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Scaling Law for Driven Spreading and Coalescence of Sessile Droplets[1] PILGYU KANG, SHAHAB SHOJAEI-ZADEH, CHRISTINE APPLEBY, SHELLEY ANNA, Department of Mechanical Engineering, Carnegie Mellon University, MICRO COMPLEX FLUIDS LABORATORY TEAM[2] — This study investigates the dynamics of spreading and coalescence of droplets on a surface, a process important in applications such as inkjet printing, spray coating, and flooding of fuel cells. We use a simple microfluidic device to control the spreading and merging processes. Droplet diameter and maximum height are monitored as functions of time. We compare the dynamics with existing scaling models modified to incorporate time dependent volume, and we extend the model to describe the scaling behavior of the liquid bridge growing between merging droplets on a surface. The experiments agree well with the expected scaling.

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