SUPPORTING INFORMATION



Figure 1S: Low-magnification TEM image of the reference nanocrystal materials:

s a) nanocrystals of commercial TiO₂ Degussa P25 powders; b) nearly spherical TiO₂ nanocrystals (*s*-NCs), synthesized by means of solvothermal route. 35



Figure 2S: Low and high magnification SEM images showing the morphology of a AR16-NRs-based ¹⁰ photoelectrode prepared by deposition of a screen-printable paste formulated according the conventional method. ¹²



Figure 3S: Low and high magnification SEM images showing the morphology of the sintered films prepared from P25 (a, b) and spherical TiO_2 nanocrystals, *s*-NCs, synthesized by means of a solvothermal route (c, d).³⁵



Figure 4S: Cross-section SEM images showing the morphology of the sintered films prepared from *AR4*-NRs (a), *AR8*-NRs (b), *AR16*-NRs (c), *B*-NRs (d) and *BB*-NRs (e).