

**• Fabrication of PAM/PMAA inverse opal photonic crystal hydrogels by “sandwich” method and their pH and solvent responses**

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Table S1. Preparation of AM/MAA precursor solutions with different contents of MAA and BIS cross-linker.

NO.	AM (g)	MAA (g)	AM :MAA (mol/mol)	BIS (%)
1	3	0	1	4
2	3	0.182	1:0.05	4
3				2
4	3	0.365	1:0.1	4
5				6
6				9
7	3	0.73	1:0.2	4

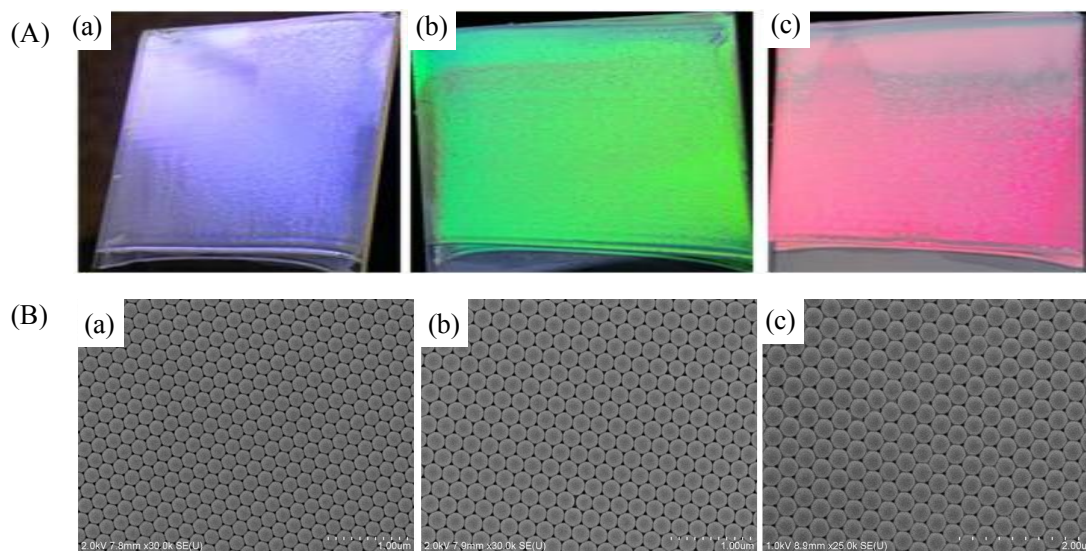


Figure S1. SEM images (A) and photographs (B) of PS opal templates with different diameters of (a) 195 nm, (b) 226 nm, and (c) 293 nm.

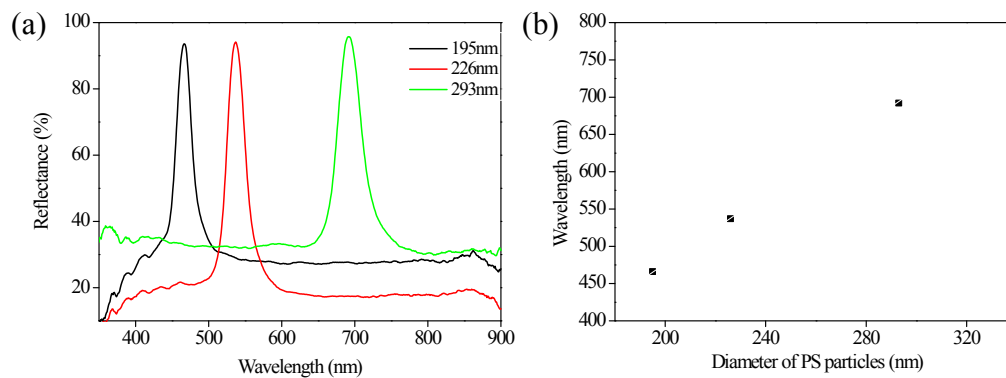


Figure S2. Reflectance spectra of PS opal with different diameters.

