Electronic Supplementary Information (ESI)

Growth, Detachment, and Transfer of Highly-ordered TiO_2 Nanotube Arrays: Use in Dye-sensitized Solar Cells

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Experimental

The prepared TiO_2 nanotube films (depend on cell size) were transferred onto FTO glass and two drops of 100 mM Ti-isoprosoxide in 2-propanol were subsequently applied onto the TiO_2 films to form interconnections between the FTO glass and the TiO_2 film (for this step, a little pressure increase the contact force between the FTO glass and the TiO_2 film during solvent evaporation).

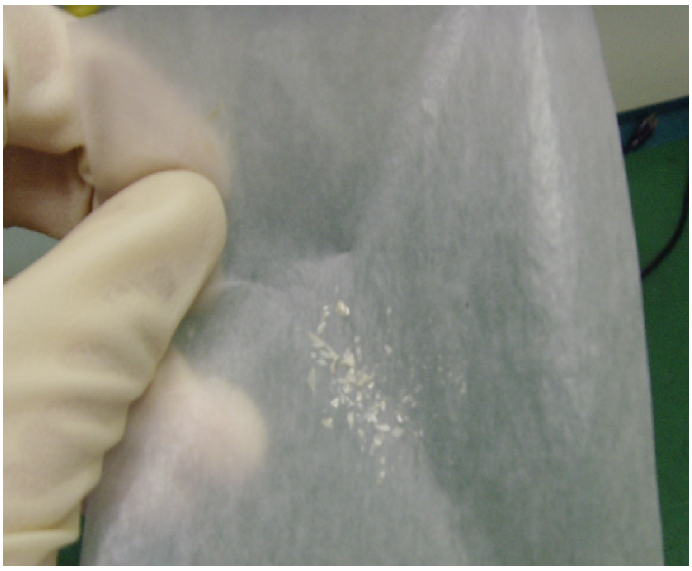

Figure S1. Photographic image of freestanding membrane after thermal annealing.

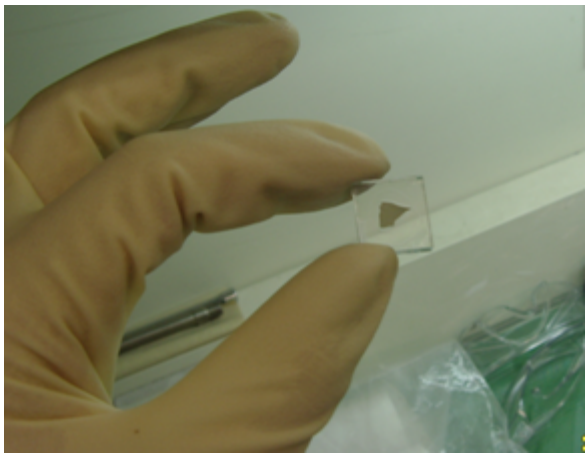

Figure S2. Photographic image of freestanding membrane (~ 35μm tube length) stuck to the FTO glass (before thermal annealing).

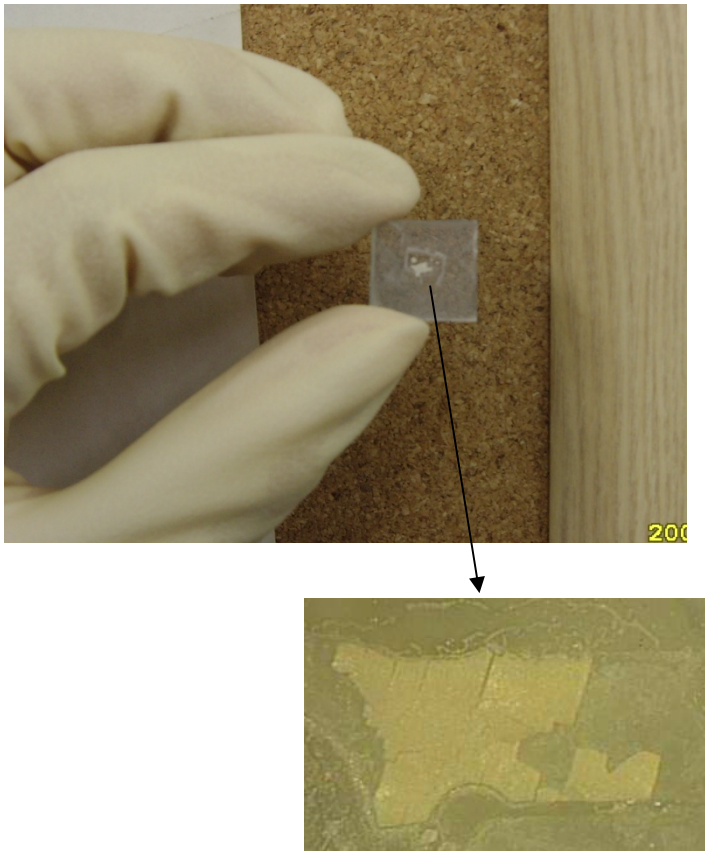

Figure S3. Photographic and microscope images of freestanding membrane (~ 35µm tube length) stuck to the FTO glass (after thermal annealing).

