## Supplementary Materials

# Effect of the Heterovalent $Sc^{3+}$ and $Nb^{5+}$ Doping on Photoelectrochemical Behavior of Anatase $TiO_2$.

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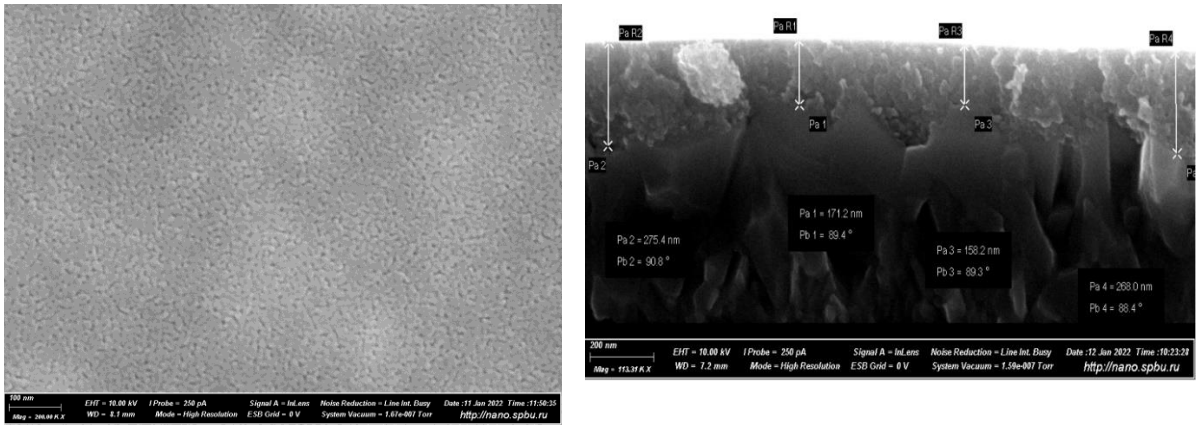
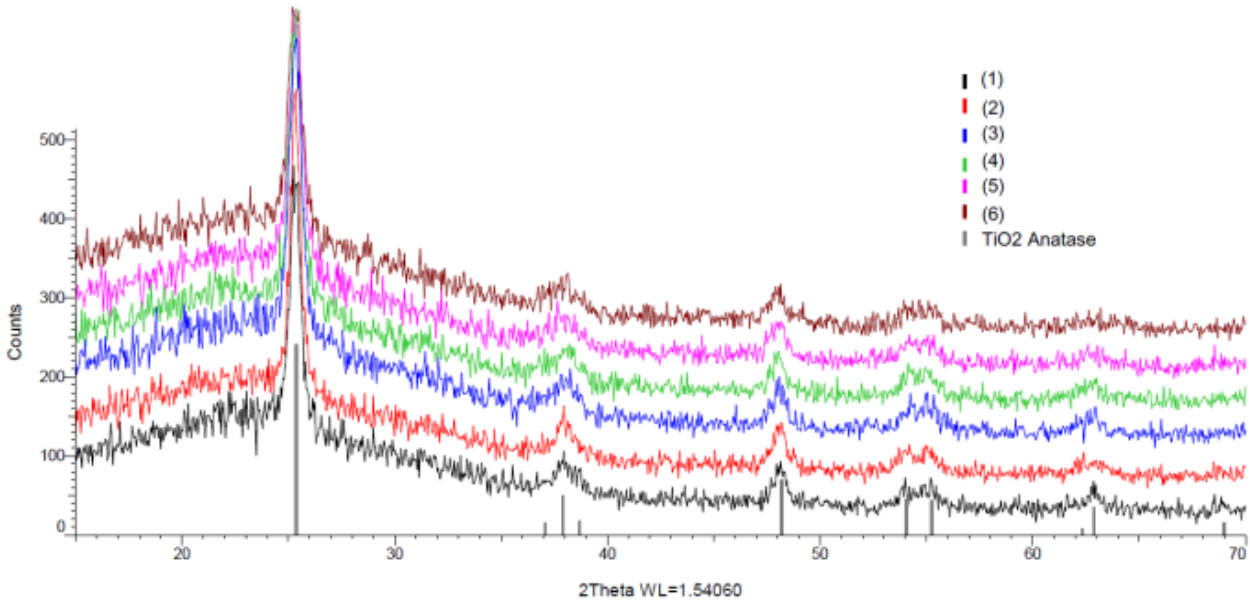
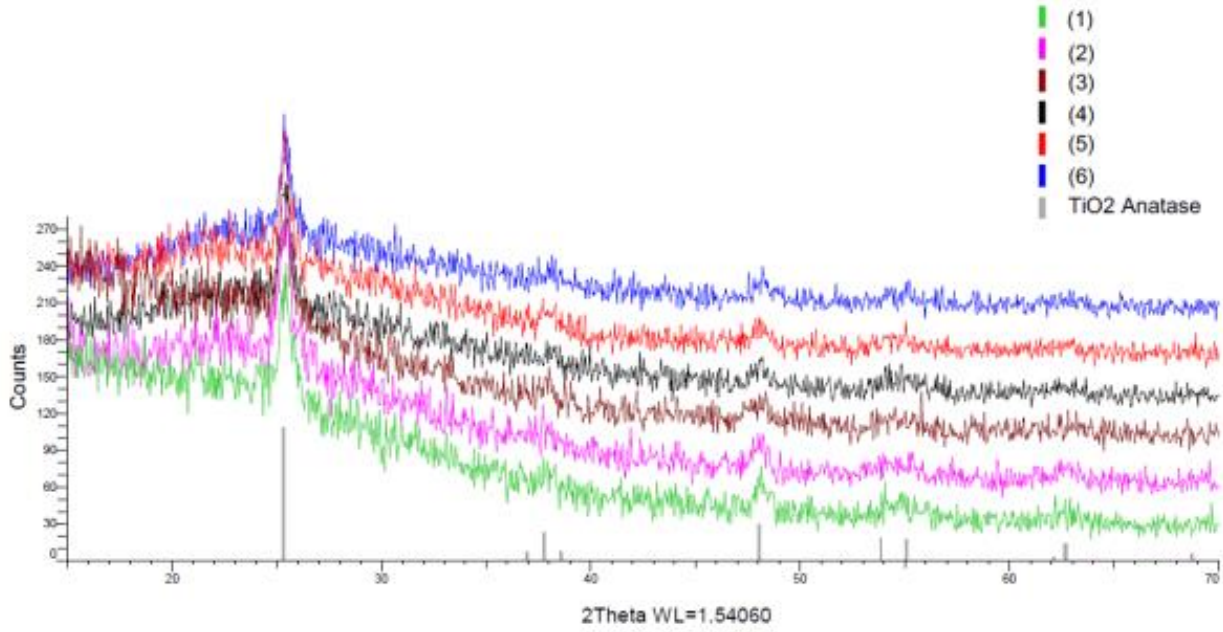



