Supporting Information

Photonic Crystal-Integrated Thermo-Responsive Smart Windows with Multicolor and Enhanced NIR Shielding

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This file includes Supporting Figure S1-S10, Supporting Table S1.
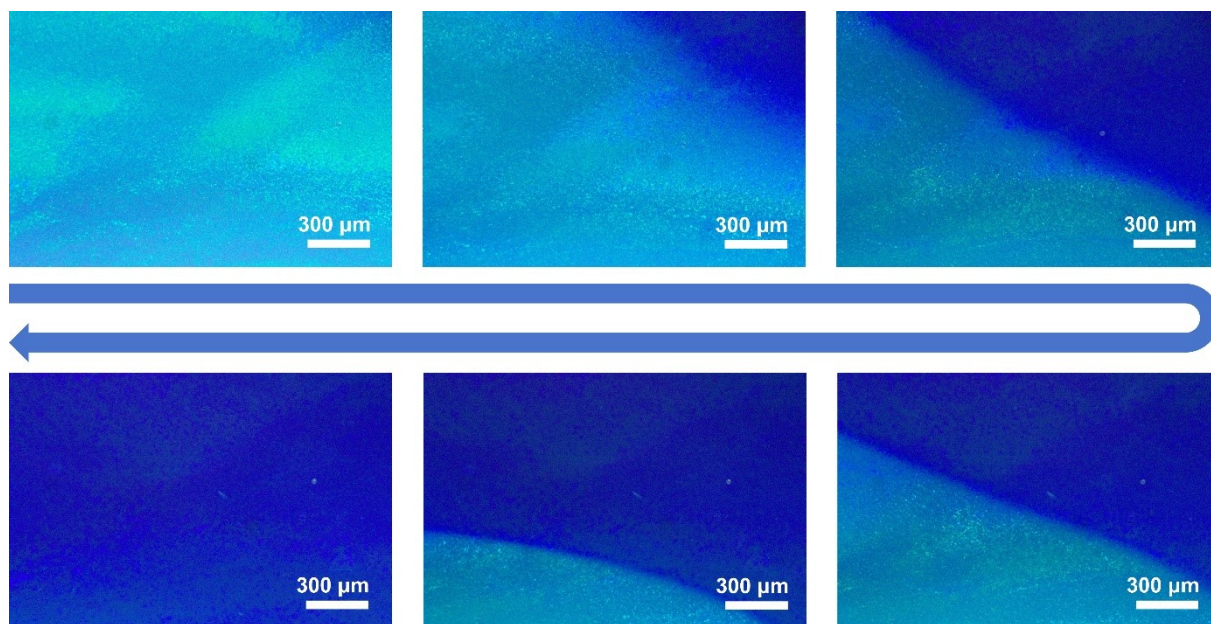
Supporting Figures
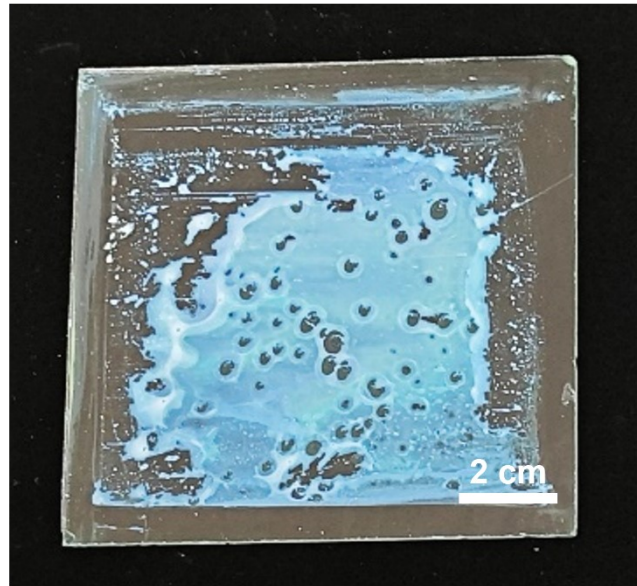

Figure S1. The self-assembly process of PS LCCs.

