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**Optimum responses of droplets under electro-wetting actuation**

TUAN TRAN, QUOC VO, Nanyang Technological University, Singapore — The electro-wetting phenomenon has been used extensively to manipulate shape and position of liquid droplets in various applications such as microfluidics, microswitches, liquid lenses, light valves, and fast response displays. One of the quantities critically affecting the performance of such applications is the actuation time, defined as the duration for a droplet to reach a new equilibrium state after an electrical field is applied. We experimentally study the dynamical response of electro-actuated droplets for a wide range of control parameters including viscosity, drop size, and electric field. We show that there exists a relation between such parameters to achieve optimum actuation time, which can be validated by experimental data.

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