Supporting Information

A facile “liquid-moulding” method to fabricate PDMS microdevices with 3-dimensional channel topography

Xin Liu, [a] Qi Wang, *[b] Jianhua Qin* [a] and Bingcheng Lin

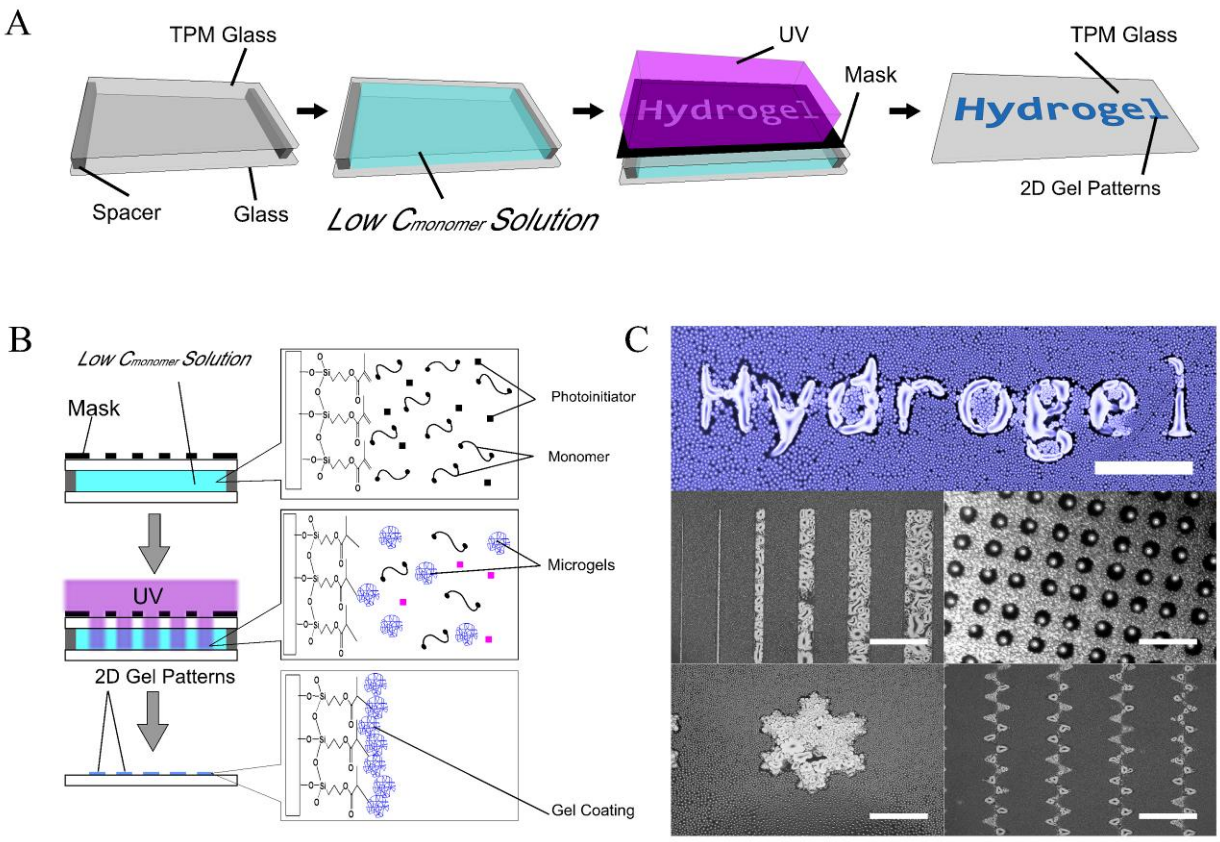
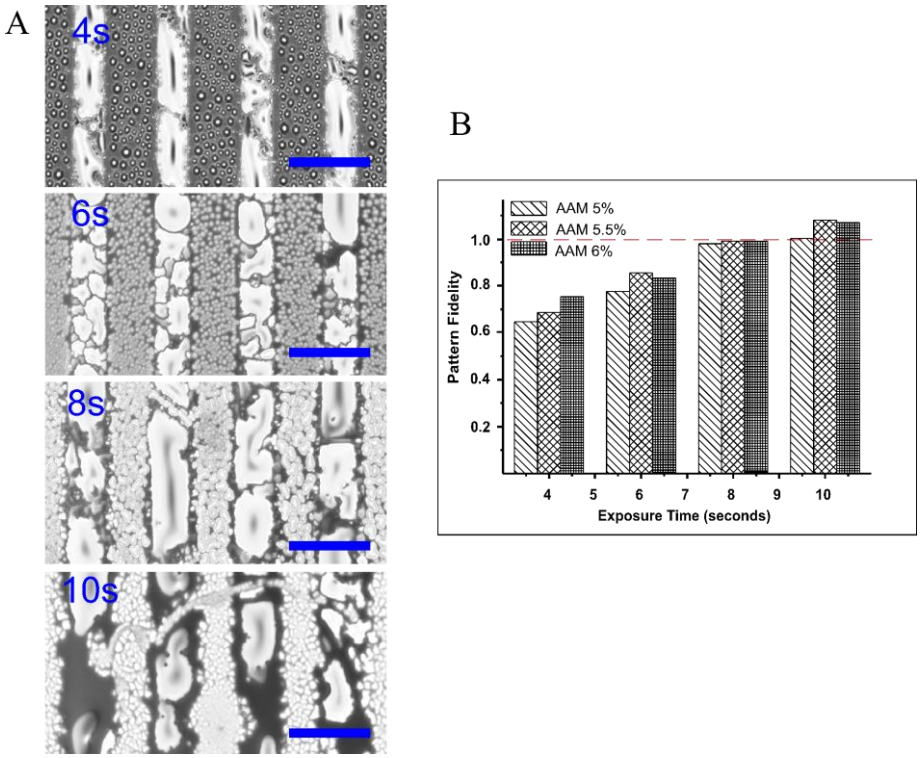


