Microdevice fabrication.

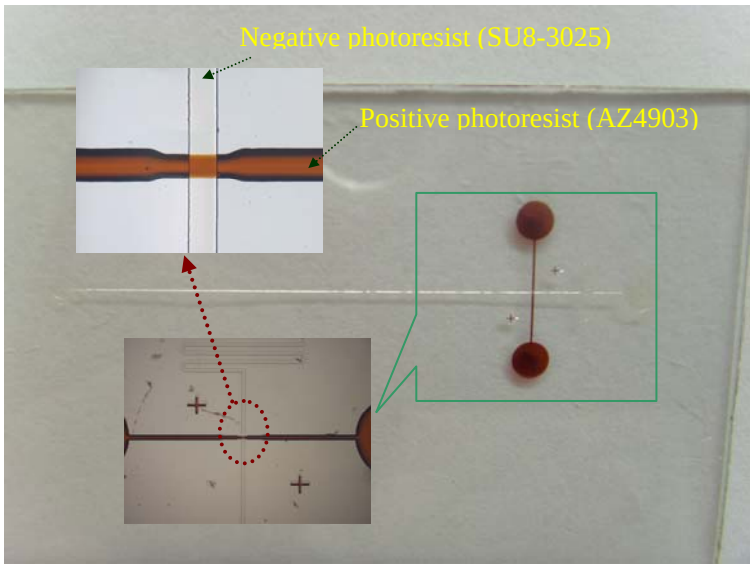
The PDMS microdevice was fabricated by using the method we have reported previously elsewhere[1]

Setup.

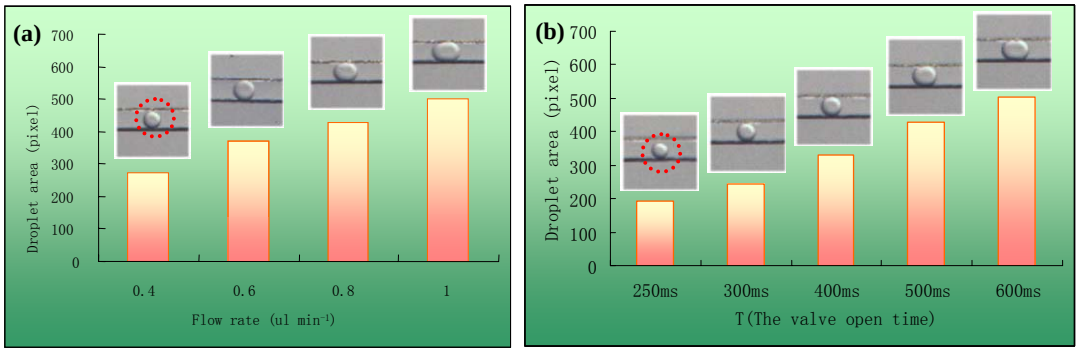
All the movies of droplets were recorded by a stereoroom microscope (Leica S8APO, Germany). The micrographs of particles were recorded by an inverse fluorescence microscope (Olympus IX 71, Japan) with a digital CCD camera (Q Imaging, Micro Publisher 5.0 RTV) and the photographs of microdevice was taken by a digital camera (Canon G5, Japan)

Table 1. the experimental condition:

Gas pressure (valve)	70 kPa
Flow rate (pump)	0.6 ul min^{-1}
UV wavelength	365 nm
UV intensity	2.8 w cm^{-2}
T (large size droplet generation)	450 millisecond
T (small size droplet generation)	250 millisecond



Sfigure 1. the photograph of the mold of liquid channel. Inset is the local magnifying of the junction.



Sfigure 2. The droplet size variation at different flow rate and valve opening time (T). (a) droplet size increases with pumping flow rate (T is fixed at 400ms). (b)droplet size can be changed by varying the valve open time (the flow rate is 0.6ul min^{-1}) (inset is the micrograph of droplet).

1. S. Zeng, B. Li, X. o. Su, J. Qin and B. Lin, *Lab on a Chip*, 2009, **9**, 1340.