Electronic Supplementary Material (ESI) for Lab on a Chip.

Electronic Supplementary Information

drop formation using ferrofluids driven magnetically in a step emulsification device

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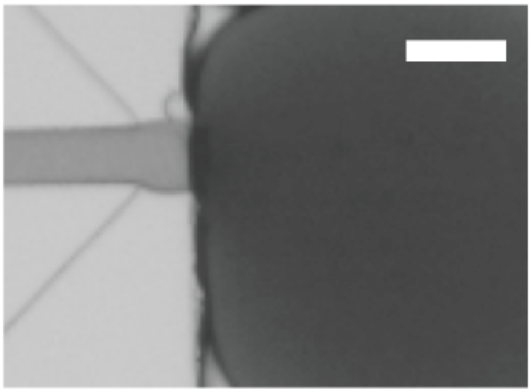

Fig. 1: High flow rate leads to jetting and no drop formation in the step junction. A test with a syringe pump at 2µl/min (no magnet- Capillary number>0.1. Scale bar is 80 µm)

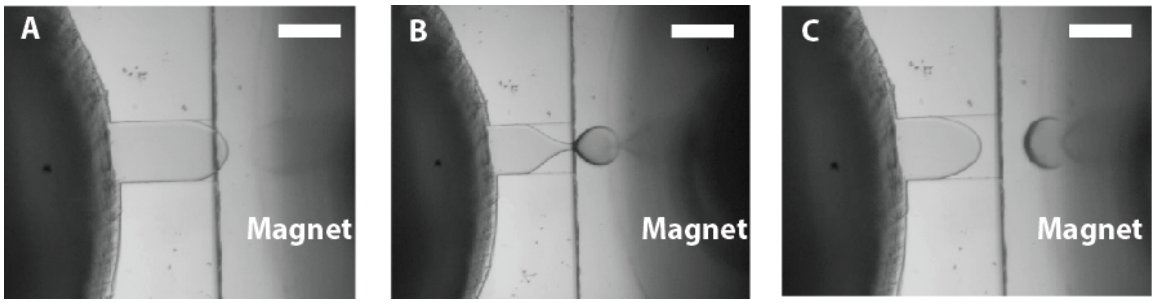

Fig. 2: Droplet generation without the terrace region. (Pinch-off of the drop occurs within the channel adjoining the reservoir. Scale bar is 150 µm). A: 0, B: 35 ms, C: 60 ms.

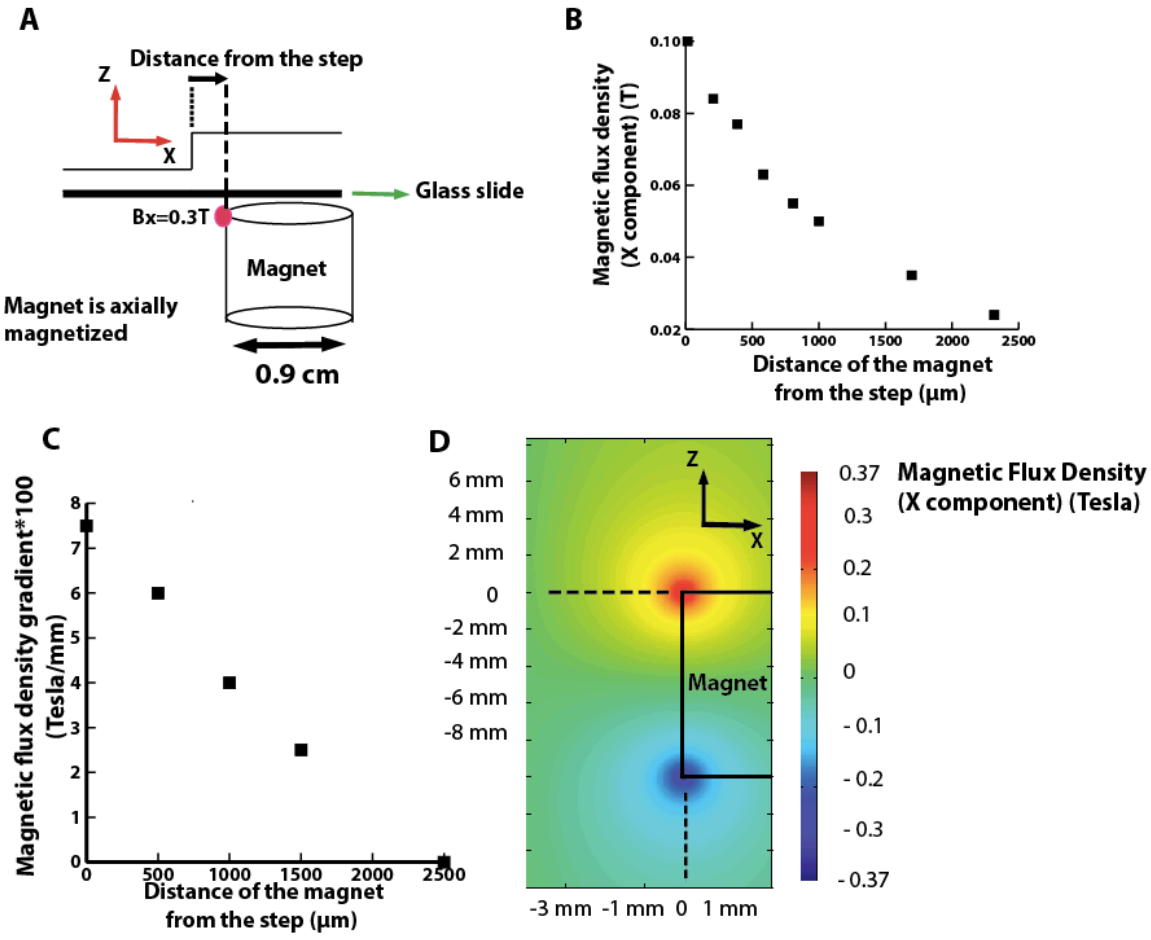

Fig. 3: Magnet location and characterization of the magnetic flux density based on 2D comsol simulation. Magnet corner (top left) is located at (0, 0). A) Magnet location and size. B) Magnetic flux density in X direction and C) Magnetic flux density gradient in the X direction that are calculated based on D) comsol simulation.