Figure S1 Fabrication of hydrogel micropatterns. (A) methods. (B) Mechanism. (C) Condensation figures formed on hydrogel patterned TPM Surfaces.



S2. Pattern fidelity of hydrogel micropatterns with respect to monomer concentration and exposure dosages. (A)micrographs showing condensation figures on pAAM gel patterns fabricated under different exposure dosage. (B) Pattern fidelity with respect to monomer concentration and exposure dosages.

.

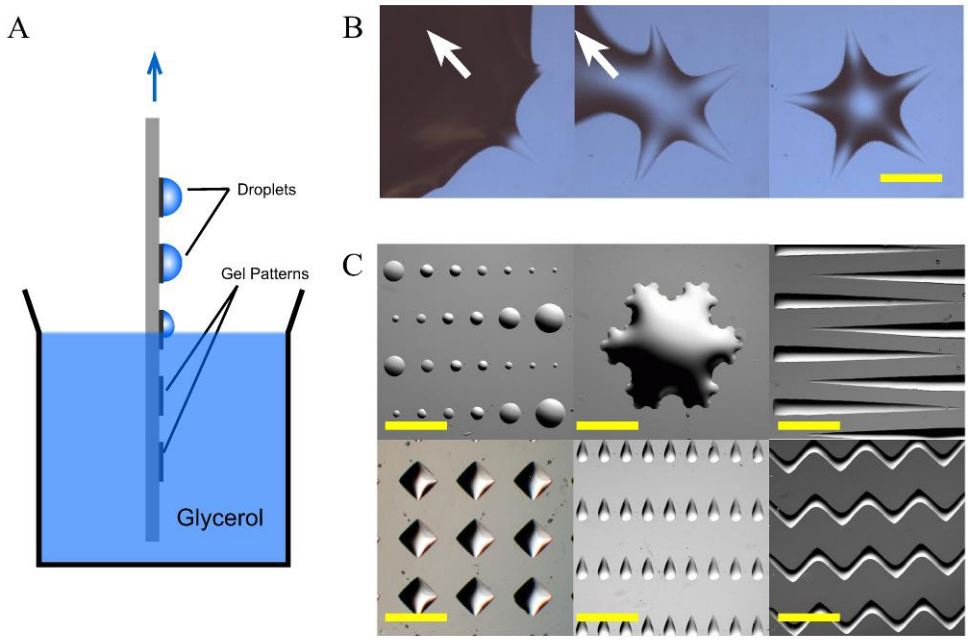


Figure S3 More Examples of liquid patterns, scale bar=1000micron

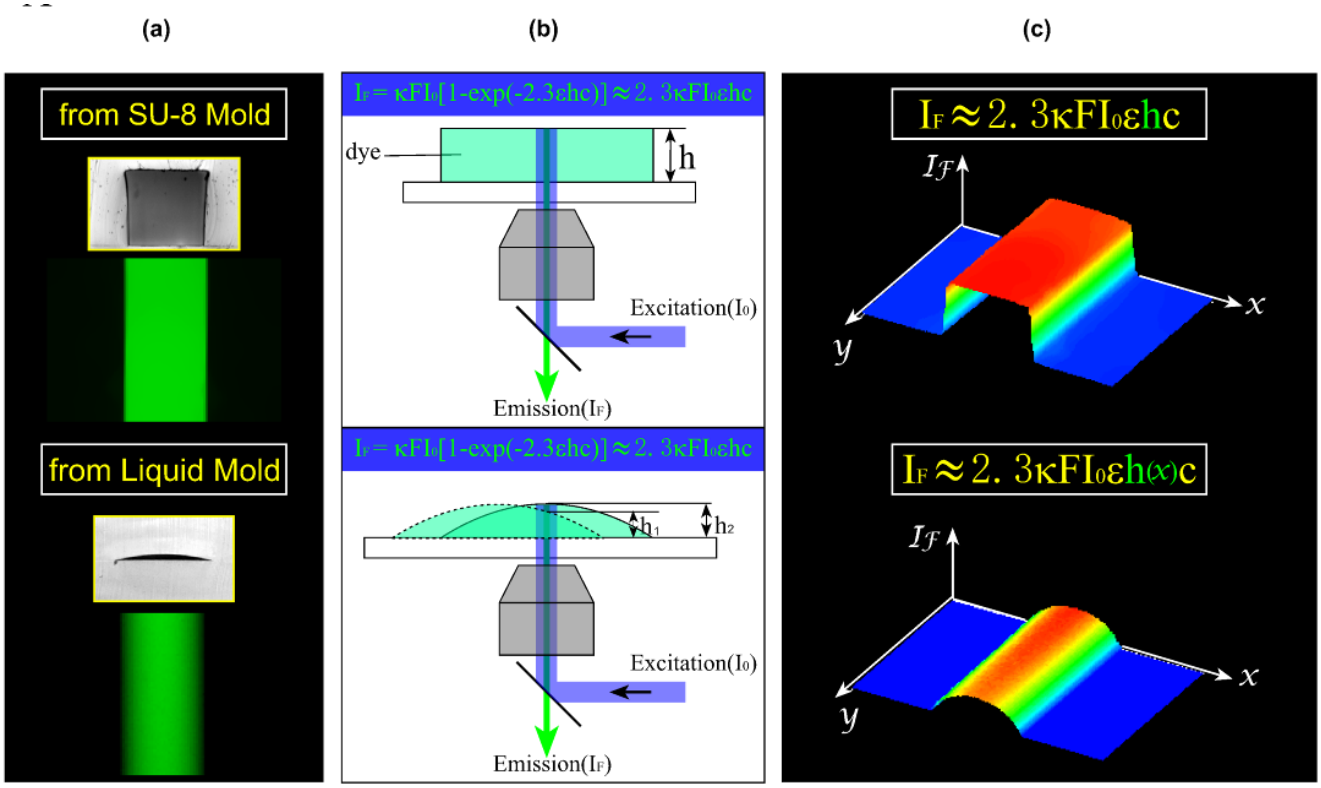


Figure S4 Principles on characterization of channel structures via fluorescent imaging technique. The fluorescence intensity is correlated to channel geometry according to equation (1):

$$I_F = \kappa F I_0 [1-\exp(-2.3\varepsilon hc)] \quad (1)$$

IF: fluorescence intensity ε: absorptivity

κ: parameter related to optical architecture h: local channel height

F: parameter related to the nature of the fluorescent molecular c: sample concentration

I0: excited light intensity

When using diluted dye, equation (1) simplifies to:

$$I_F \cong 2.3\kappa F \varepsilon I_0 hc \quad (2)$$

In both cases, there are positive correlation between fluorescent intensity and local channel height.

This method was verified by comparing the topographical figures of conventional microchannels and LM microchannels.

Movie S1 formation of liquid structures on hydrogel micropatterned surfaces.

Movie S2 Cell trapping movie

Movie S3 Fluorescent staining of trapped single cell