Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C.

Supporting Information

Optical Sensor Based on Hydrogel Films with 2D Colloidal Arrays Attached on Both Surfaces: Anti-curling Performance and Enhanced Optical Diffraction Intensity

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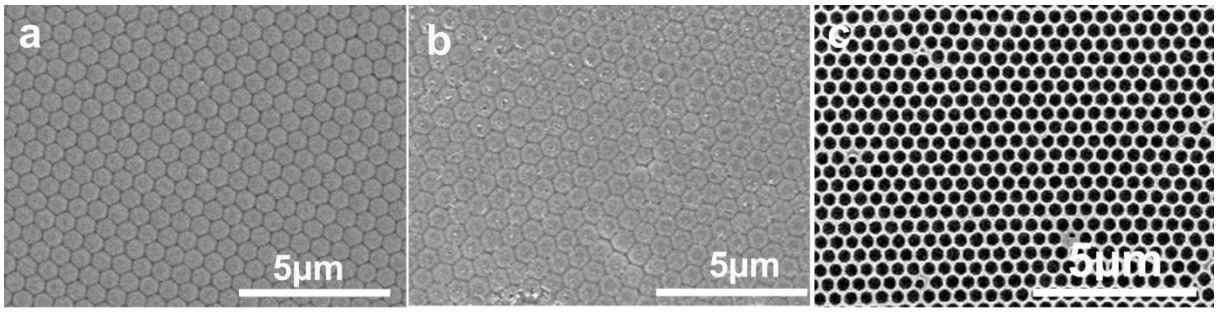

Fig. S1. SEM image of 2D array/hydrogel composite film with 2D PS array on both surfaces: (a) Top surface; (b) Bottom surface. (c) 2D hole array on hydrogel film surface after dissolving PS colloidal spheres with methylenedichloride.

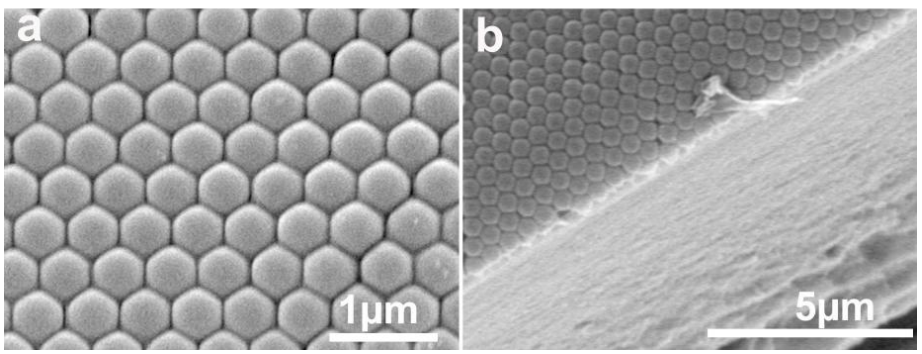

Fig. S2. SEM image of CS hydrogel film with 2D PS arrays onone surface; (a) Top surface; (b) Cross-sectional view, indicating the 2D array was a monolayer situated on the surface of the hydrogel film.

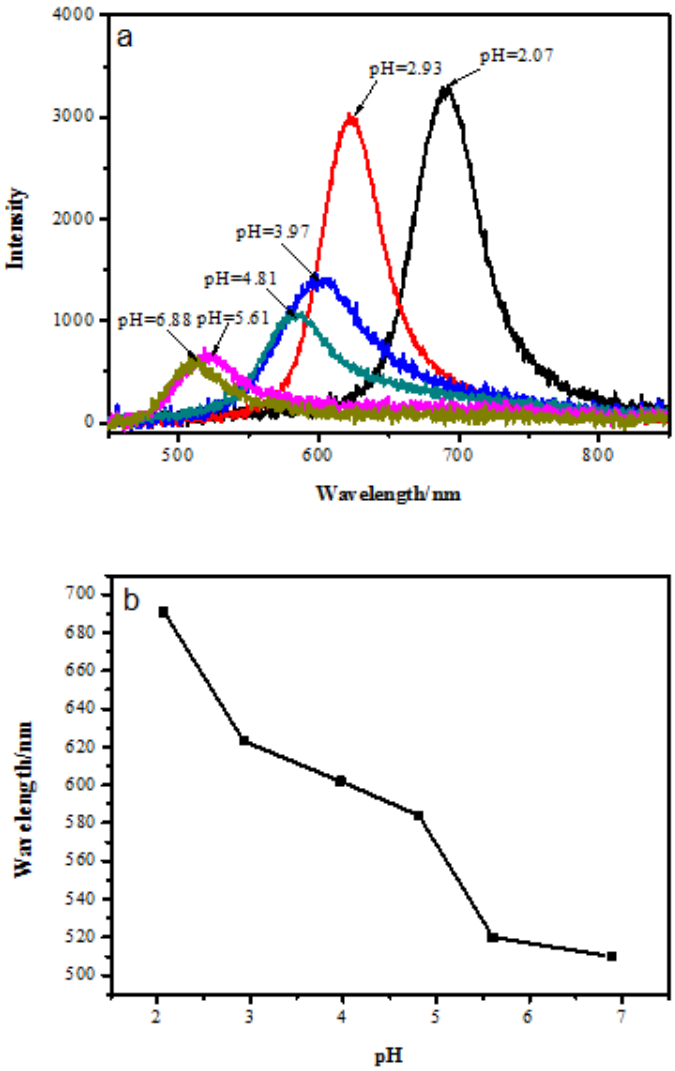

Fig. S3. (a) Diffraction peak changes of 2D array CS hydrogel film with 2D array on one surface at pH: 2.07, 2.93, 3.97, 4.81, 5.61 and 6.88. (b) pH dependence of the diffraction wavelength of the 2D array CS hydrogel film with 2D array on one surface after equilibration in different pH buffer solutions.

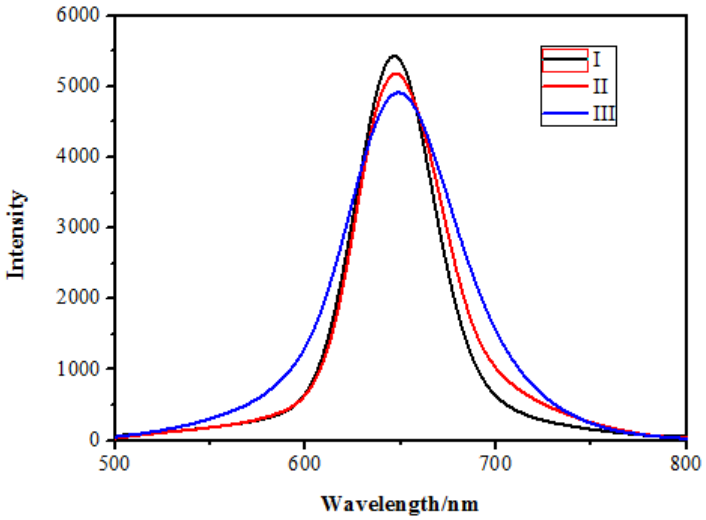

Fig. S4. Comparison of diffraction spectra of 2D arrays/CS hydrogel films with colloidal arrays on both surfaces at pH 2.07 with different film thickness: (I)5 μm; (II)8μm; (III)12μm.