

Oxide content optimized NiO/Cu<sub>2</sub>O/CuO photocatalyst for solar water splitting

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Among the various hydrogen production technologies, there is a method of producing hydrogen using a photocatalysts by water splitting. In this work, heterostructure NiO/Cu<sub>2</sub>O/CuO photocatalyst was synthesized via a sequential fabrication approach. First, NiO/CuS photocatalyst was produced by precipitation methods using NiO and copper precursor materials. The molar ratios of NiO, CuS were controlled by their feedstocks. After that, Cu<sub>2</sub>O/CuO could be formed by thermal oxidation. The oxide contents also were controlled by gas flow rate. The synthesized photocatalysts were examined by SEM, TEM, XRD, UV-vis, and the hydrogen production was measured using a solar simulator and gas chromatography.