

## Effect of the Type of Heterostructures on Photostimulated Alteration of the Surface Hydrophilicity: $\text{TiO}_2/\text{BiVO}_4$ vs. $\text{ZnO}/\text{BiVO}_4$ Planar Heterostructured Coatings

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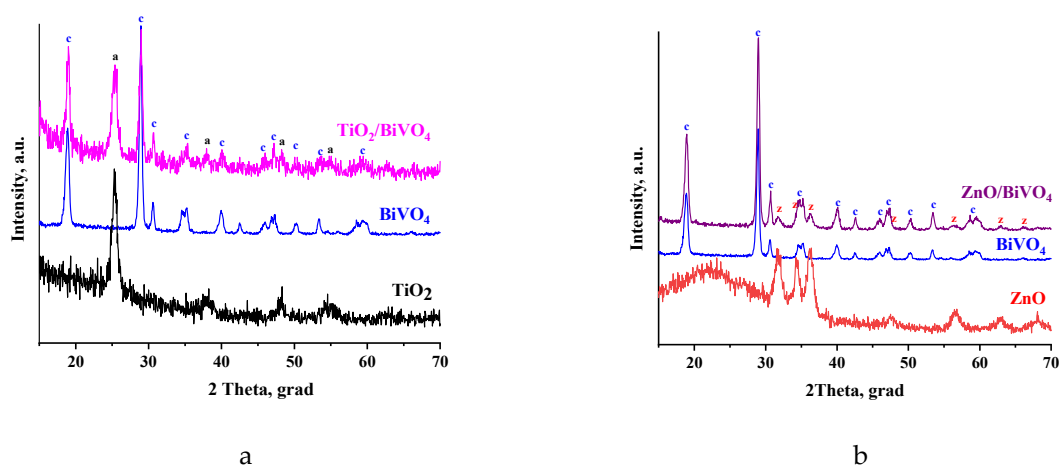
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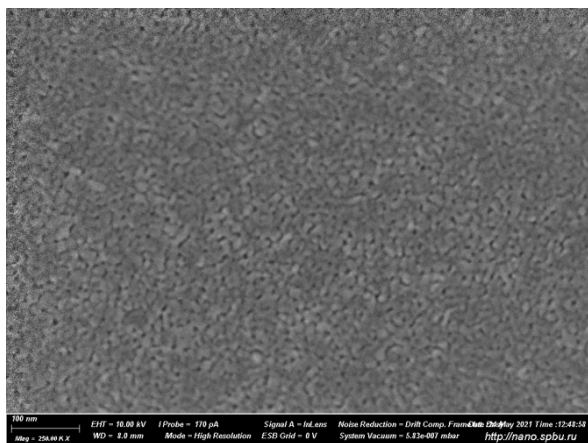
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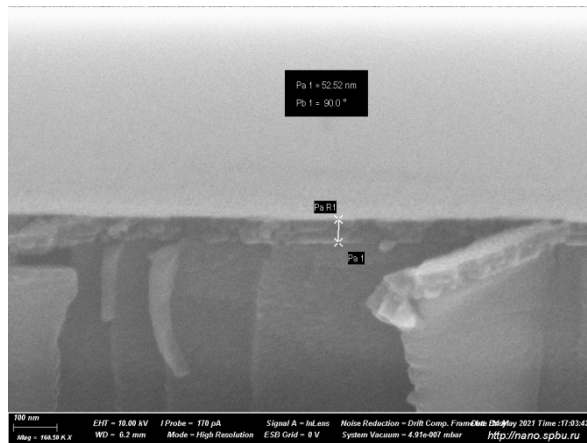
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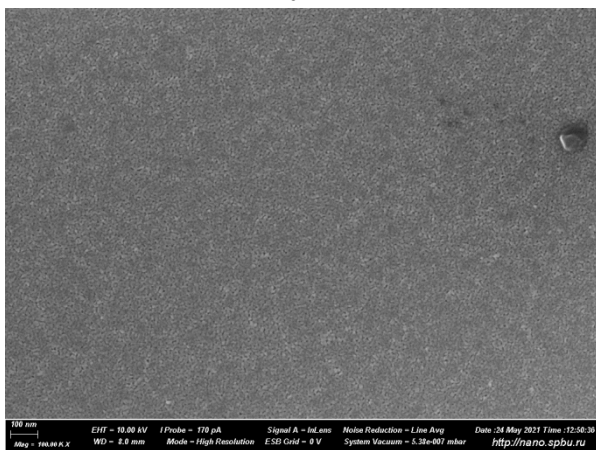
**Figure S1.** XRD patterns of synthesized coatings: (a)  $\text{TiO}_2$ ,  $\text{BiVO}_4$  and  $\text{TiO}_2/\text{BiVO}_4$ , (b)  $\text{ZnO}$ ,  $\text{BiVO}_4$ ,  $\text{ZnO}/\text{BiVO}_4$ . The letters "a", "z" and "c" denote the phases of anatase, zincite and monoclinic clinobisvanite, respectively.



