Copper Tungstate (CuWO₄) Nanoflakes Coupled with Cobalt Phosphate (Co-Pi) for Effective Photoelectrochemical Water Splitting

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Photoelectrochemical (PEC) water splitting provides us a green way to convert and utilize solar energy. In this work, Co-Pi was electrochemically deposited onto CuWO₄ nanoflakes (NFs) *via* a cyclic voltammetry (CV) method to enhance the photocatalytic performance of CuWO₄ toward PEC water splitting. The results demonstrated that the photocurrent density as well as the charge-transfer efficiency was improved within the entire potential range. Besides, the CuWO₄/Co-Pi exhibited an enhanced stability over the bare CuWO₄ in the phosphate buffer solution (pH 7) and an extremely high Faradaic efficiency (*ca.* 96%). Our work reveals that combination of CuWO₄ with Co-Pi is a feasible way to further enhance the performance of CuWO₄ photoanode toward PEC OER.

Keywords: Photoelectrochemical water splitting; copper tungstate; cobalt phosphate; electrochemical cocatalyst; oxygen evolution reaction

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