Supporting information

Figure S1. SEM images of the composites structures of SnO$_2$ nanoparticles and tin titanate nanowires obtained by hydrothermal treatment of (a, b) 100mg, (c, d) 50mg and (e, f) no H-titanate nanowires in aqueous SnCl$_2$ precursor solution.

Figure S2. TEM images of anatase TiO$_2$ obtained by hydrothermal treatment of H-titanate nanowires without presence of SnCl$_2$ in the precursor solution.
Figure S3. XRD patterns of (a) anatase TiO$_2$ obtained by sintering H-titanate nanowire precursors at 800°C for 6h and (b) rutile SnO$_2$ and Sn-doped TiO$_2$ obtained by sintering tin titanate nanowires coupled with SnO$_2$ nanoparticles at 600°C for 6h.

Figure S4. XPS spectra of (a) SnO$_2$/tin titanate nanowires (200 mg H-titanate precursor) and (b) H-titanate nanowires.
Figure S5. N$_2$ adsorption-desorption isotherms of porous SnO$_2$ spheres (A) and SnO$_2$/tin titanate nanowires with different H-titanate nanowires introduced (B: 20 mg; C: 200 mg).