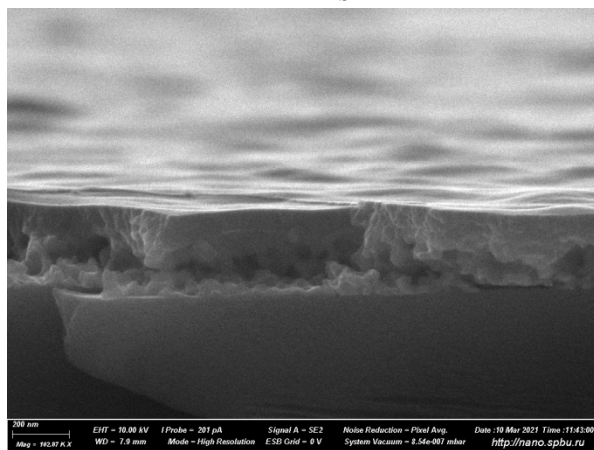
a



b

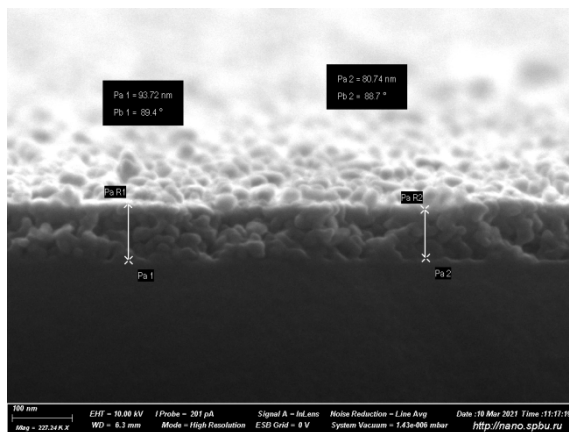
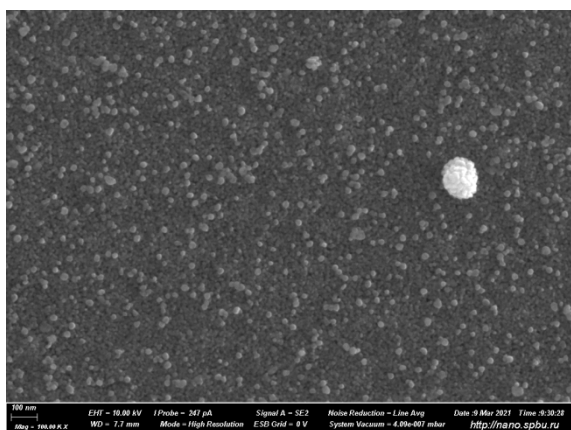


