

Supporting Information

A bilayer structure of titania nanoparticle/highly-ordered nanotube array for low-temperature dye-sensitized solar cells

Jianqiang Luo, Lian Gao, Jing Sun, Yangqiao Liu

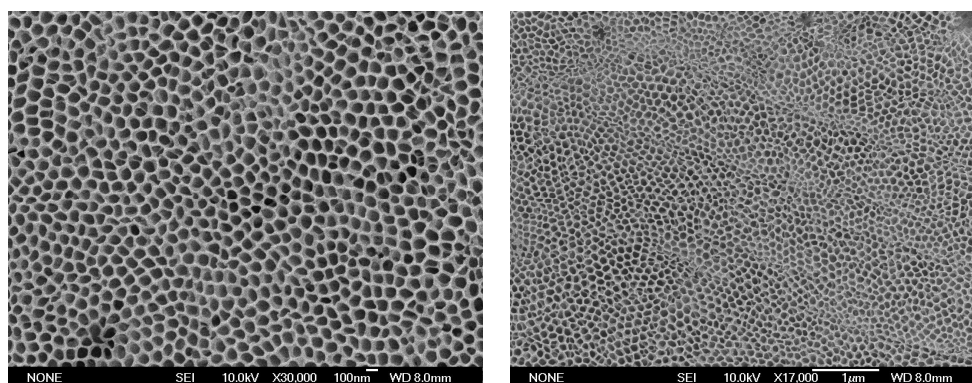


Fig. S1. Surface SEM images of second anodized Ti film under 60 V for 2 h after detached the first anodized layer by water immersion.

Fig. S1 shows that the surface structure of the second anodized TNT is different from the first anodized one. There is no disordered layer on and the nanotubes are tightly connected by sharing walls.

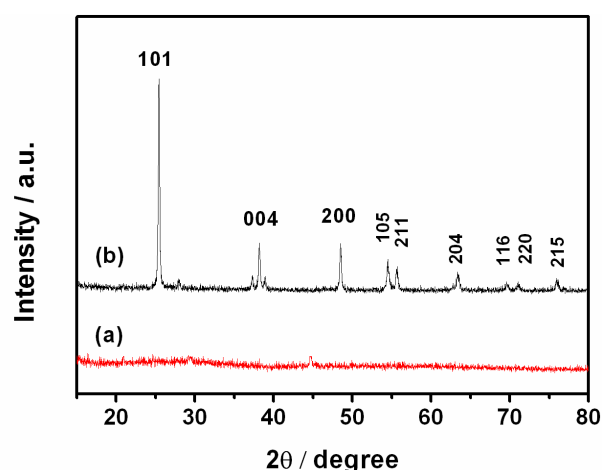


Fig. S2 XRD patterns of TNT arrays: (a) as-synthesized and (b) calcined at 450 °C.

Fig. S2 shows the XRD patterns of the nanotube arrays membrane before and after sintering at 450 °C for 30 min. After 450 °C treating for 30 min, the TNT became

anatase phase (JCPDS card No. 21-1272). The sharpness of the peaks shows that the titania was well crystallized.

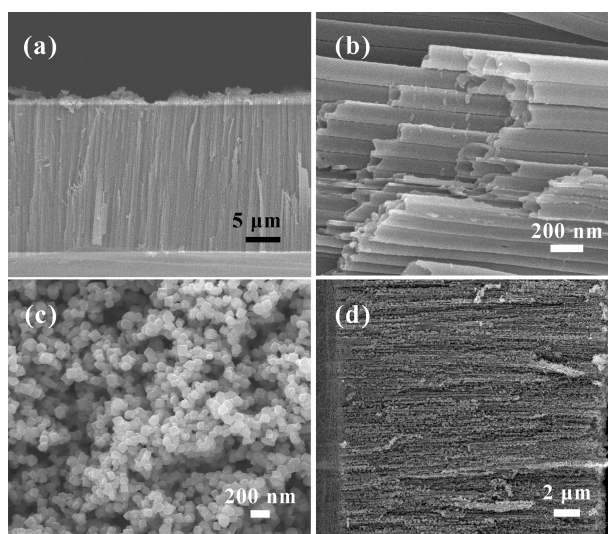


Fig. S3. SEM images of samples calcined at different temperature. (a) and (b) were calcined at 450 °C for 30 min. (c) and (d) were calcined at 500 °C for 30 min.

Fig. S3 shows the SEM morphology of the nanotube arrays sintered at 450 °C and 500 °C for 30 min.. It indicated that the nanotube array structure was remained after sintering at 450 °C. But when the temperature increased to 500 °C, the nanotube structure was destroyed.