

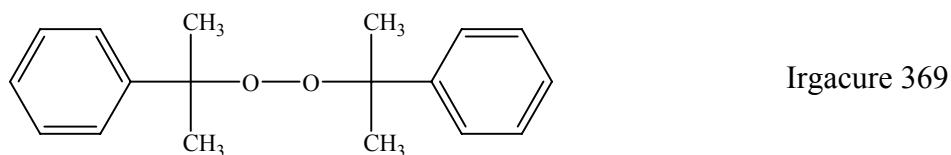
## ELECTRONIC SUPPLEMENTARY INFORMATIONS (ESI)

### Silicate Glass Coated Microchannels through Phase Conversion Process for Glass-Like Electrokinetic Performance

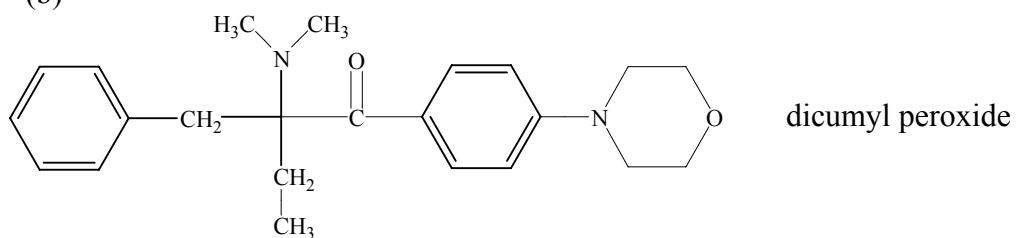
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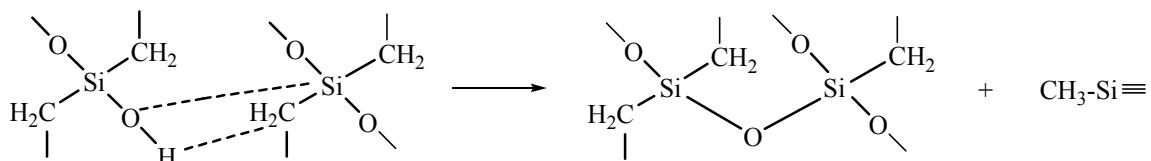
(a)



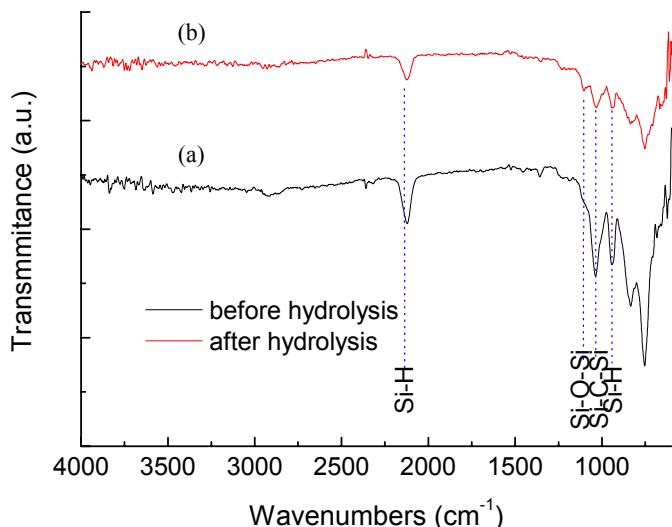
(b)



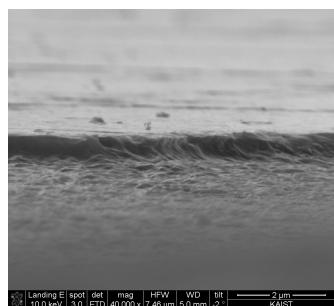
**Scheme S1** Molecular structures of (a) photo initiator (Irgacure 369 ), and (b) thermal initiator (dicumyl peroxide).



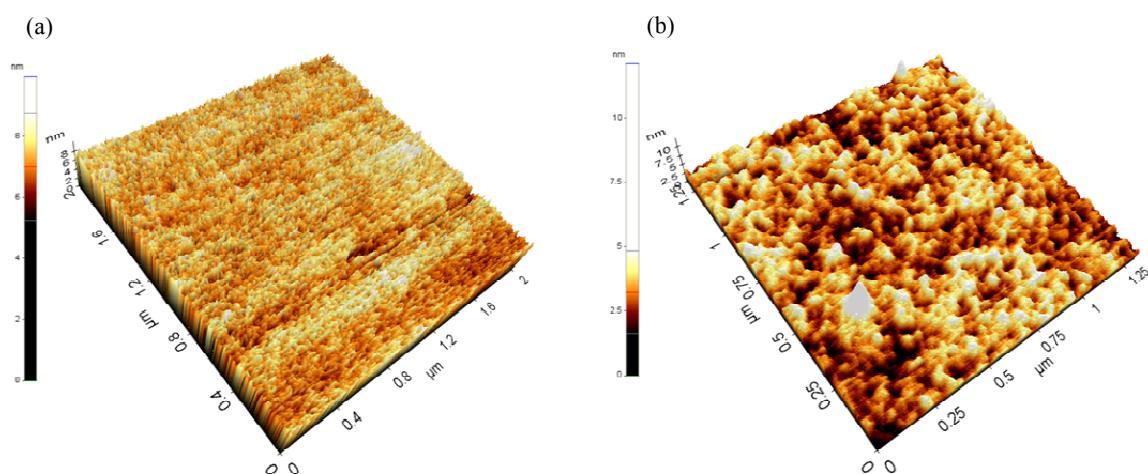
**Scheme S2** Mechanism of  $\text{SiOH}$  induced redistribution of  $\text{Si-O}$  and  $\text{Si-C}$  bond during hydrolysis of AHPSCS under alkali condition.<sup>1</sup>



