

Abstract Submitted
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Droplet absorption by helically-supported capillary channels

MAVERICK TERRAZAS, DAVID THIESSEN, Washington State University — A large aspect ratio capillary channel formed by filling a stretched spring with water under conditions of low transverse Bond number and connected to a constant low-pressure reservoir is shown to absorb water droplets that impinge on the channel. Experimental results for low Weber number droplet absorption using a half-second freefall apparatus in the lab will be presented as well as 1-g results for moderate Weber numbers where inertia dominates gravity. The effects of several variables on absorption including droplet Weber number, impact parameter, reservoir pressure, and spring pitch are examined. Channels of this type are envisioned for passive phase separation applications in microgravity or for Earth-based technologies requiring phase separation under low Bond number conditions and perhaps in large aspect ratio channels.

David Thiessen
Washington State University

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