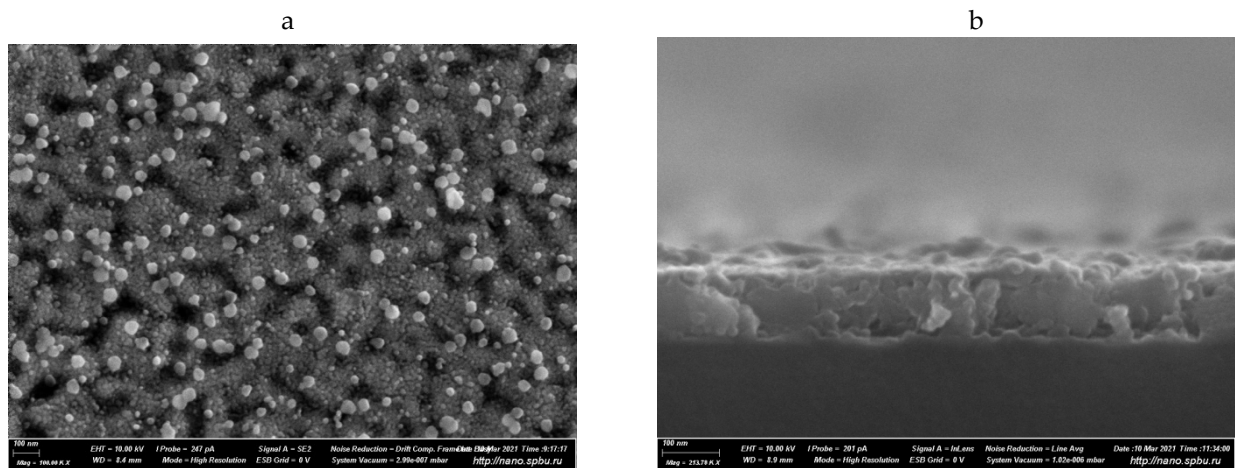
c



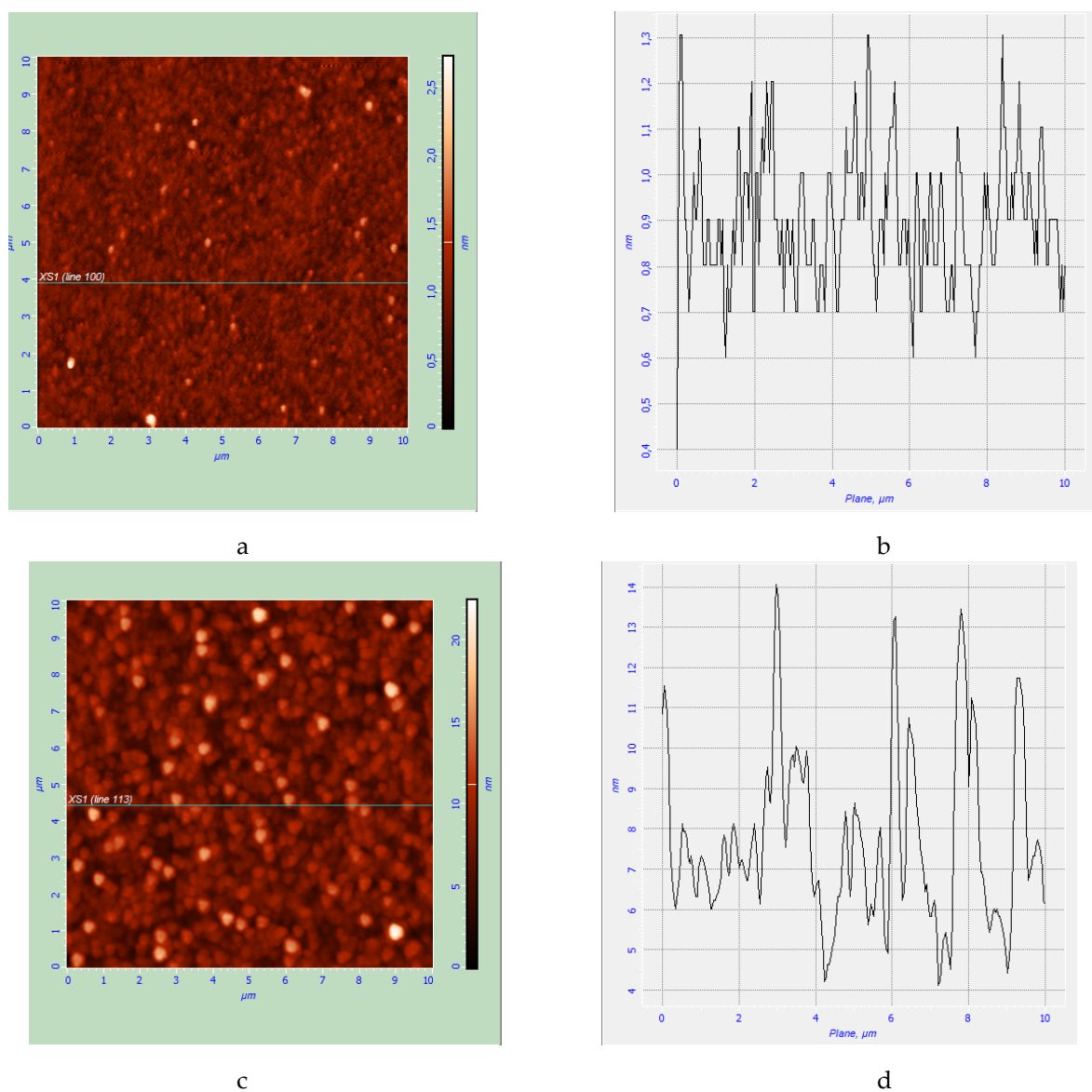
d

**Figure S2.** SEM images of TiO<sub>2</sub>-topped surfaces (**a**, **c**) and cross-sections (**b**, **d**) for TiO<sub>2</sub> (**a**, **b**) and TiO<sub>2</sub>/BiVO<sub>4</sub> (**b**, **d**) coatings.

