Electronic Supplementary Material (ESI)

Surfactant-Controlled Crystallization of WO_3 films

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Table S1. Results obtained from the Rietveld refinement of the compounds under study.

SAMPLE	**570^{0}C**		**585^{0}C**	
Phase	**monoclinic-WO_3**	**orthorhombic-WO_3**	**monoclinic-WO_3**	**orthorhombic-WO_3**
Space group	$P2_1/n$ (14)	*Pmnb* (62)	$P2_1/n$ (14)	*Pmnb* (62)
Lattice parameters (Å)	*a*=7.233(4) *b*=7.497(5) *c*=7.270(4) *β*=91.12(2)°	*a*=7.186(5) *b*=7.332(4) *c*=7.623(4)	*a*=7.211(3) *b*=7.685(4) *c*=7.255(4) *β*=91.45(2)°	*a*=7.241(4) *b*=7.372(2) *c*=7.563(2)
Preferred orientation parameter (direction [200])	1.1(2)	-0.06(4)	3.1(3)	0.08(4)
Cell volume (Å ^{3})	394.2(3)	401.8(4)	401.9(2)	403.8(2)
Average isotropic apparent crystallite size (nm)	10.7	7.1	18.6	7.9
Phase composition (wt %)	16.9(5)	83.1(4)	4.1(5)	95.9(4)
R_{wp} (%)	10.2		6.1	
Goodness of fit (χ^2)	5.26		3.26	

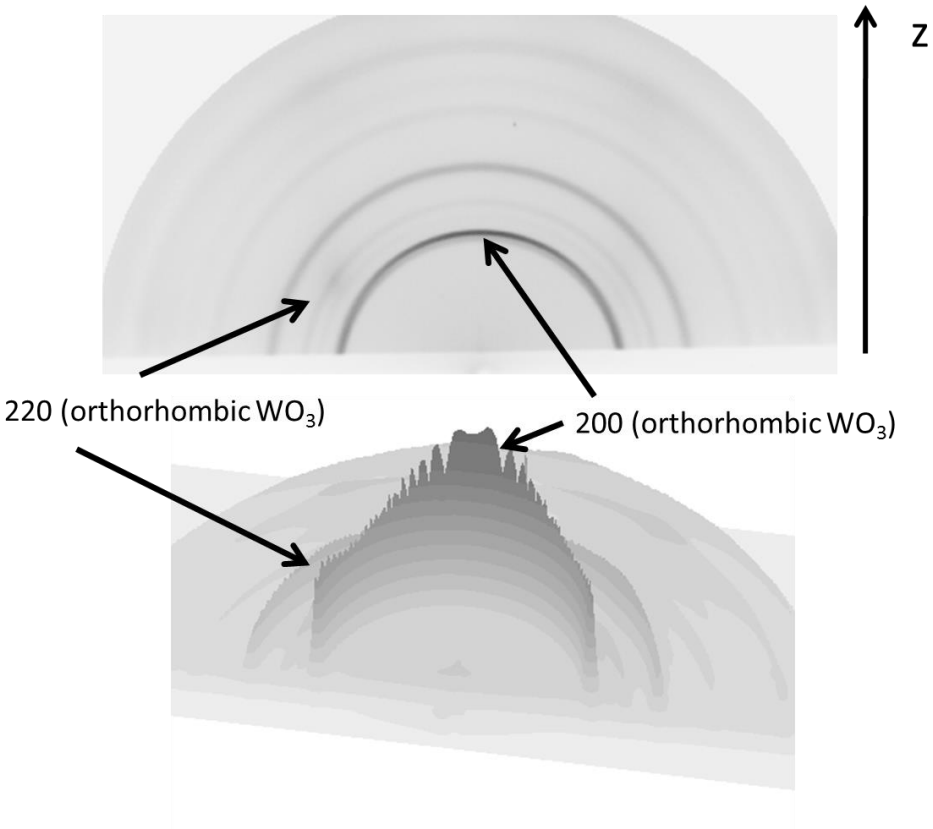

Fig. S1 2D XRD data, taken in grazing incidence geometry, on a WO_3 film treat at 575 °C. The bottom figure (linear scale for the intensity) represents the height profile of the upper 2D XRD data. The oscillating maxima seen in the bottom file are an artefact generated by the evaluation software and do not correspond to real scattering maxima.

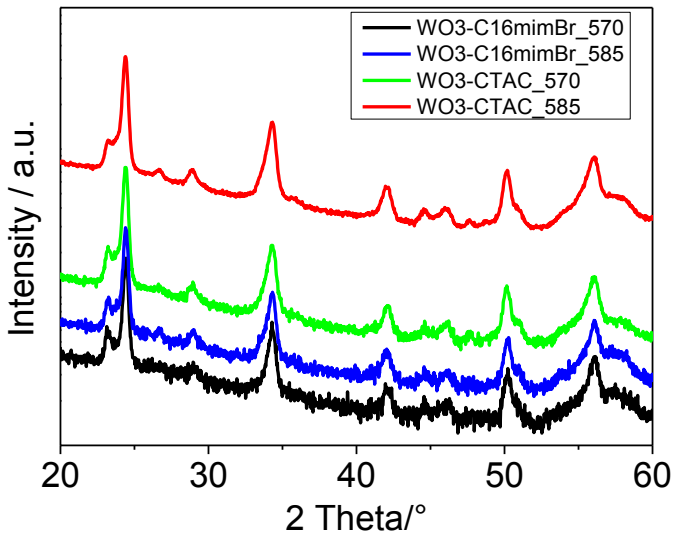

Fig. S2: XRD pattern of thin WO_3 films prepared using CTAC as surfactant, as well as C16mimBr, both treated at 570°C and 585°C. It is seen that the crystallographic orientation is less pronounced for all these samples compared to WO_3 films prepared using C_{16}mimCl under otherwise identical conditions.

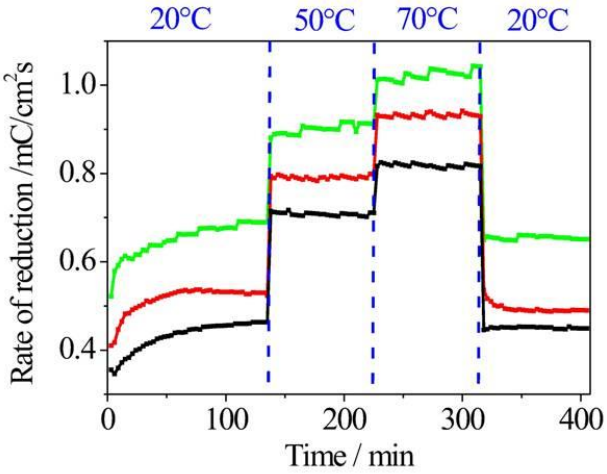

Fig. S3. Temperature- and time dependence of the rate of reduction of WO_3-films annealed at 560°C (red curve, film a), 570°C (green curve, film b) and 585°C (black curve, film c).