

## Supporting information

**Table S1** Parameters of photoelectrochromic cells with CdS/TiO<sub>2</sub> as photoanode, 0.1 M Na<sub>2</sub>S electrolyte, under 1 sun illumination ( $\lambda > 300$  nm, 100 mW cm<sup>-2</sup>); with different counter electrodes.

Counter Electrode	V <sub>OC</sub> (V)	J <sub>SC</sub> (mA cm <sup>-2</sup> )	FF	$\eta$ (efficiency, %)
V <sub>2</sub> O <sub>5</sub> nanobelts	0.672	6.15	32.65	1.43
PEDOP	0.714	6.14	43.01	1.88
PEDOP/V <sub>2</sub> O <sub>5</sub> hybrid	0.611	7.21	48.79	1.44

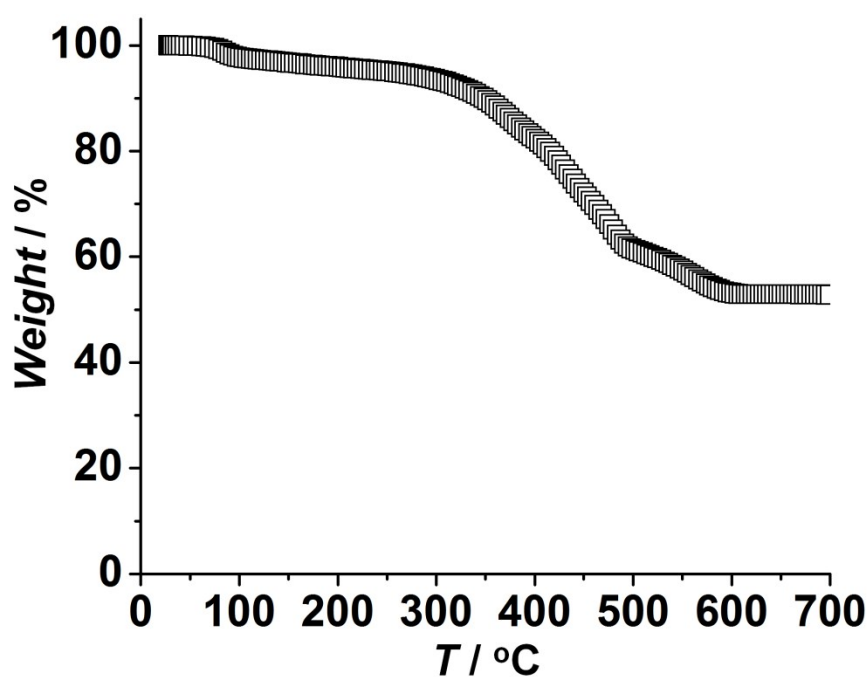


Figure S1. TGA plot of a PEDOP/V<sub>2</sub>O<sub>5</sub> hybrid.

From the TGA plot, the amount of PEDOP in the hybrid was deduced to be 46% by weight, and therefore the V<sub>2</sub>O<sub>5</sub> proportion is ~54% by weight.