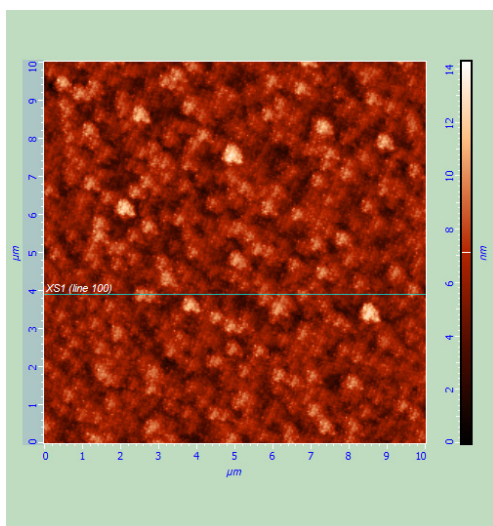




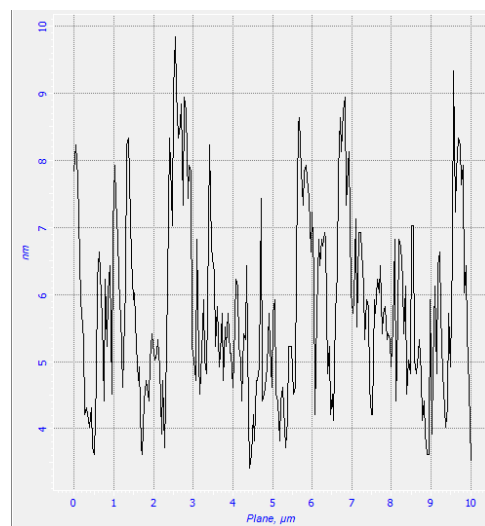
**Figure S3.** SEM images of ZnO surfaces (**a**, **c**) and cross-sections (**b**, **d**) for ZnO (**a**, **b**) and ZnO/BiVO<sub>4</sub> (**b**, **d**) coatings.