**Figure S1**. SEM images of surface (**a**) and cross-section (**b**) for 1.0-Sc-$TiO_2$ with 1.0 at.% Sc.

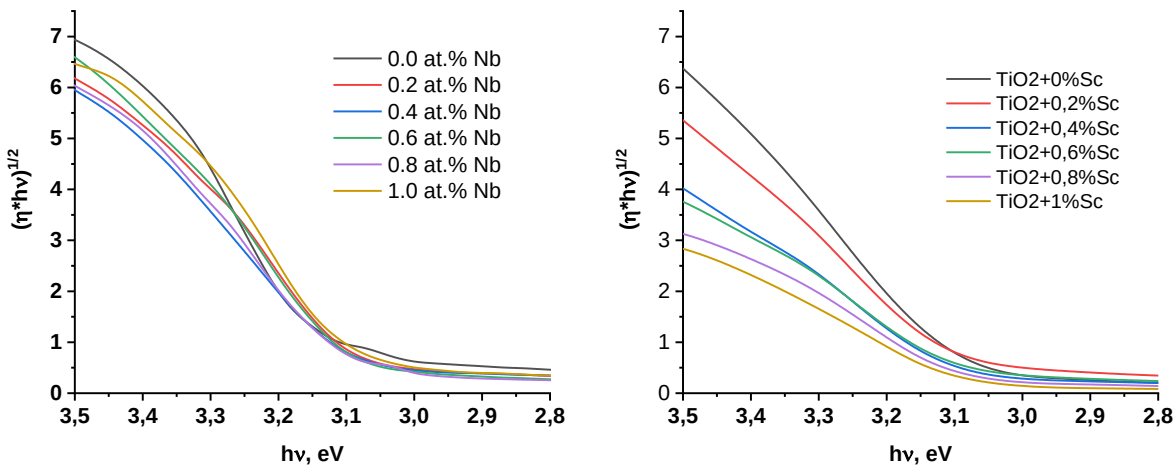



a




b

**Figure S2**. X-ray patterns for x-Sc-$TiO_2$ (**a**) and x-Nb-$TiO_2$ (**b**) with different dopant concentrations: (1) 0 at.%, (2) 0.2 at.%, (3) 0.4 at.%, (4) 0.6 at.%, (5) 0.8 at.%, (6) 1.0 at.%.




a b

**Figure S3**. Spectral dependencies of the modified Tauc plots for Nb (**a**) and Sc (**b**) doped $TiO_2$ electrodes.