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Sensitivity of the Annular Flow Film Thickness to Inclination Angle REAL KC, HANK SCHULZ, Oklahoma State University-Stillwater, SHAHROUZ MOHAGHEGHIAN, Sonedo Inc, Laguna Hills, CA, ILCHUNG PARK, BRIAN ELBING, AFSHIN GHAJAR, Oklahoma State University-Stillwater — Annular flow is a multiphase flow regime characterized by a thin liquid film layer on the pipe wall that is surrounded by a fast-moving gas core. The liquid film thickness is thought to significantly impact pressure drop and liquid entrainment; however, the literature annular film thickness is scarce compared to other multiphase flow regimes. This is especially true with respect to the sensitivity of the film thickness to inclination angle. In this experimental work, planar laser induced fluorescence (PLIF) was used to study the bottom film thickness over a wide range of inclination angles. The measurements were validated by comparing results to established horizontal data from literature. This presentation will include these validation measurements, an overview of the findings at various inclination angles, and share preliminary work from a new setup.

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