Supplementary Materials for

Energy-Efficient Smart Window Based on Thermochromic Microgel with Ultrahigh Visible Transparency and Infrared Transmittance Modulation

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Figures

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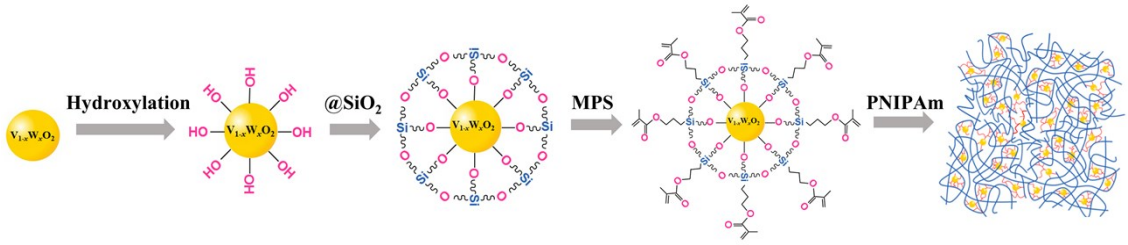
Supplementary Fig. 7 Visible light transmittance distribution at 550 nm for VSP after different exposure times at 20 ºC and 40 ºC, respectively.

Table

Supplementary Table 1. Summary of selected thermochromic performance (T_{lum} and ΔT_{sol}) showing previously reported the best results.

Supplementary Figures



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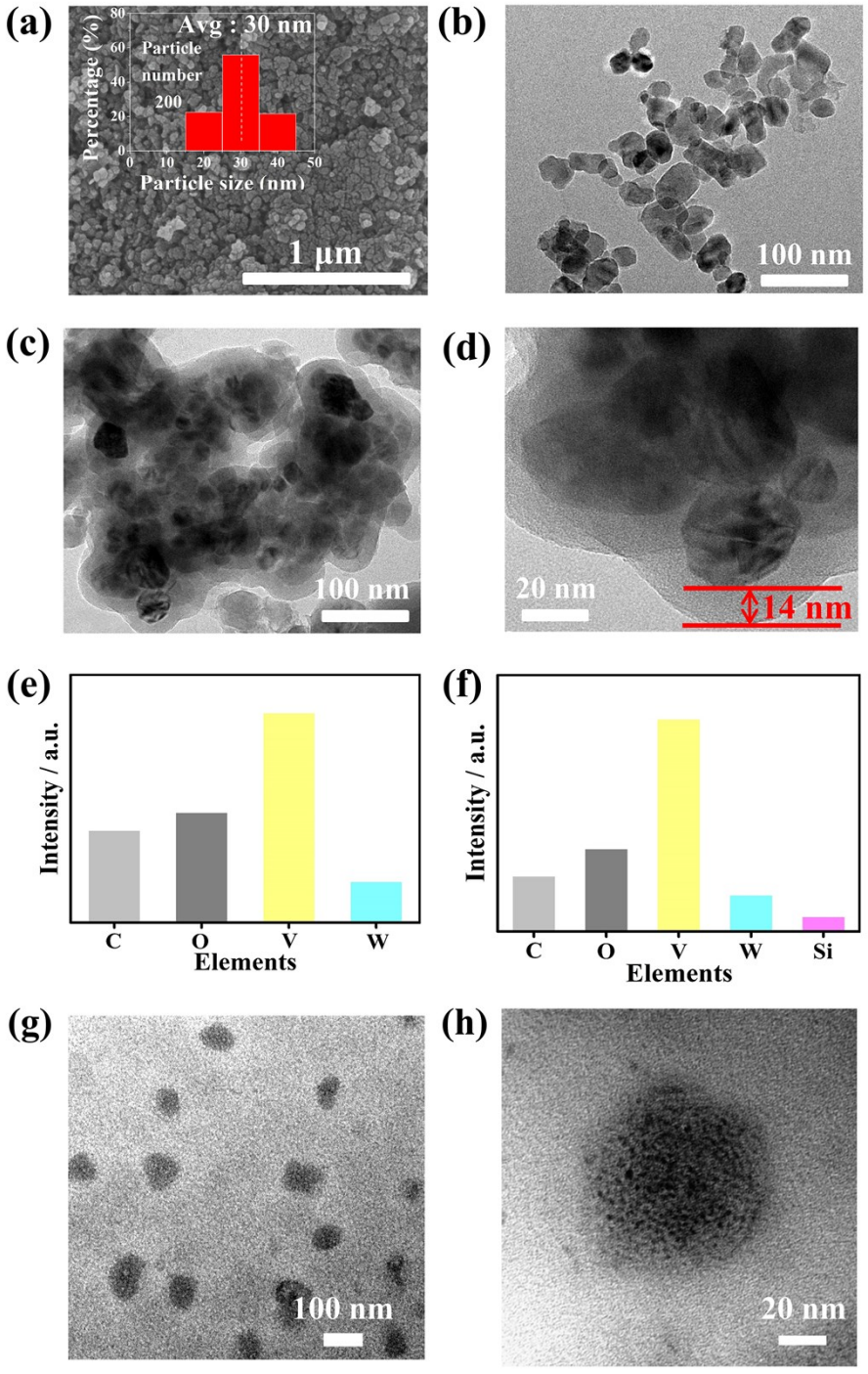

