

Supporting Information

Ultrasensitive Responsive Photonic Crystal Films Derived from the Assembly between Same 5 Charged Colloids and Substrates towards Trace Electrolyte Sensing

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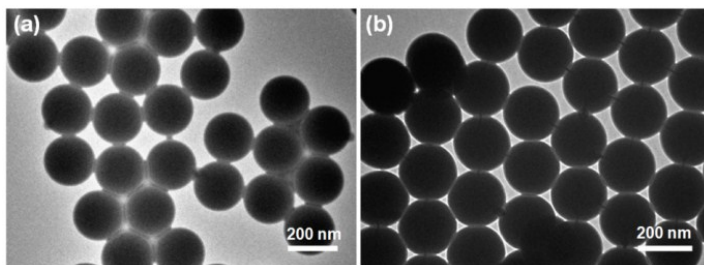
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Supplementary Figures



Fig. S1 A mask patterned with “NJTECH” obtained by a 3D printer



5 **Fig. S2** Typical SEM images of the as-obtained positively-charged (Left) and negatively-charged (Right) PS colloids



Fig. S3 The colloid assembly process for the concentrated dispersions in temperature ranging from 15 °C to 65 °C.

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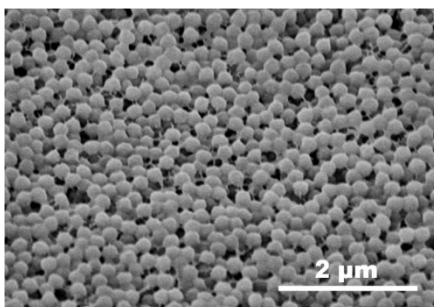


Fig. S4 The SEM image of the resulting the PAm-co-PAA hydrogel-incorporated RPC film.

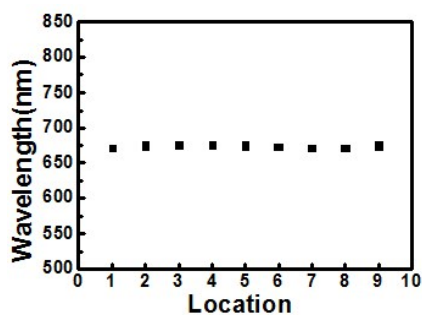


Fig. S5 The reflex spectra for different positions of the resulting the PAm-co-PAA hydrogel-incorporated RPC film.

5 Supplementary Tables

Table S1 Particle Recipes, diameters, and zeta potential results of the resulting PS colloids.

Sample	Diameter/nm	AIBA/g	SPM/g	Zeta /mV
Colloids (+)	210.5	0.04	/	+43.4
Colloids (-)	214.6	/	0.2	-42.4

Note. All reactions utilized: 4.5 g styrene.

Table S2 The component of products of B, C, D, displayed in the labels. Unit: mg/L

Water products	Ca ²⁺	Na ⁺	K ⁺	Mg ²⁺	H ₂ SiO ₃
B	25-100	10-40	1-5	15-70	4.5-9.5
C	8.0-25.6	5.5-19.5	1.5-6.5	6.6-22.9	25.0-49.3
D	≥4	≥0.80	≥0.35	≥0.50	≥1.80