Supporting Information

# Substrate Placement Angle-Dependent Growth of Dandelion-like $TiO_2$ Nanorods for Solid-State Semiconductor-Sensitized Solar Cells

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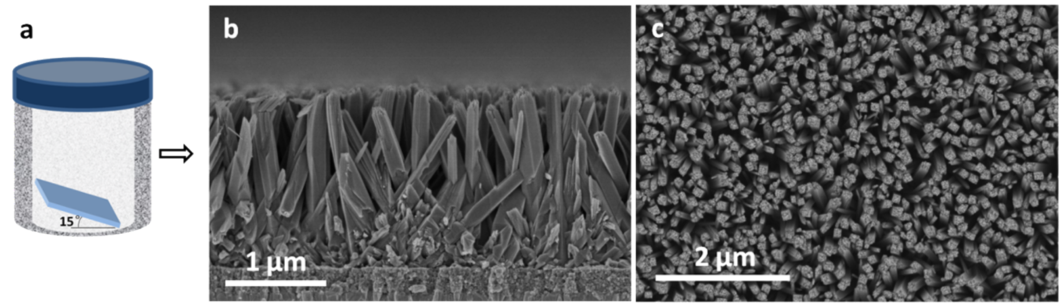


**Figure S1.** (a) Placement of substrates at an angle of 15 degrees with respect to the base of the autoclave. (b) Cross-sectional SEM image of $TiO_2$ NRs grown on FTO glass coated with $TiO_2$ nanoparticle layer at a substrate placement angle of 15 degrees (NR-$TiO_2$-FTO). (c) Top-view SEM image of NR-$TiO_2$-FTO.

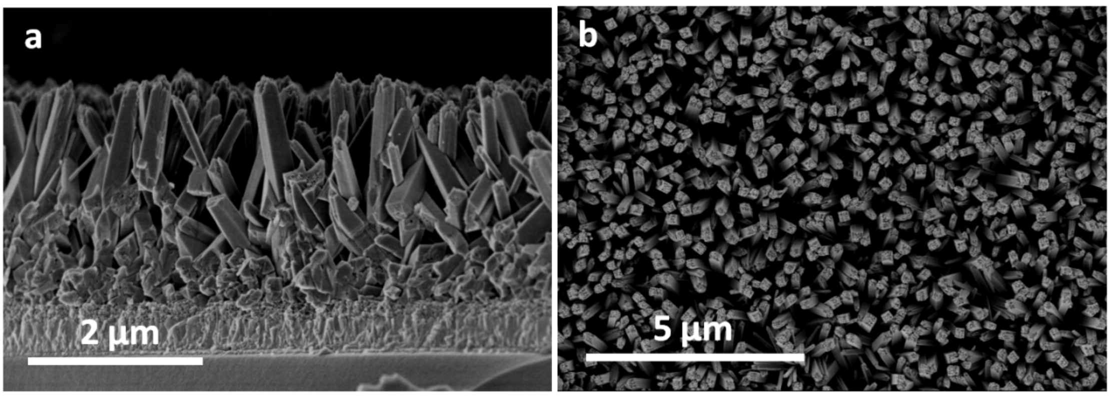


**Figure S2.** SEM images obtained by increasing the growth time to 8 hours using FTO glass coated with $TiO_2$ nanoparticle layer as substrate. The substrates placement angle is 15 degrees with respect to the base of the autoclave. The amount of titanium (IV) butoxide was slightly increased to 0.75 ml to insure there was always enough titanium (IV) butoxide during the growth duration. (a) Crose-ssional SEM image. (b) Top-view SEM image. The SEM images showed that, although the width and length of the nanorods almost doubled and fusion degree got more serious, there were no dandelion-like $TiO_2$ clusters observed in this occasion.