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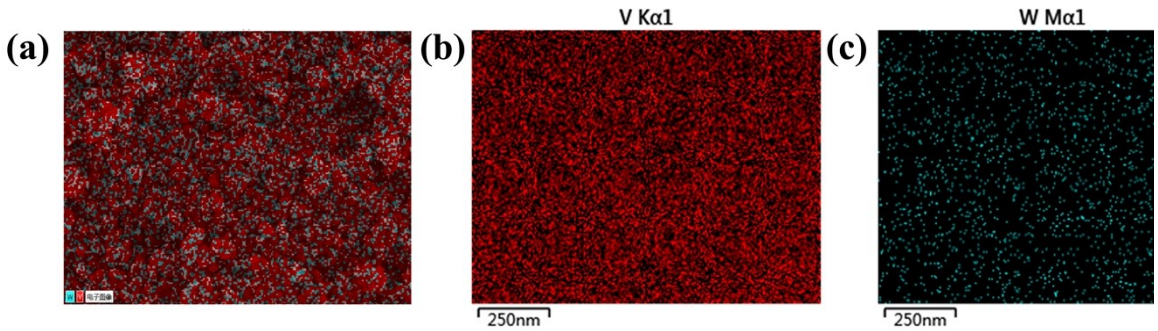
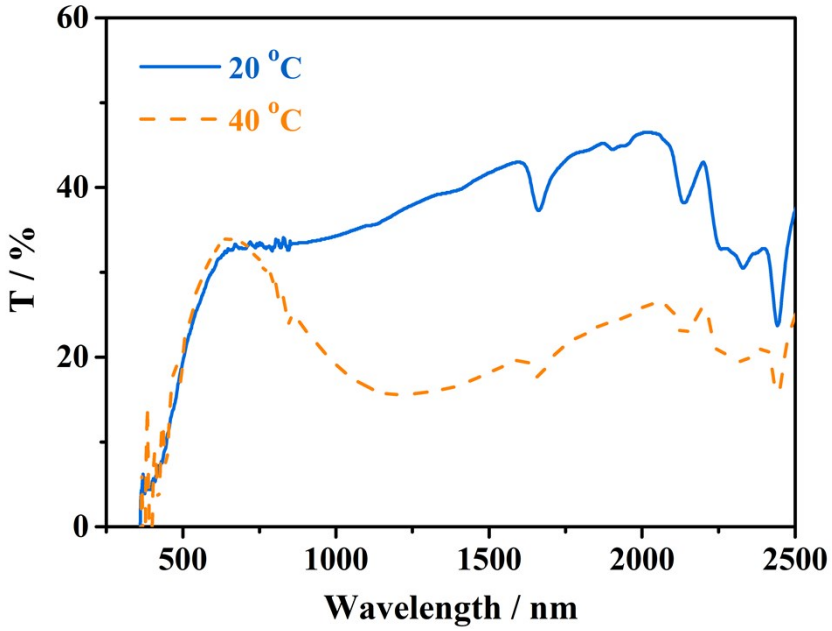
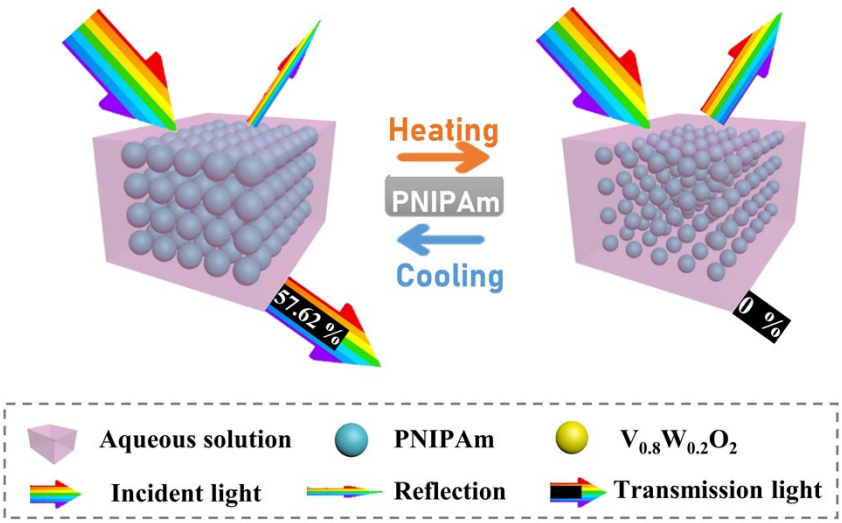


