

Effect of applied voltage on a new designed lab on a chip electrowetting actuation system

ABSTRACT

Electrowetting on dielectric (EWOD) is known as a promising technique to manipulate liquid droplet for chemical and biomedical applications. A new EWOD platform is designed and simulated for solving the asymmetrical splitting difficulty, transporting, mixing and merging of the different volume of droplets. The electrode design expands the performance of EWOD systems, giving the high reproducibility on the volume of the droplet and dilution factors and ultimately reduces the required time for above activities. The satisfactory voltage range was applied on the electrode based on unit-square electrode shapes to move droplets. In this paper the simulation results are presented with water droplet surrounded by air in closed microchannel EWOD platform.