SERIES OF ARTICLES

of the thesis for the degree of Doctor of Philosophy (PhD) on educational program

«8D05301 – Chemistry»

TUGELBAY SAPARBEK BATYRBEKULY

Thesis topic: Mechanochemical synthesis of silver phosphate nanocomposites and their photocatalytic and antibacterial properties

1. *Tugelbay, S., Volobuyeva, V., Abilkhan, A., Tatykayev, B. Scalable synthesis of AgX (Cl, Br, I, PO_4) nanophotocatalysts for efficient visible-light degradation of persistent antibiotics from aqueous environments. J. Photochem. Photobiol. A: Chem. 472 (2026) 116748. https://doi.org/10.1016/j.jphotochem.2025.116748.

2. *Tugelbay, S., Yergaliuly, G., Abilkhan, A., Khan, N., Tatykayev, B. Ag_3PO_4-based composites as next-generation antibacterial nanomaterials: A review of light induced synergistic effects. Chem. Eng. J. 522 (2025) 167818. https://doi.org/10.1016/j.cej.2025.167818.

3. Tugelbay, S., Shalabayev, Z., Khan, N., Mukhanbetzhanov, N., Jumagaziyeva, A., Sultanov, F., Kozhakhmetov, S., Kushugulova, A., Shevelkov, A.V., Mucsi, G., Tatykayeva, U., Daniyeva, N., Burkitbayev, M., *Tatykayev, B. Enhanced photocatalytic antibacterial Ag_3PO_4/AgCl nanocomposites for water purification from organic and microbial contaminants. J. Environ. Chem. Eng. 13 (2025) 118753. https://doi.org/10.1016/j.jece.2025.118753.

4. *Tugelbay, S., Bakbolat B. Visible-light-responsive Ag3PO4-based photocatalysts for water treatment and wastewater remediation: Advances, challenges, and future directions. J. Environ. Chem. Eng. 13 (2025) 120339 https://doi.org/10.1016/j.jece.2025.120339.