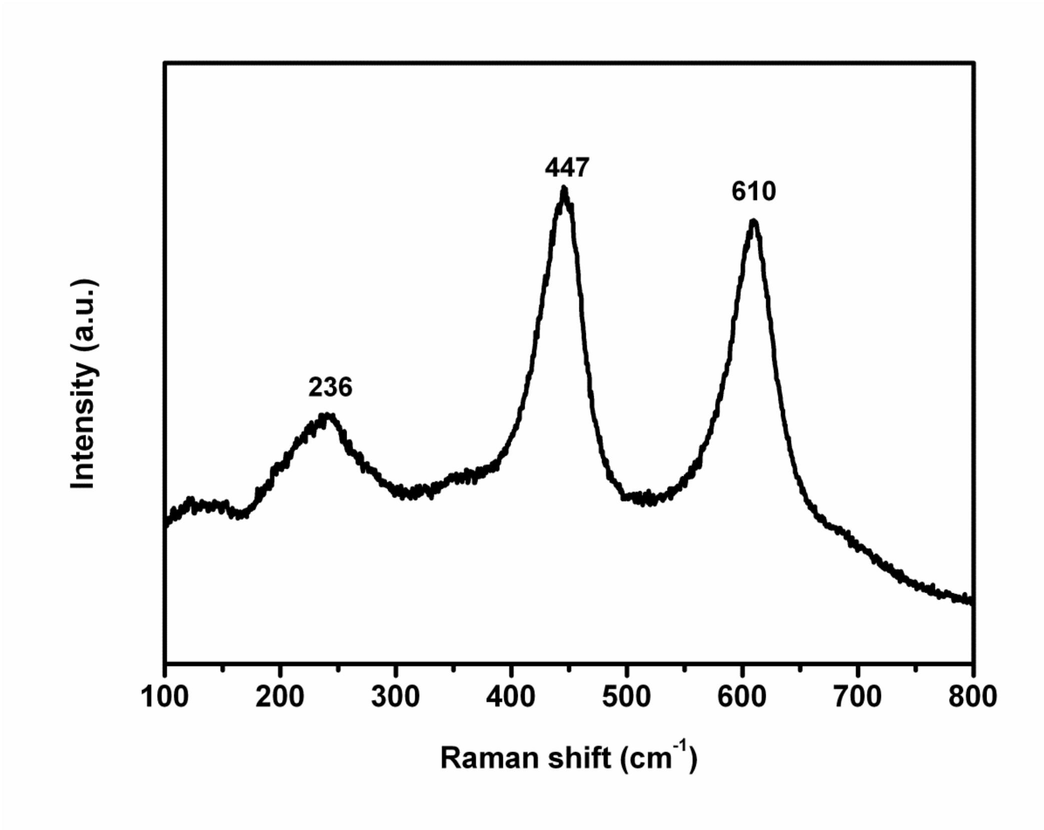


**Figure S3.** Raman spectrum of as-prepared dandelion-like $TiO_2$ NRs on bare FTO substrates.

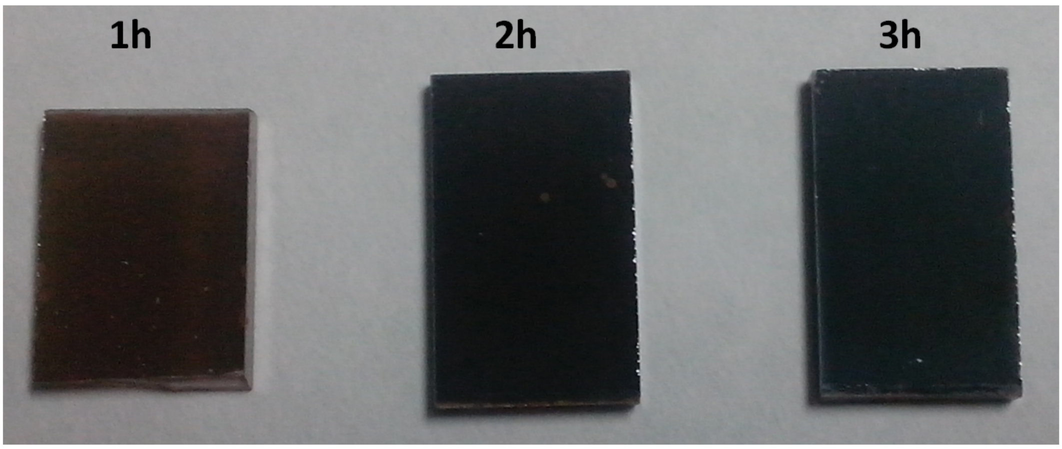


**Figure S4.** Digital pictures of $Sb_2S_3$-NR-FTO(1h), $Sb_2S_3$-NR-FTO(2h) and $Sb_2S_3$-NR-FTO(3h).

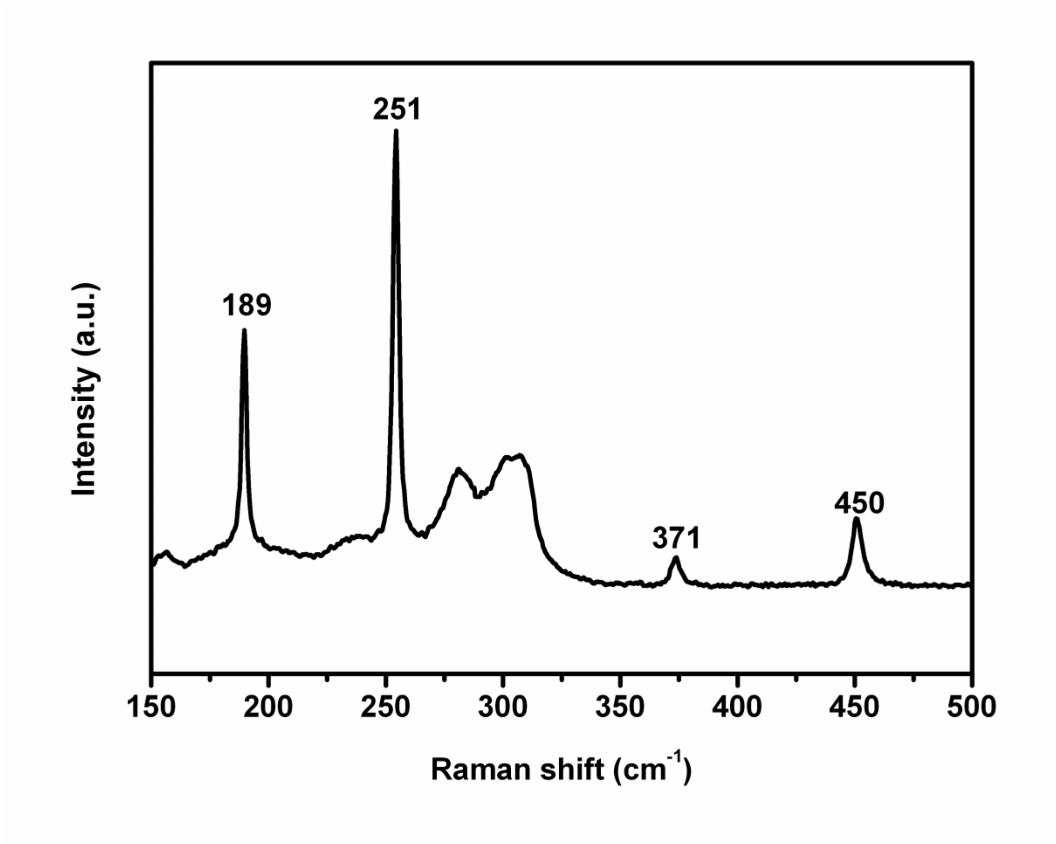