Figure S2. a) Digital image of 10 wt% PS microsphere dispersion. b) Digital image of photonic crystals assembled by 10 wt% PS microsphere dispersion.
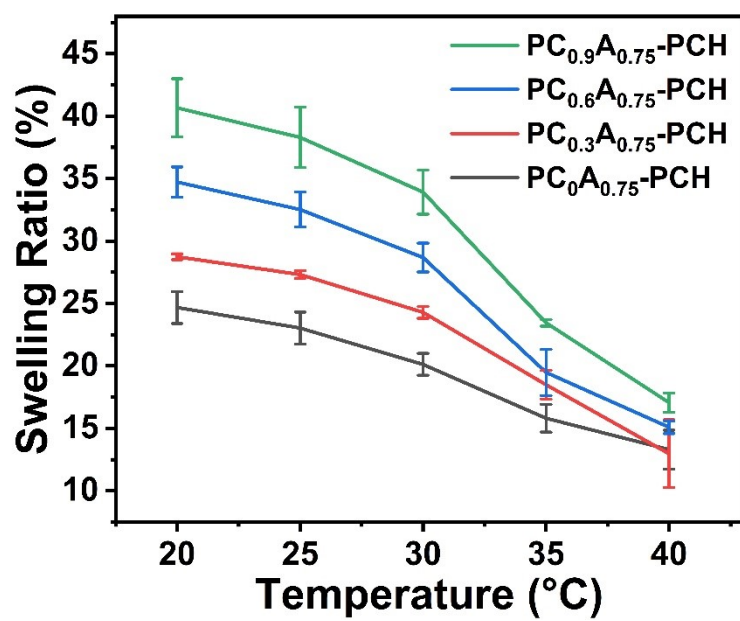
Figure S3. Equilibrium swelling ratio of PNIPAm/CMC/ATO-PCH at varying temperatures.