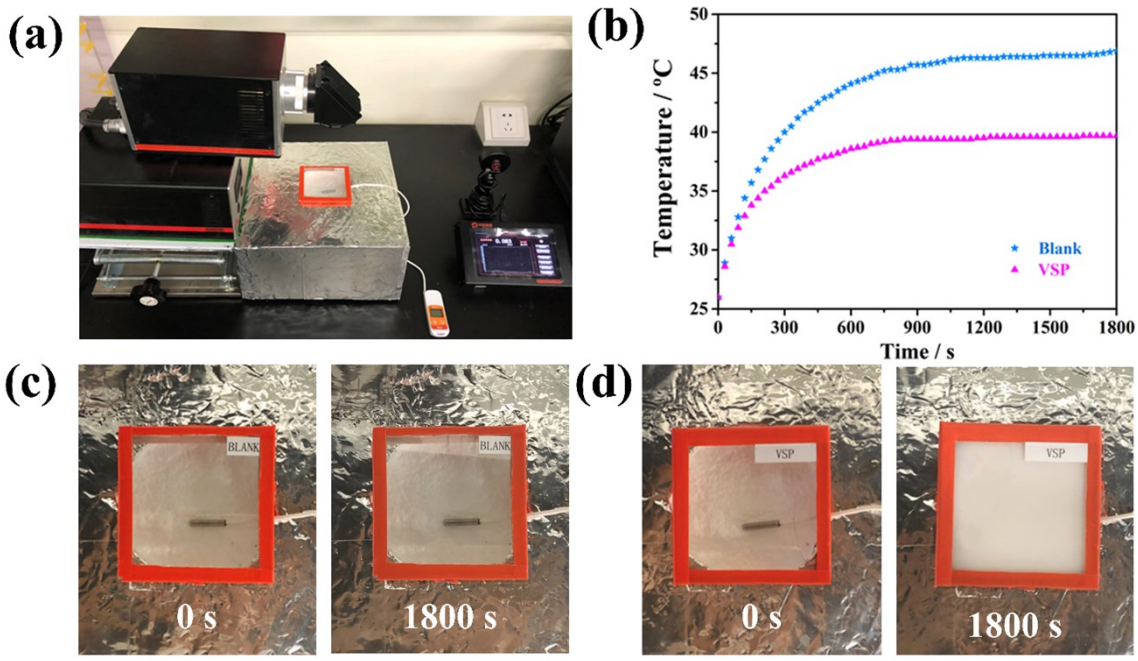
Supplementary Fig. 3 EDX mappings of $V_{0.8}W_{0.2}O_2$ NPs. (a) mixed, (b) V and (c) W elements.



Supplementary Fig. 4 Optical transmittance spectra of $V_{0.8}W_{0.2}O_2$/TPX in UV-visible-near-IR range



Supplementary Fig. 5 Thermochromic model and schematic diagram of PNIPAm, from left to right: PNIPAm-20 ºC, PNIPAm-40 ºC.