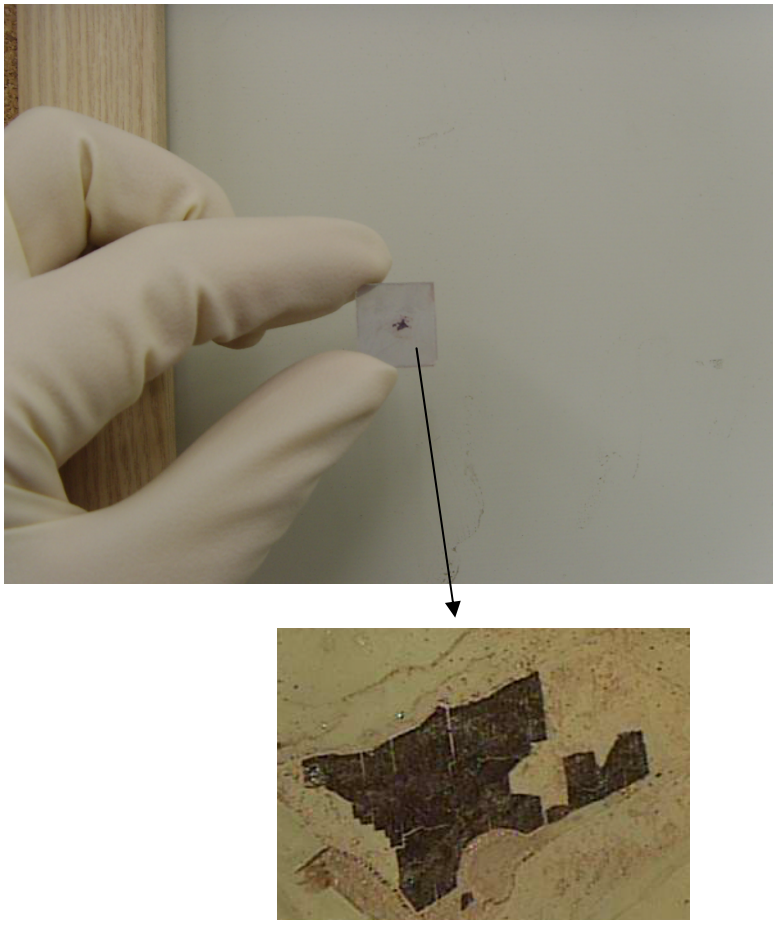

Figure S4. Photographic and microscope images of dye coated freestanding membrane (~ 35µm tube length) stuck to the FTO glass.

