

Abstract Submitted
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Deformation and merging of droplets at different electric potentials¹ DONG WOOK LEE, IN SEOK KANG, POSTECH — In the present work, two droplets which are attached to different electrodes are faced each other and then, approaching each other very slowly, deformation and merging of the two droplet were closely watched using high-speed camera. It was found from the observation that this phenomenon can be separated into three phases; deformation, liquid bridge formation, merging. First, in the deformation phase surface tension and electric force achieve the equilibrium and the deformed shape is stable. Second, in the liquid bridge formation phase electric force is much bigger than surface tension and the liquid bridge is made very quickly between the tips of droplets. Lastly, in the merging phase the two droplets are merging because of surface tension. We focused the minimum distance to make liquid bridge and to merge the two droplets under constant potential difference. Finally, we performed numerical simulation using level set method and compared the experimental result with the numerical result.

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