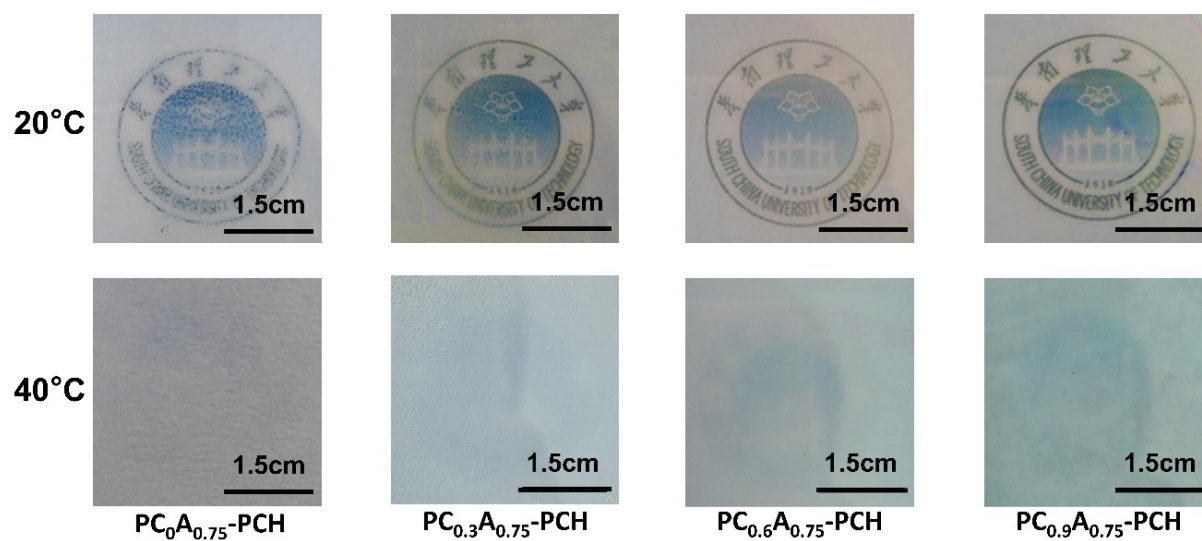
Figure S4. Digital images of PNIPAm/CMC/ATO-PCH at various temperatures.
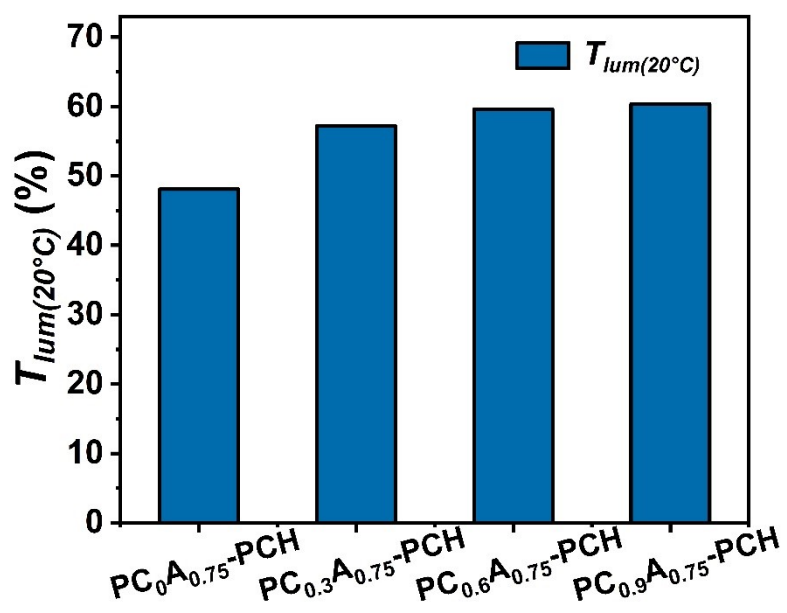
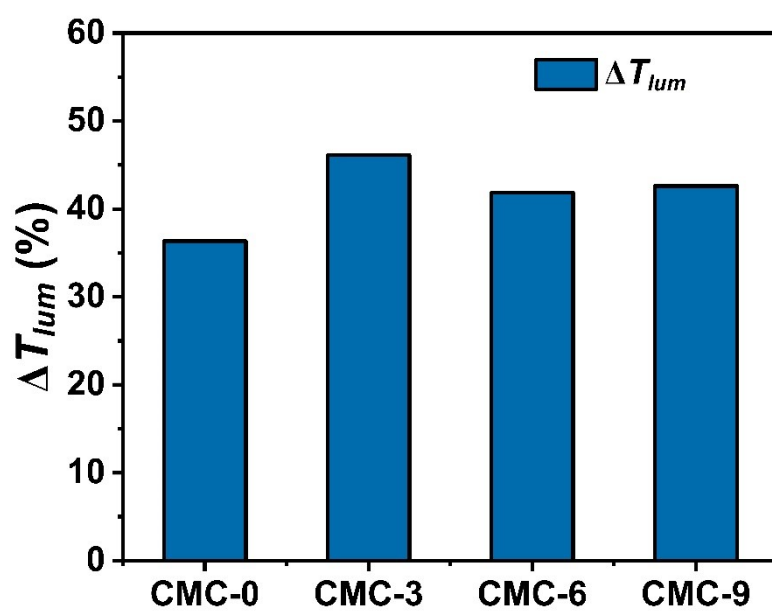**Figure S5.** Visible light transmittance of the PNIPAm/CMC/ATO-PCH at 20°C.