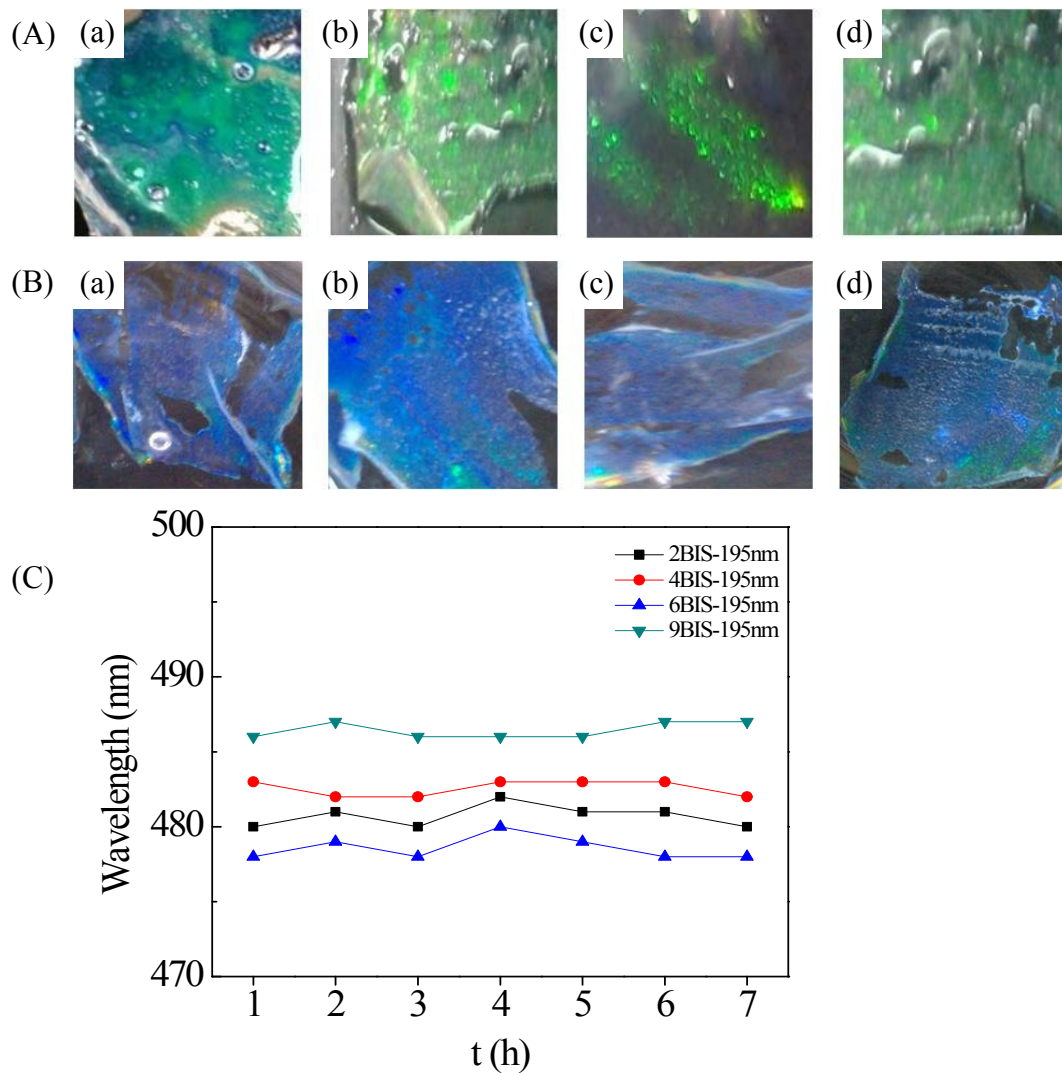


Figure S3. Photographs of PAM (A) and PAM/PMAA (B) IOHs with different BIS compositions of 2% (a), 4% (b), 6% (c) and 9% (d), and their reflectance peak value (C).

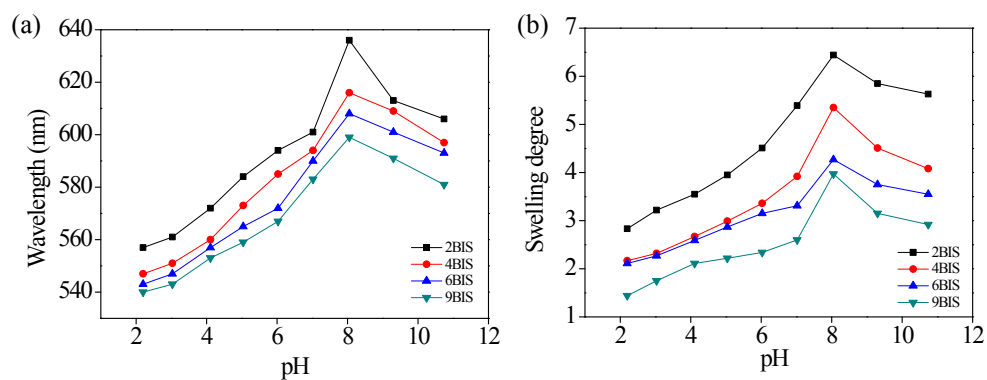


Figure S4. Reflectance peak value (a) and swell property (b) of PAM/PMAA (0.1MAA) IOHs with different BIS contents in different pH solutions.

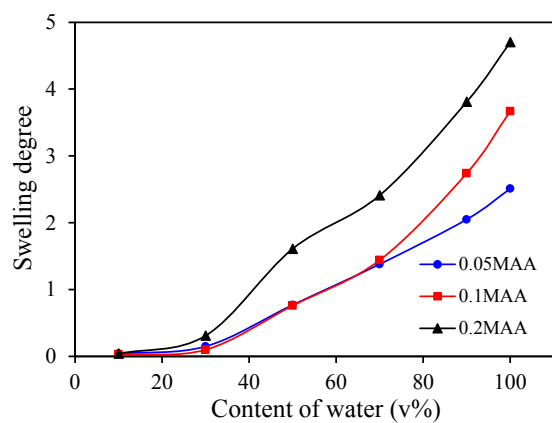


Figure S5. Swell properties of PAM/PMAA IOHs with different MAA compositions.

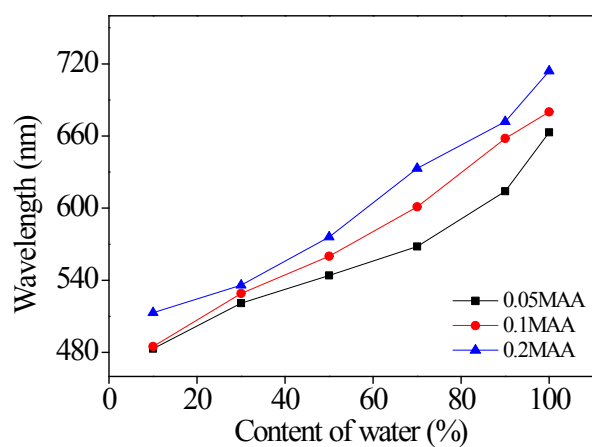


Figure S6. Reflectance peak value of PAM/PMAA IOHs with different MAA compositions of 0.05MAA, 0.1MAA and 0.2MAA in ethanol/water mixed solvent with different volume ratios of ethanol.