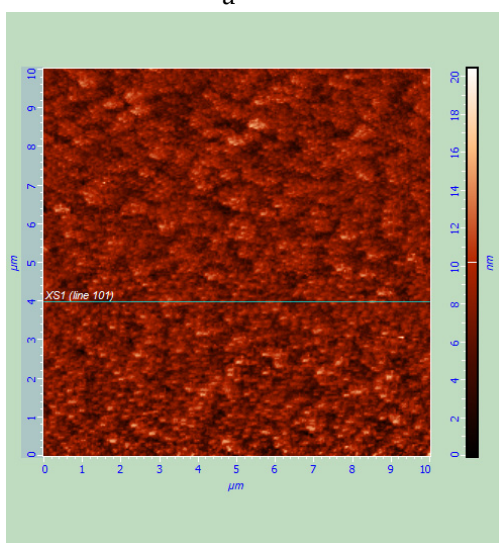
**Figure S4.** AFM image of the TiO<sub>2</sub> surfaces (**a**, **c**) and roughness profiles (**b**, **d**) for TiO<sub>2</sub> (**a**, **b**) and TiO<sub>2</sub>/BiVO<sub>4</sub> (**b**, **d**) coatings.



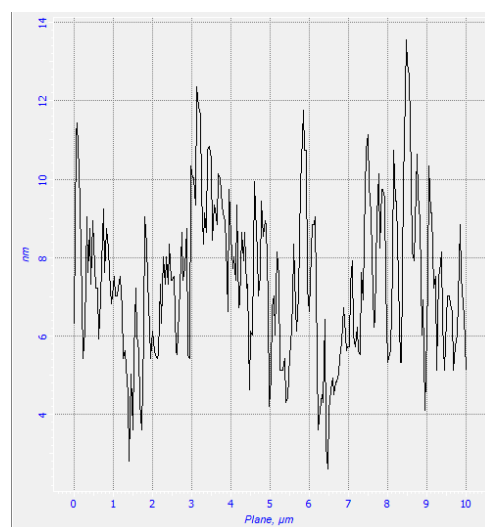
a



b

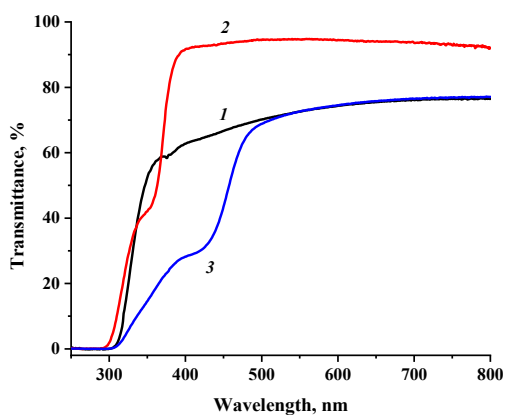


c

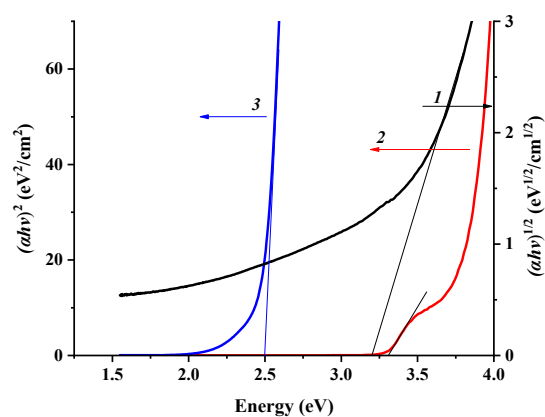


d

**Figure S5.** AFM image of the ZnO surfaces (a, c) and roughness profiles (b, d) for ZnO (a, b) and ZnO/BiVO<sub>4</sub> (b, d) coatings.

