurations. Such effects should be considered in the choice of plant growth media and the design of root modules for reliable water, air, and nutrient supply. It has recently become evident that macroscopic quantities such as gaseous diffusion and hydraulic conductivity are strongly affected by the physical behavior of the fluid at the pore-scale level. To investigate these effects we first employ the Augmented Young-Laplace equation that simultaneously considers the contributions of capillary and adsorptive forces with and without gravity term. Liquid vapor interfacial configurations under gravity are compared with microgravity conditions for pores of various shapes and sizes. Potential implications of changes on liquid behavior at the root module scale and aspects of media selection are discussed.

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