

Catalytic Ability of Ag-coated Ferromagnetic Microspheres Functionalized by TiO₂

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Abstract

TiO₂ has been used to clean wastewater as a photocatalyst that catalyzes the decomposition of organic pollutants through the production of reactive oxygen species. TiO₂ has previously been functionalized on Fe₃O₄ for improved recyclability of the nanoparticles, and Ag-coating is applied to enhance nanoparticle's catalytic ability by reducing the bandgap of the catalyst in other researches. In my research, I performed an experiment and will present a way of synthesizing Fe₃O₄@AgNPs@TiO₂ microspheres by functionalizing the ferromagnetic microspheres with silver nanoparticles before TiO₂. A photocatalytic test on the decomposition of methyl blue will also be performed to determine the catalytic ability of the obtained microspheres.