Supporting Information

Ta_2O_5 Nanotubes Obtained by Anodization: Effect of Thermal Treatment on the Photocatalytic Activity for Hydrogen Production

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Figure S1

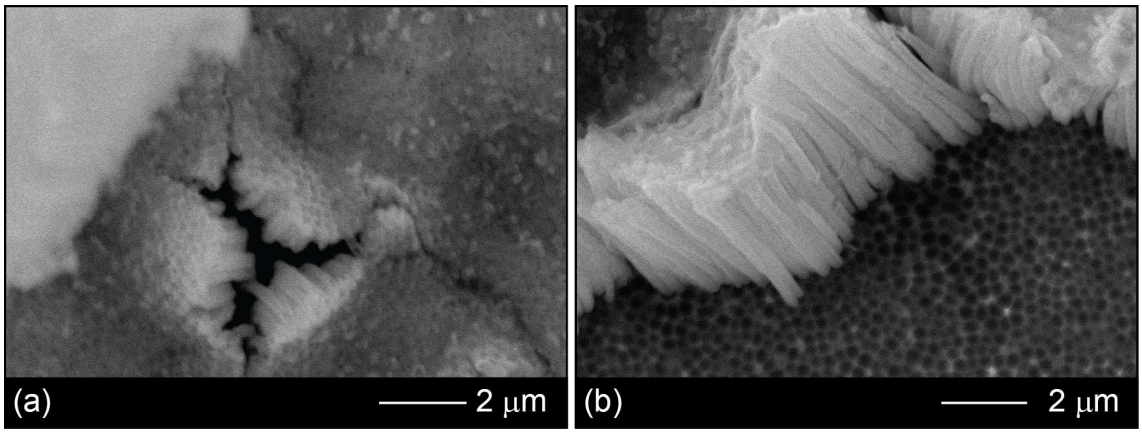

Figure S1. (a) SEM top-view and (b) cross-section images of Ta_2O_5 nanotubes anodized in H_2SO_4 + 1% HF + 4 % water (D.I) at 50 V for 20 min in room temperature.

Figure S2 show the cross-sectional SEM images of Ta_2O_5 NTs obtained after 20 min anodization at 50 V at different temperatures. At all electrolyte temperatures, Ta_2O_5 NTs were vertically oriented and self-organized.

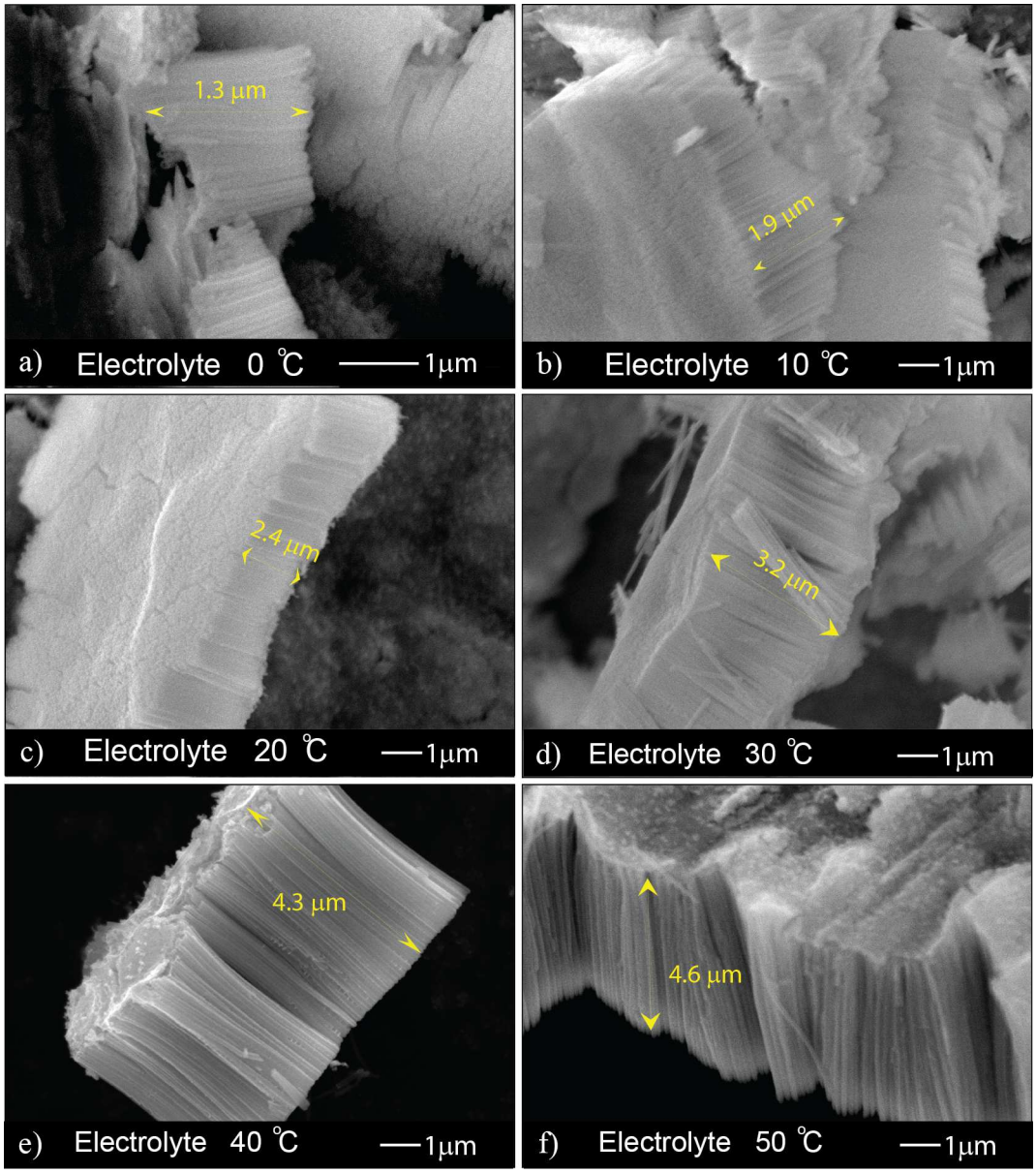

Figure S2. SEM cross-section images of Ta_2O_5 NTs prepared by anodization at 50 V with different electrolyte temperatures: (a) 0 °C, (b) 10 °C, (c) 20 °C, (d) 30 °C, (e) 40 °C and (f) 50 °C.

Table S1: Sulfur concentration percent measured by Energy Dispersive X-ray Spectroscopy (EDX) to compare the crystallization of the freestanding Ta_2O_5 NTs prepared at 50 ℃ anodization electrolyte after different annealing temperatures in Air atmosphere for 30 min.

Ta_2O_5 NTs	**Annealing temperature (℃)**	**Sulfur concentration (atom. %)**
Freestanding	550	6.0
	750	3.0
	800	1.4
	800[a]	>0.5

[a]The photocatalyst was annealed for 1 h at 800 ℃ in Air atmosphere