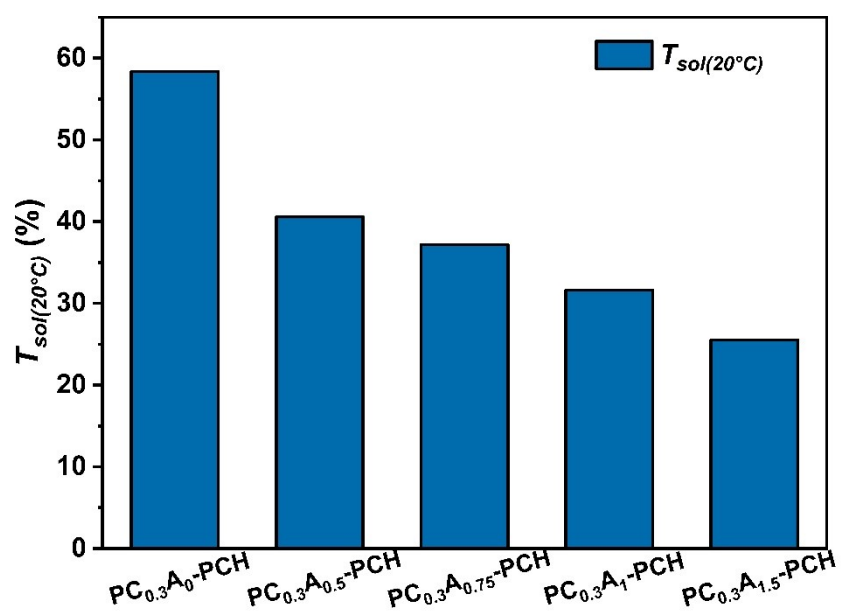**Figure S6.** Visible modulation performance of the PNIPAm/CMC/ATO-PCH.

