

Abstract Submitted  
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**Oscillatory flow measurements in the vicinity of pinned-contact capillary surfaces** JOSEPH OLLES, AMIR HIRSA, Rensselaer Polytechnic Institute — By coupling two pinned-contact droplets through a short tube, various devices have been demonstrated, including fast-focusing liquid lenses, pumps, and adhesion devices. The double droplet system (DDS) can be achieved on the millimeter scale with essentially spherical interfaces due to capillarity. A one-dimensional model based on the center of mass motion has been corroborated by experiments, but CFD simulations of the flow within the DDS (Ramalingam and Basaran, *Phys. Fluids* 2010) have yet to be experimentally validated. With PIV, we study the fluid flow in and around a DDS that is surrounded by an immiscible liquid. The flow near the corner and capillarity effects of the pinned-contact surfaces will be explored for different volumes of the DDS, oscillating frequencies, and driving amplitudes.

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