

Abstract Submitted  
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**Effect of Viscosity and Size of a Droplet on Spreading Dynamics in Electrowetting**<sup>1</sup> JIWOO HONG, KWAN HYOUNG KANG, Pohang University of Science and Technology (POSTECH) — Electrowetting-based devices require fast, stable and accurate positioning of the three-phase contact line (TCL). To meet this requirement, a concrete understanding on dynamics of electrowetting is necessary, which has been one of the main challenges in electrowetting research. In this work, we investigated the switching dynamics of a droplet in air actuated by electrowetting, for different applied voltages, drop sizes, and viscosities. We analyzed the spreading process for weakly viscous droplet and derived a relationship between the drop size and the switching time. The relationship is verified experimentally. We explored experimentally the effect of viscosity of a droplet on switching dynamics. During the initial spreading period, the spreading dynamics was hardly dependent on viscosity. The switching time is moderately dependent on fluid viscosity.

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