

Oxygen Evolution Catalyst on Composite Photoanode for Solar Water Oxidation

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Solar powered water splitting is an artificial photosynthesis that involves hydrogen evolution reaction and oxygen evolution reaction (OER). We report the fabrication of WO₃ nanowire/BiVO₄/cobalt phosphate composite electrodes to enhance the photoactivity of photoanode towards solar powered OER. The 1-D nanostructure WO₃ was prepared by flame vapor deposition and covered by BiVO₄ using spin coating method. The Co-Pi oxygen evolution catalyst (OEC) particles were deposited onto the above mentioned core-shell WO₃/BiVO₄ heterojunction structure by photo-assisted electrodeposition method. The performance of Co-Pi (OEC) modified WO₃ photoanode and WO₃/BiVO₄ were studied comparing to the unmodified one respectively.