

Synthesis and study of mixed-oxide nano-composite photocatalysts used to produce hydrogen

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Abstract

In this study we synthesized semiconductor photocatalysts for hydrogen production by decomposition of water and water-organic media under the action of visible light. For the preparation of nanostructured mixed oxide materials based on titanium and zinc oxide four methods were used: impregnation method, method of ester precursors (two variants), and chemical deposition method. The structure and optical properties of these materials have been studied. The greatest activity in the process of hydrogen evolution from water-methanol solution was demonstrated by TiO₂, modified by introduction of copper through impregnation – 2600 mkmol/g/h.