Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A

Hierarchically Porous Tungsten Oxide Nanotubes with Crystalline Walls Made of the Metastable Orthorhombic Polymorph†

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Supplementary Information

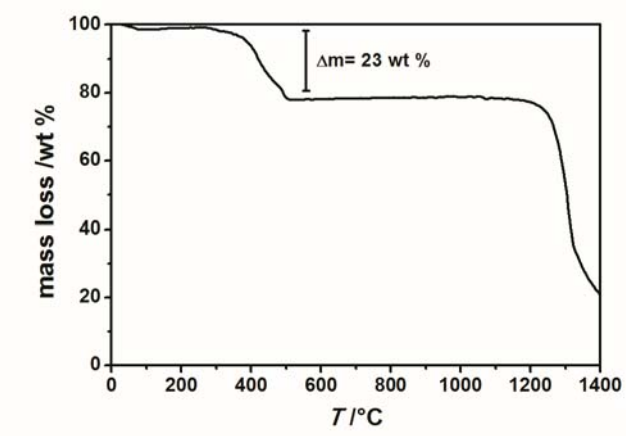

Fig. SI 1 Thermogravimetric analysis of PB-*b*-P2VP/AMT hybrid material from 25 to 1400 °C in dynamic air (heating rate 3 °C min^{-1}).

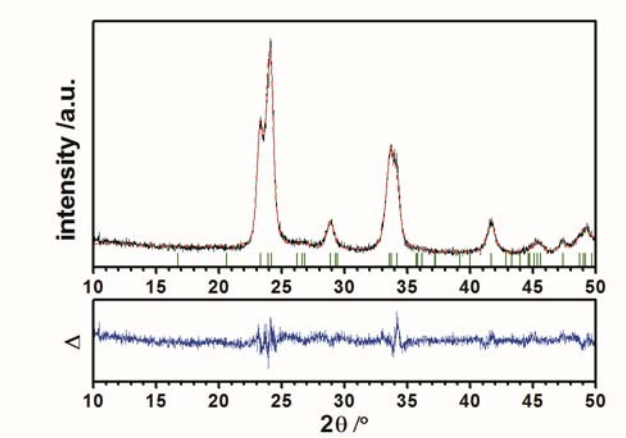

Fig. SI 2 XRD data (black), calculated Rietveld refinement (red), and difference pattern (blue) for tungsten oxide nanotubes. Tick marks (green) indicate calculated peak positions of orthorhombic WO_3.

Table S1 Refinement parameters for tungsten oxide nanotubes

Space group	Pmnb
R(wp)	9.025
R(p)	6.822
R(bragg)	1.094
Cell constants [Å]:	
a	7.436 (14)
b	7.506 (14)
c	7.706 (12)
Zero point correction:	0.25 (18)

Isotropic temperature factors have not been refined.

Table S2 Refined atomic parameters and interatomic distances [Å] of orthorhombic WO_3

Atom	x	y	z
W1	0.25	0.02322 (61)	0.01858 (64)
W2	0.25	0.0204 (10)	0.53060 (83)
O1	0	0	0
O2	0.5	0	0
O3	0	0	0.5
O4	0.5	0.5	0
O5	0.25	0.2692 (32)	0.0468 (82)
O6	0.25	0.2788 (38)	0.4541 (60)
O7	0.25	0.009 (16)	0.2620 (23)
O8	0.25	0.9591 (94)	0.7658 (24)

W1-O1	1.8726 (41)	W2-O3	1.8801 (41)
W1-O2	1.8726 (41)	W2-O4	1.8801 (41)
W1-O5	1.859 (31)	W2-O5	1.977 (38)
W1-O6	1.846 (36)	W2-O6	2.028 (35)
W1-O7	1.879 (23)	W2-O7	2.072 (21)
W1-O8	2.007 (31)	W2-O8	1.869 (26)

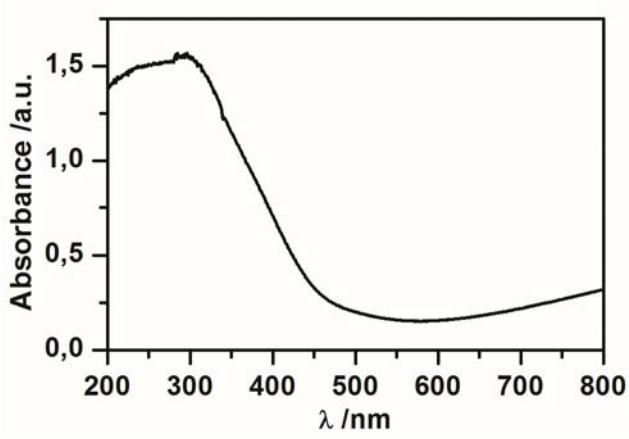

Fig. SI 3 UV-Vis absorption spectrum of tungsten oxide nanotubes.

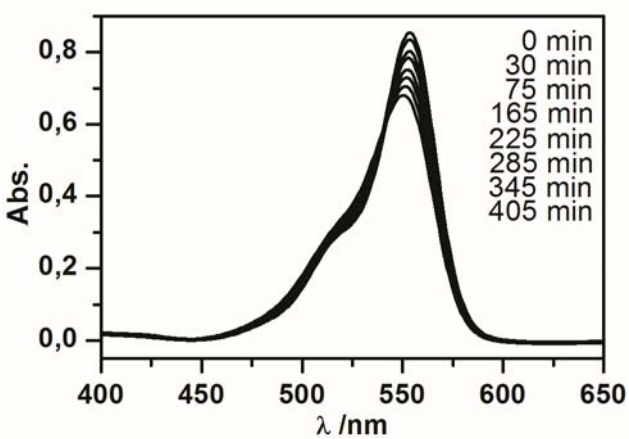

Fig. SI 4 UV-Vis absorption spectra of RhB solution as a function of irradiation time without tungsten oxide nanotubes.

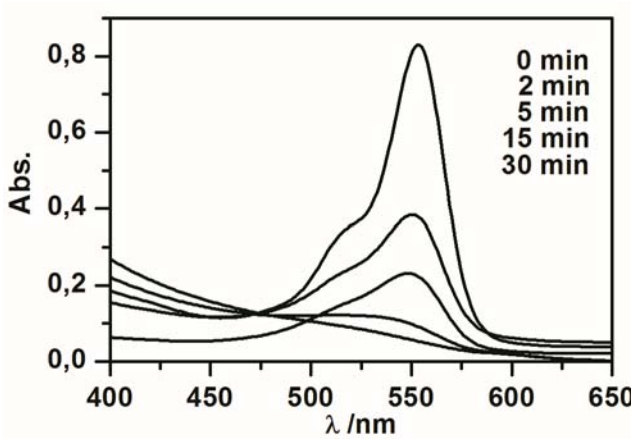

Fig. SI 5 UV-Vis absorption spectra of RhB solution as a function of irradiation time with commercial TiO_2 (P25, Evonik) photocatalyst.