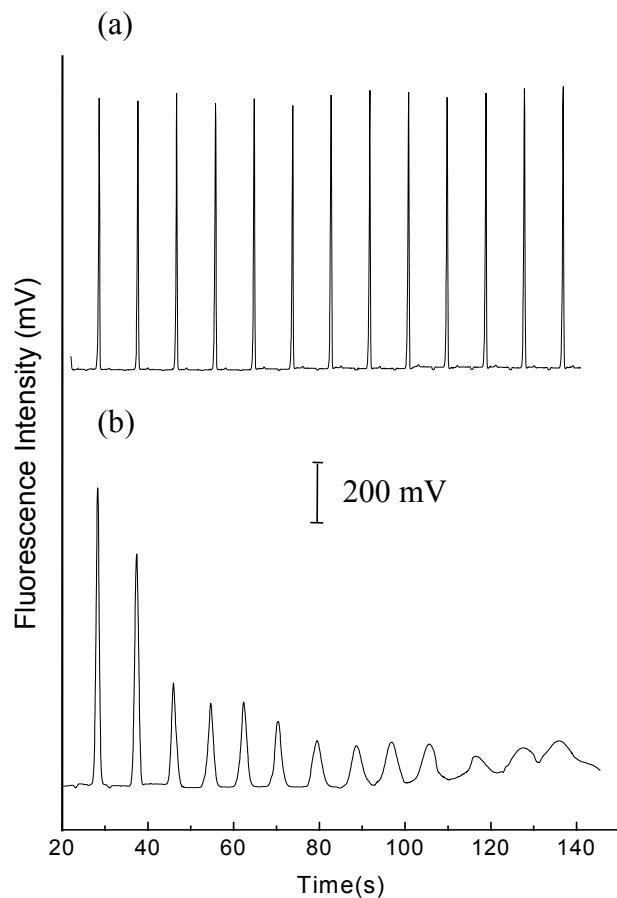
**Fig. S1** ATR spectra of AHPCS film (600 nm-thick) (a) before and (b) after hydrolysis (0.5 M NaOH, 3 h at 25 °C).



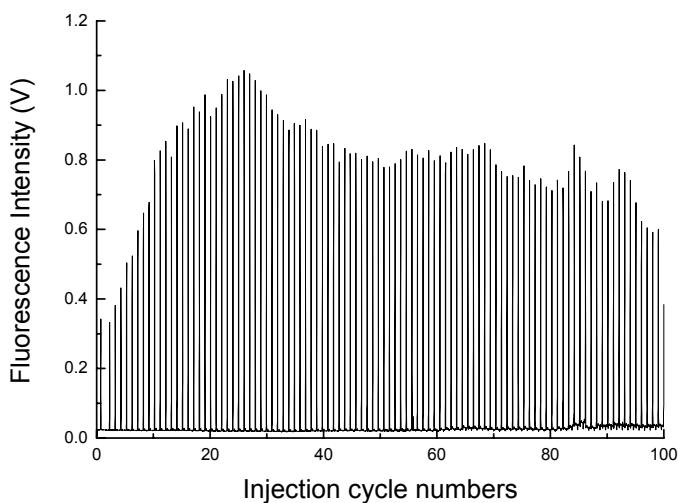
**Fig. S2** SEM image of AHPCS coating on polyimide (PI) film (1 wt. % in cyclohexanone, cured under ELC-4100 UV light system (20 mW/cm<sup>2</sup>) for 20 min).



**Fig. S3** AFM images of (a) cured AHPCS film and (b) hydrolyzed AHPCS film.



**Fig. S4** CE reproducibility test conducted by 13 times injection of 10  $\mu\text{M}$  FITC-Phe into (a) AHPCS derived silicate glass coated PDMS channel and (b) native PDMS channel aged for 1 week at room temperature after plasma bonding.



**Fig. S5** Retention time variation upon 100 times repeated injection of 10  $\mu\text{M}$  FITC-Phe into AHPCS derived silicate glass coated PDMS channel (Laplace pressure effect of the round-shape reservoirs on the peak intensity was not considered during the multiple injections and separations).

## SI Reference

1 H. Q. Ly, R. Taylor, R. J. Day and F. Heatley, *J. Mater. Sci.*, 2001, **36**, 4037.