P.4. Aero-GaN and ZnO Microtetrapods Functionalized with Metal Nanodots for Photocatalytic Degradation of Tetracycline

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This study reports on the fabrication of a novel photocatalyst material characterized by ultra-porous structures formed from interconnected hollow microtetrapods of gallium nitride (GaN) or zinc oxide (ZnO). The specific surface area was estimated to be about 0.2 m^2/gr and 4.7 m^2/gr for ZnO and aero-GaN, respectively, according to BET measurements. The photocatalytic efficiency of these nanomaterials, enhanced with noble metal nanodots, was validated through the complete degradation of tetracycline under both UV and solar light exposure. Given its substantial surface area and improved chemical stability compared to traditional ZnO, the 3D aero-GaN/ZnO composite emerges as a promising candidate for photocatalytic applications and filtration systems. The schematic of the experiment and the photocatalytic performance of the aeromaterials are shown in figure 1.

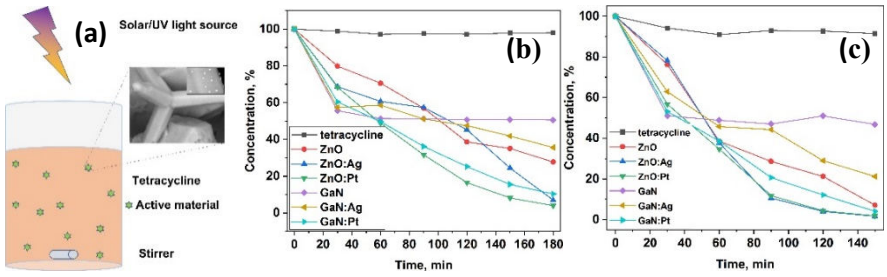

Figure 1. The schematic of the experiment (a); photocatalytic performance of the materials under visible (b) and UV irradiation (c)

Acknowledgments
This work was supported by the Ministry of Foreign Affairs of the Czech Republic — 23-PKVV-UM-7, the Romanian Ministry of Research, Innovation and Digitalization, project no. PNRR-III-C9-2023-I8-161, ctr. no. 760285/27.03.2024, and by the Institutional Subprogram #02.04.02.
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