**Figure S5.** Raman spectrum of $Sb_2S_3$-NR-FTO(2h)

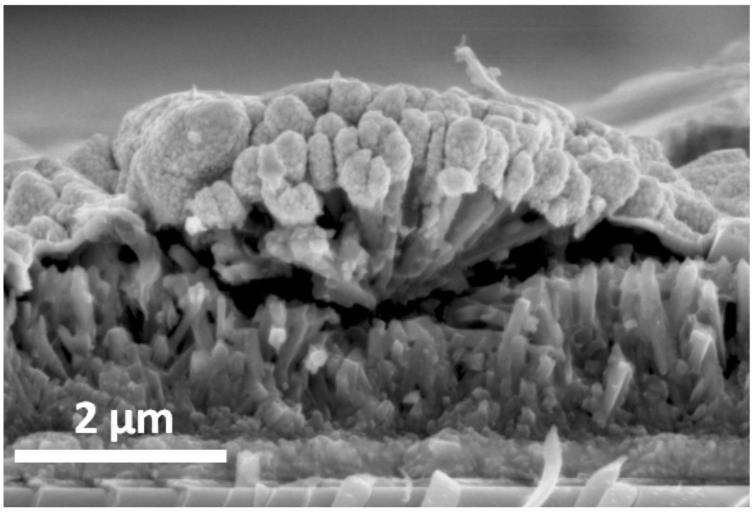


**Figure S6.** Cross-sectional SEM image of the photovoltaic device using $Sb_2S_3$-NR-FTO(2h).

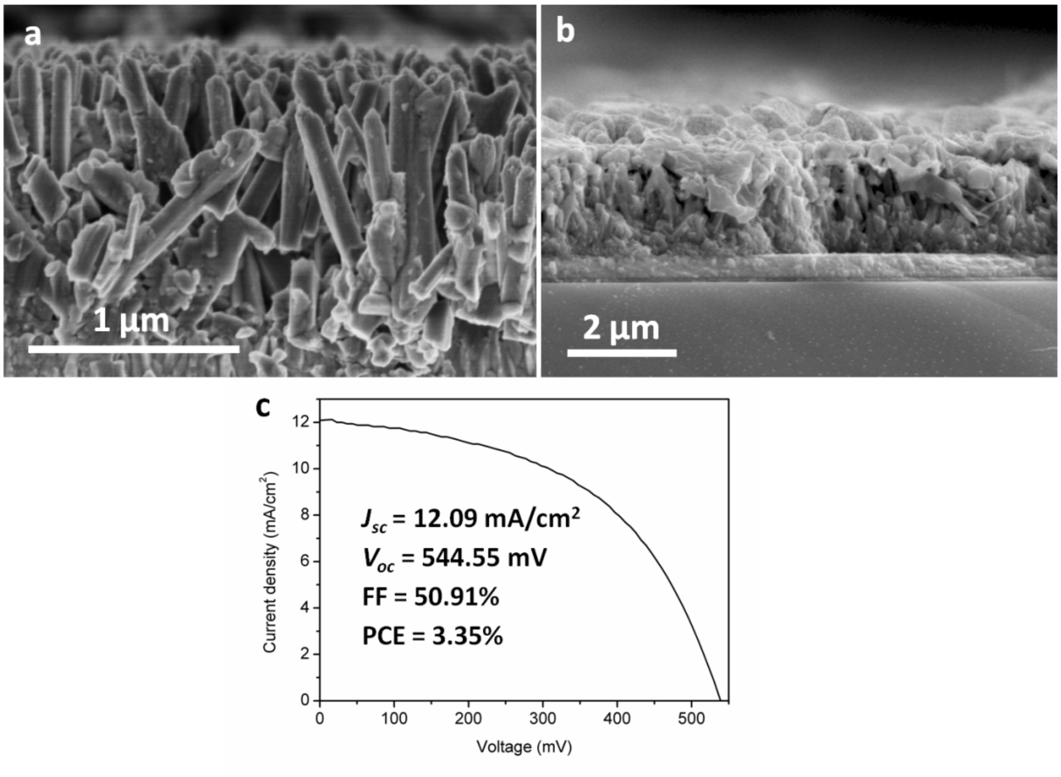


**Figure S7.** Data obtained via using $TiO_2$ NRs synthesized on bare FTO at placement angle of 15°. The $Sb_2S_3$ deposition time is 2 h. (a) Cross-sectional SEM image of $Sb_2S_3$-NR-FTO(2h). (b) Cross-sectional SEM image of the SSSC using $Sb_2S_3$-NR-FTO(2h). (c) *J*-*V* characteristics of such SSSC using $Sb_2S_3$-NR-FTO(2h).