



**Serbian Ceramic Society Conference  
ADVANCED CERAMICS AND APPLICATION X  
New Frontiers in Multifunctional Material Science and Processing**

**Serbian Ceramic Society  
Institute of Technical Sciences of SASA  
Institute for Testing of Materials  
Institute of Chemistry Technology and Metallurgy  
Institute for Technology of Nuclear and Other Raw Mineral Materials**

**PROGRAM AND THE BOOK OF ABSTRACTS**

**Serbian Academy of Sciences and Arts, Knez Mihailova 35  
Serbia, Belgrade, 26-27. September 2022.**

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expression pattern and infiltrated tissue composition were observed between covalent and LbL coated BCP particles but also between coated compared to uncoated BCP particles in examined time points. This suggests that both approaches may be used for coating of biomaterials with aim to modulate and guide the biomaterial-induced tissue response and regenerative processes.

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### Characteristic of photodiode based on vanadium oxide-TiO<sub>2</sub> nanotubes/CH<sub>3</sub>NH<sub>3</sub>PbI<sub>3</sub>

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The aim of this study was to investigate the influence of the deposition of vanadium oxide epitaxial layer on the photoresponse of TiO<sub>2</sub>/CH<sub>3</sub>NH<sub>3</sub>PbI<sub>3</sub> heterojunction. TiO<sub>2</sub> nanotube array was synthesized via anodization of titanium foil at three different voltages. After annealing at 450 °C, vanadium oxide was deposited by direct deposition from vanadyl(IV) sulfate solution. Microstructure analysis has been used for the investigation of the influence of different voltages of anodization on tube diameter. Spectroscopy measurements pointed out the red shift in diffusion reflectance spectra after deposition of vanadium oxide. The presence of V<sup>5+</sup> oxidation state has been detected on the surface of nanotube arrays by chemical analysis. CH<sub>3</sub>NH<sub>3</sub>PbI<sub>3</sub> monocrystal was dry pressed on top of the nanotubes in order to make a photodiode. The current-voltage characteristics of the photodiode were recorded and it was observed that the sample with the smallest wall thickness and higher amount of vanadium has the best photocurrent response.