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Electrohydodynamic ejection without using nozzle electrode VU DAT NGUYEN, DOYOUNG BYUN, Konkuk University — The electrohydrodynamic (EHD) ejection technique has been applied to inkjet printing technology for fabrication of printed electronics. The conventional EHD inkjet device is based on dc voltage and requires two electrodes: a nozzle electrode and an extractor electrode. This study notes several drawbacks of the conventional EHD printing device such as electrical breakdown and demonstrates stable jetting by using the extractor electrode alone without the nozzle electrode and ac voltage. The continuous ejection of droplets can be obtained only by ac voltage, showing consistent ejection at every peak of electrical signal. The suggested EHD inkjet device prevents electrical breakdown and broaden the range of material selection for nozzle design. Experiments with high speed camera also point out that the generated droplets are much smaller than the nozzle size. Using glass capillary, we show various printing patterns of lines and characters.

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