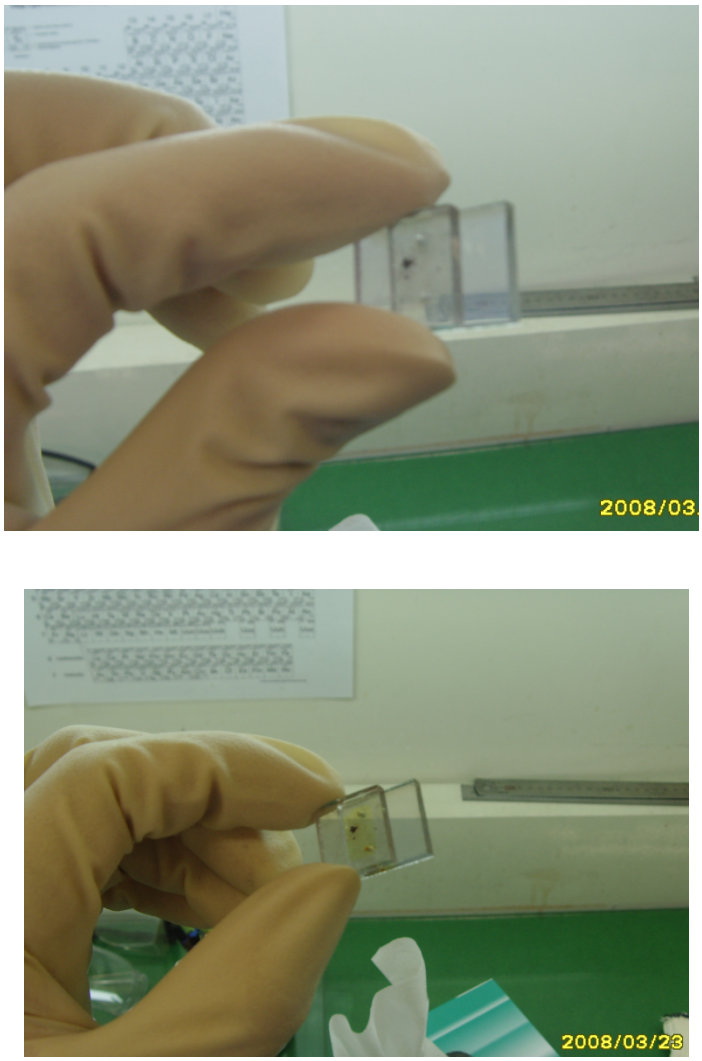

Figure S5. Photographic image of the final DSSC (before and after adding an electrolyte).

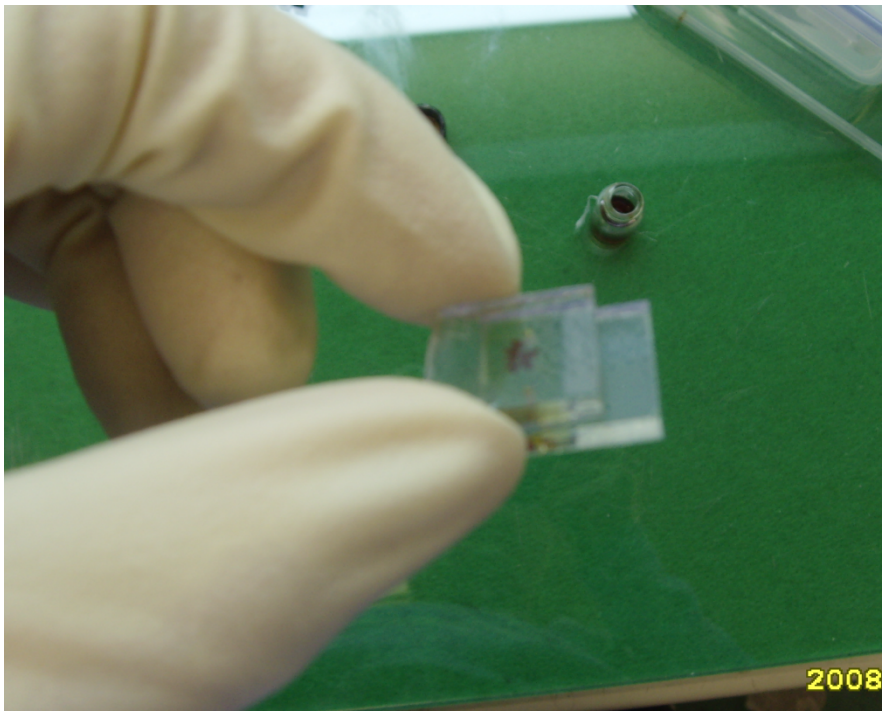

Figure S6. Photographic image of the final DSSC (~ 8µm tube length).

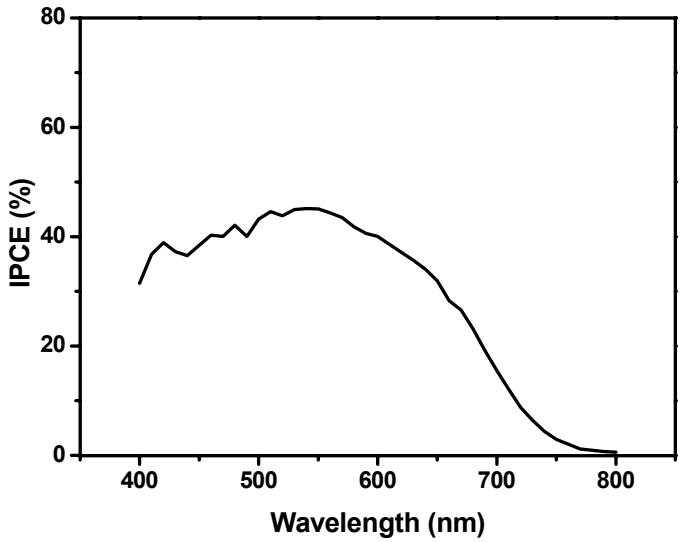

Figure S7. IPCE of a final DSSC (~ 8μm tube length). Because the cell area is smaller than the beam size (> 0.2 cm^2) of IPCE measurement equipment it is impossible to calculate absolute IPCE(%) values.