Figure S7. Solar light transmittance of the PNIPAm/CMC/ATO-PCH at 20°C.

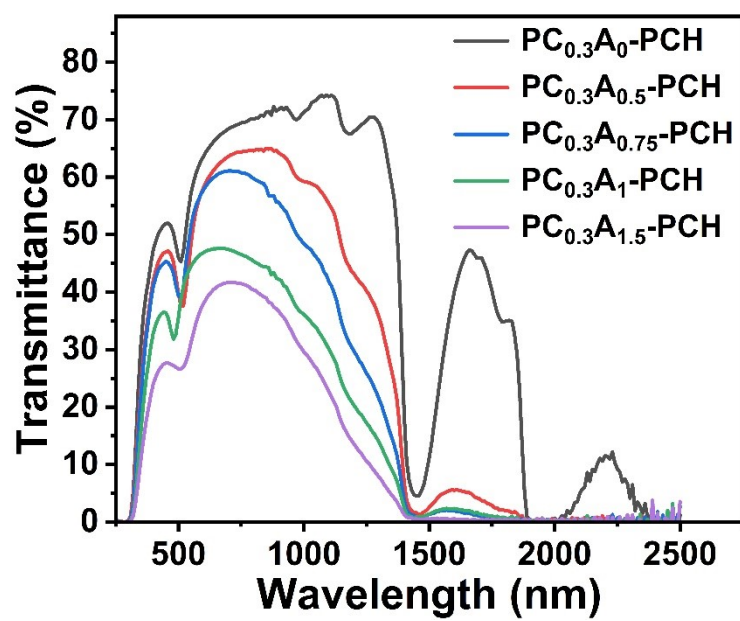**Figure S8.** UV–Vis-NIR spectra of the PNIPAm/CMC/ATO-PCH at 20°C.
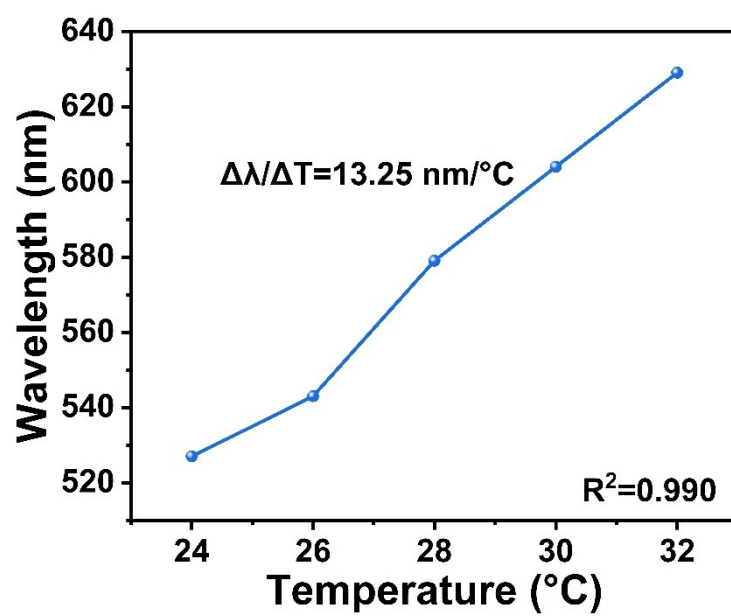
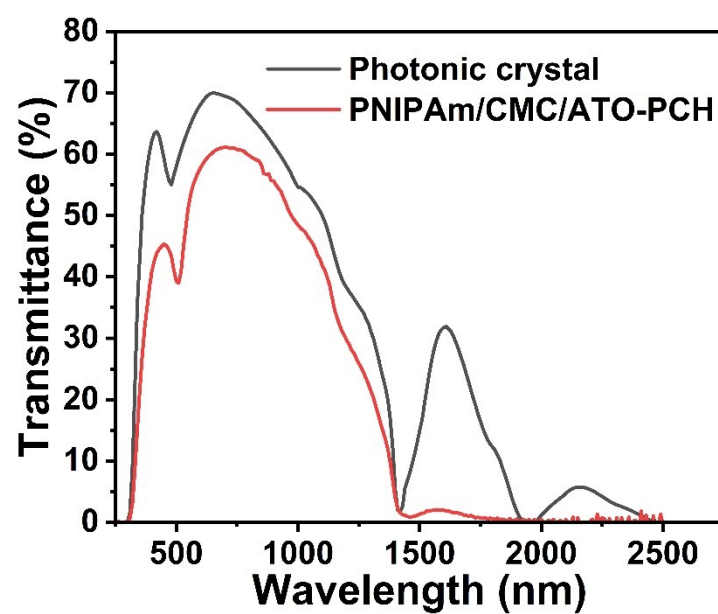**Figure S9.** Thermochromic sensitivity of the PNIPAm/CMC/ATO-PCH.

Figure S10. UV–Vis-NIR spectra of the Photonic crystal and the PNIPAm/CMC/ATO-PCH.

Supporting Tables

Table S1. The formulation for fabricating various PNIPAm/CMC/ATO-PCH.

Samples	NIPAm [g]	CMC [g]	BIS [g]	ATO (50 wt%) [g]	APS [g]	TEMED [μL]	H_2O [g]	Named
1	1	0	0.01	0.15	0.02	10	10	$PC_0A_{0.75}$-PCH
2	1	0.03	0.01	0.15	0.02	10	10	$PC_{0.3}A_{0.75}$-PCH
3	1	0.06	0.01	0.15	0.02	10	10	$PC_{0.6}A_{0.75}$-PCH
4	1	0.09	0.01	0.15	0.02	10	10	$PC_{0.9}A_{0.75}$-PCH
5	1	0.03	0.01	0	0.02	10	10	$PC_{0.3}A_0$-PCH
6	1	0.03	0.01	0.1	0.02	10	10	$PC_{0.3}A_{0.5}$-PCH
7	1	0.03	0.01	0.15	0.02	10	10	$PC_{0.3}A_{0.75}$-PCH
8	1	0.03	0.01	0.25	0.02	10	10	$PC_{0.3}A_1$-PCH
9	1	0.03	0.01	0.3	0.02	10	10	$PC_{0.3}A_{1.5}$-PCH