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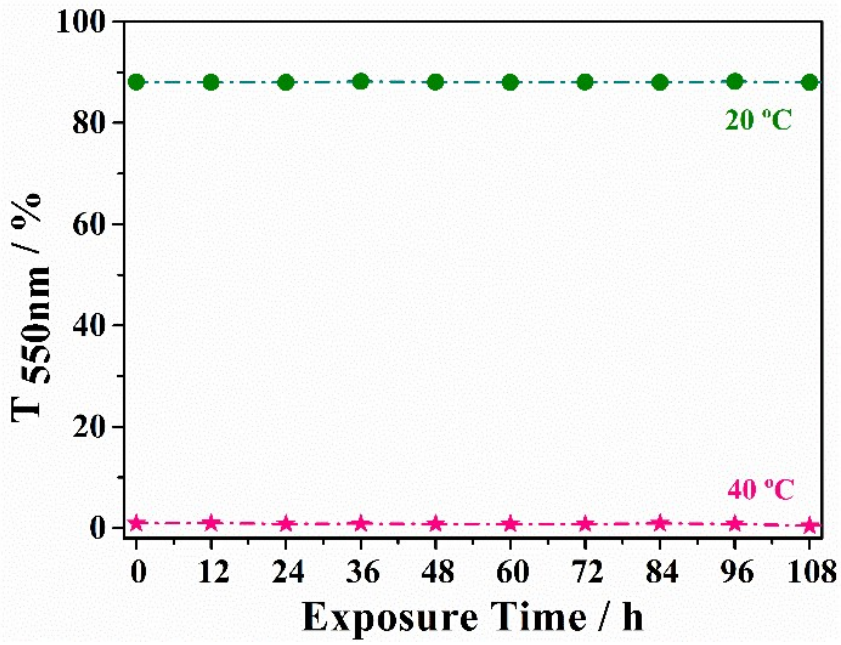

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Supplementary Table

Supplementary Table 1 Summary of selected thermochromic performance (T_{lum} and ΔT_{sol}) showing previously reported the best results.

Preparation Method	Structure	T_{lum} (%)	ΔT_{sol} (%)	Ref.
Element Doping	doping 1.1% Ti	53	17.2	Chen et al., 2013[1]
	doping 8.5% Zr+0.6% W	56.4	12.3	Shen et al., 2014[2]
	doping 9.8% Zr	60.4	14.1	Shen et al., 2014[2]
	doping 4% Mg+2% W	81.3	4.3	Wang et al., 2015[3]
	doping 4% Tb	65.9	4.6	Wang et al., 2016[4]
	H_xVO_2	70.8	26.5	Chen et al., 2019[5]
	W-doped VO_2(M)	55.0	18.0	Kim et al., 2021[6]
Nanocomposites	VO_2+SiO_2	55.3	7.5	Gao et al., 2012[7]
	PNIPAm+VO_2	62.6	34.7	Zhou et al., 2015[8]
	CLETS+VO_2	59.2	20.8	Zhu et al., 2016[9]
	NLETS+VO_2	71.0	18.2	Zhu et al., 2016[10]
	HPC+doped VO_2	56.0	36.0	Yang et al., 2017[11]
	PMMA+VO_2	50.0	17.0	Zhao et al., 2020[12]
	VO_2+TTWF	50.5	3.4	Liu et al., 2021[13]
Porous	Incorporating removable additive	43.3	14.1	Kang et al., 2011[14]
	Sintering in CO_2 atmosphere	35.9	2.2	Wang et al., 2013[15]
	Crystallised mesoporous	62.0	14.6	Zhang et al.2014[16]
	freeze-drying	50.0	14.7	Cao et al., 2014[17]
Grid	Mesh printing	43.3	14.9	Lu et al., 2016[18]
	electrodeposition	38.4	13.9	Liu et al., 2016[19]
	Modified nanosphere lithography	46	13.2	Ke et al., 2017[20]
	Scalable blade-coating	57.3	13.8	Shen et al., 2019[21]

Continued Supplementary Table 1

Preparation Method	Structure	T_{lum} (%)	ΔT_{sol} (%)	Ref.
Multilayer	$TiO_2/VO_2/SiO_2$	61.5	6.9	Chen et al., 2011[22]
	TiO_2/VO_2/FTO	44	8.8	Zhang et al., 2011[23]
	Si-Al/VO_2/ITO	62.3	4.0	Liu et al., 2013[24]
	CeO_2/VO_2	67.5	5.4	Koo et al., 2014[25]
	$TiO_2/VO_2/TiO_2$	30.1	10.2	Zheng et al., 2015[26]
	TEOS/VO_2	52.7	16.4	Liu et al., 2017[27]
	VO_2/PVA-PDMS	60.0	11.5	Ke et al., 2020[28]
	VO_2/ITO(S)/ITO(A)/graphene/PET	52.44	9.95	Lee et al., 2021[29]

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