The Serbian Society for Ceramic Materials
Institute for Multidisciplinary Research (IMSI), University of Belgrade
Institute of Physics, University of Belgrade
Center of Excellence for the Synthesis, Processing and Characterization of Materials for use in Extreme Conditions "CEXTREME LAB" - Institute of Nuclear Sciences "Vinča", University of Belgrade
Faculty of Mechanical Engineering, University of Belgrade
Center of Excellence for Green Technologies, Institute for Multidisciplinary Research, University of Belgrade
Faculty of Technology and Metallurgy, University of Belgrade

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6CSCS-2022

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June 28-29. 2022. Belgrade Serbia

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Branko Matović
Aleksandra Dapčević
Vladimir V. Srdić

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VISIBLE-LIGHT PHOTOCATALYTIC DEGRADATION OF MORDANT BLUE 9 BY $BiVO_4$ NANOPOWDER

Jelena Jovanović, Stefan T. Jelić, Jovana Ćirković, Aleksandar Radojković, Goran Branković, Zorica Branković

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The photocatalytic degradation of highly toxic azo dye Mordant Blue 9 (MB 9) was investigated using single-phase monoclinic $BiVO_4$ nanopowder as a photocatalyst under the simulated solar irradiation. The photodegradation process as a function of different pH values of aqueous dye solution (pH = 1 – 13) and irradiation time was investigated, and the complete degradation mechanism was proposed. MB 9 was resistant to direct photolysis and the $BiVO_4$ nanoparticles exhibited higher photocatalytic activity in a basic medium than in neutral and acid media. Photodegradation of the dye molecules occurred primarily due to a reaction with the photo-generated holes and OH^- anions forming OH radicals. The alkaline pH range favors the formation of more OH radicals through the oxidation of hydroxide ions existing at the $BiVO_4$ surface, thus the effectiveness of the photocatalytic process significantly increased. $BiVO_4$ photocatalyst was stable and active under simulated solar irradiation over four consecutive cycles, which confirms its good photocatalytic properties.

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INVESTIGATING SORPTIVE ASPECTS OF $CoMoO_4$ NANOPOWDERS SYNTHESIZED BY SPRT METHOD

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Nanosized $CoMoO_4$ solid solution was successfully synthesized at room temperature using simple and fast Self Propagating Room Temperature procedure (SPRT). The structural, textural, morphological and surface characteristics of the nanosized $CoMoO_4$ were examined in detail by X-ray diffraction (XRD), Fourier transform infrared (FT-IR) spectra, Field emission scanning electron microscopy