Supporting information

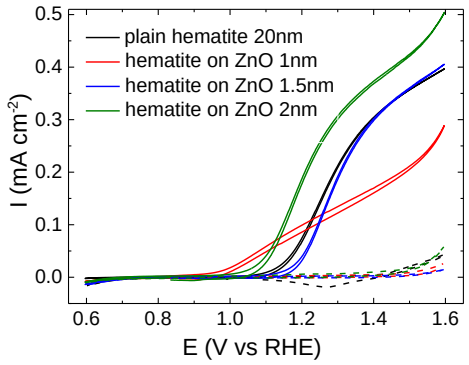

Figure 1: Cyclic voltammetry for glass/FTO/ZnO/hematite samples in dark (dashed lines) and upon light illumination (solid lines). 2 nm ZnO interlayer shows the best performance in terms of photocurrent density.

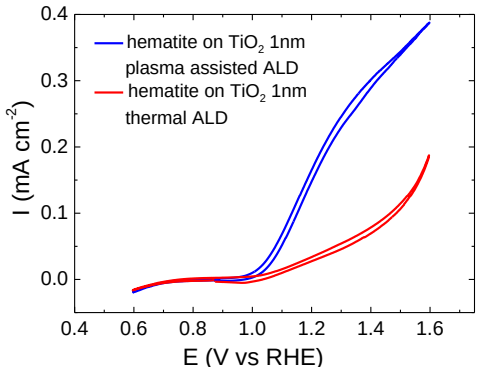

Figure 2: Cyclic voltammetry for glass/FTO/TiO_2/hematite samples. The photocurrent is compared for both thermal and plasma-assisted ALD deposited TiO_2 as a function of the applied potential.

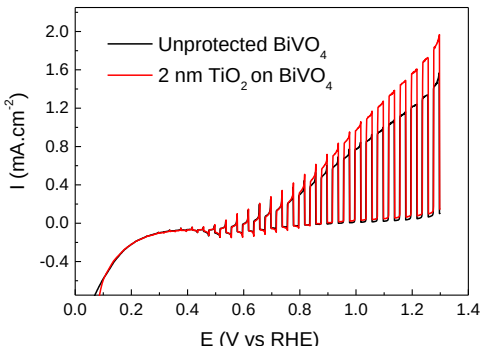

Figure 3: Linear sweep voltammetry with intermittent light irradiation of Ti/WO_3/$BiVO_4$ photoanodes. ALD grown TiO_2 of 2 nm acts as protective layer. Therefore an increase in the photocurrent density is obtained.

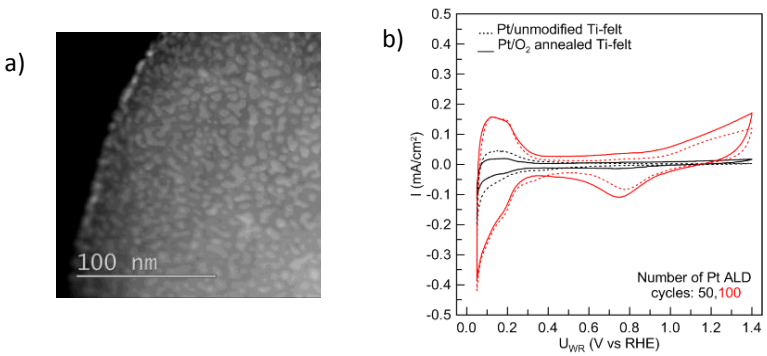

Figure 4: a) STEM image of Pt nanoparticles after 50 cycles on Ti felt. b) Cyclic voltammetry of Pt ALD 50 cycles (black) and 100 cycles (red) on Ti (dotted line) and TiO_2 (solid line).