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**Study of gravity driven droplets on completely wetting substrates** RYAN HASKETT, Math Department, Duke University, Durham NC -27708, SHOMEER MUKHOPADHYAY, Physics Department, Duke University, Durham, NC -27708, TOM WITELSKI, Math Department, Duke University, Durham NC -27708, ROBERT BEHRINGER, Physics Department, Duke University, Durham, NC -27708 — We present a detailed study of gravity driven droplets (silicone oil of viscosities from 10 to 1000 centistokes) on a prewetted silicon wafer. In this study we revisit the scenario of Huppert's 1982 work in which he derived scaling relations for one dimensional motion in the absence of surface tension. Using an interferometric arrangement we find that experimental results indicate a different asymptotic state for the drop which is different from Huppert's classical result. Using a combination of numerics and analytical arguments we show that these deviations are due to the Van der Waals like interactions between the completely wetting substrate and the droplet. This work is supported by NSF Grant No. DMS- 0239125.

Prefer Oral Session  
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