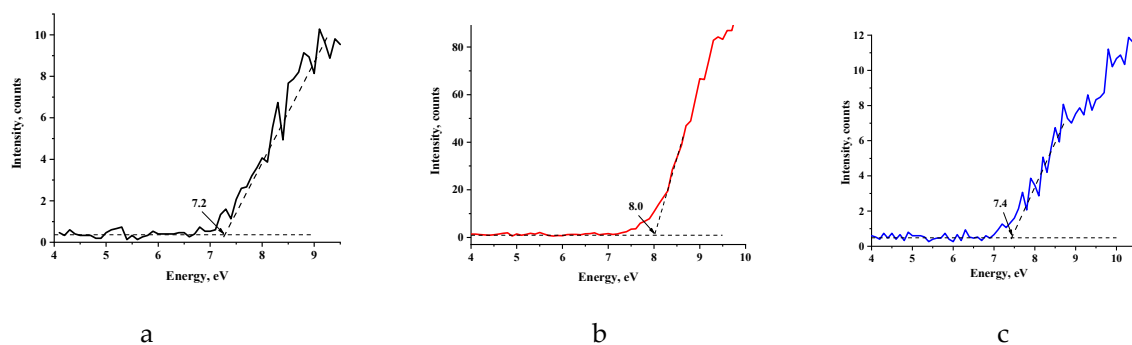


a

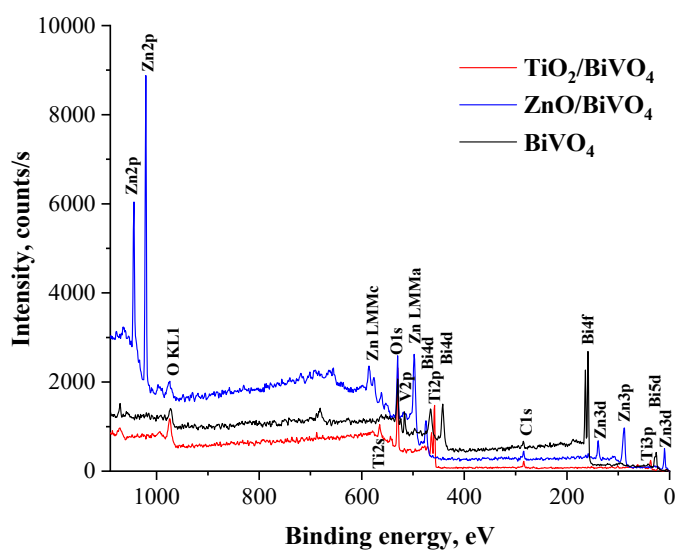


b

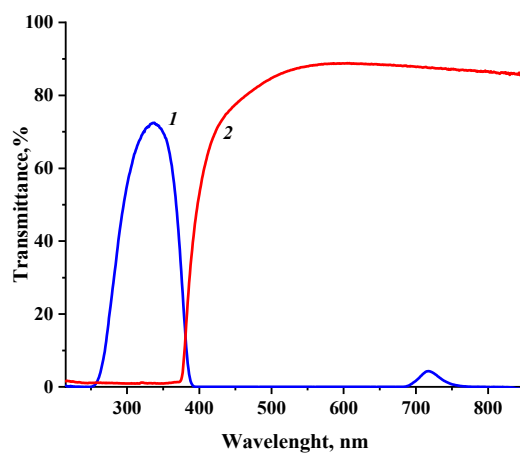
**Figure S6.** Transmittance spectra (a) and Tauc plots (b) for coatings' components: 1 – TiO<sub>2</sub>, 2 – ZnO, 3 – BiVO<sub>4</sub>.



**Figure S7.** Calibrated XPS spectra of valence band region for coatings' components: **a** –  $\text{TiO}_2$ , **b** –  $\text{ZnO}$ , **c** –  $\text{BiVO}_4$ .



**Figure S8.** Survey XPS spectra of  $\text{TiO}_2/\text{BiVO}_4$ ,  $\text{ZnO}/\text{BiVO}_4$  and  $\text{BiVO}_4$ .



**Figure S9.** Transmittance spectra of UV band-pass (1) and Vis cut-off (2) filters (LOMO, Russia).