

Abstract Submitted
for the DFD11 Meeting of
The American Physical Society

Effect of electrode geometry on charging of a water droplet in a dielectric liquid¹ MYUNGMO AHN, DO JIN IM, IN SEOK KANG, POSTECH — Electrophoresis of a charged droplet (ECD) in a dielectric liquid can be used as a droplet manipulation method without complicated electrode or circuit design. For further utilization of its advantages, we need thorough understanding on the charging mechanism and the electrode geometry effect. We have investigated the effect of electrode geometry on the amount of charging experimentally and numerically. In the experiments, we have checked the difference of charge amount between the pin type and the plate type electrodes. A high speed camera and an electrometer are used for the measurement simultaneously. We also have calculated the charge amounts for both cases numerically. The charge amounts predicted from the simulation show good agreement with those of the experiments. In both cases, a droplet gets more charges on the pin type electrode. This result can be used for better design in the microfluidic applications using electric charging method.

¹This work has been supported by Grant R01-2010-0027653 from the National Research Foundation (NRF) of Korea and by the BK21 program of the Ministry of Education, Science and Technology (MEST) of Korea.

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Date submitted: 03 Aug 2011

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