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Measuring contact-line mobility during inertial spreading[1] PAUL STEEN, SUSAN DANIEL, YI XIA, Cornell University — During "inertial spreading", when inertia drives a partially wetting liquid across a solid, the role of bulk viscosity may be neglected. For such inertial-capillary motions, behavior of the moving contact-line (CL) can be understood within the context of ideal (or nearly ideal) fluid motion, provided an alternate to the Voinov-Hocking-Cox model of mobility is adopted. The alternate we adopt is the so-called Hocking condition. In this talk, we report experiments with Resonantly-Driven Droplets (RDD) whereby the bulk resonance of the drop amplifies the small and fast CL motion sufficiently to be measurable. The RDD approach enables us to measure a CL mobility and to infer a CL dissipation for droplets on a number of hydrophobic surfaces, surfaces with varying contact-angle hysteresis. Our results are compared to prior results in the literature, measured with alternative approaches.

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