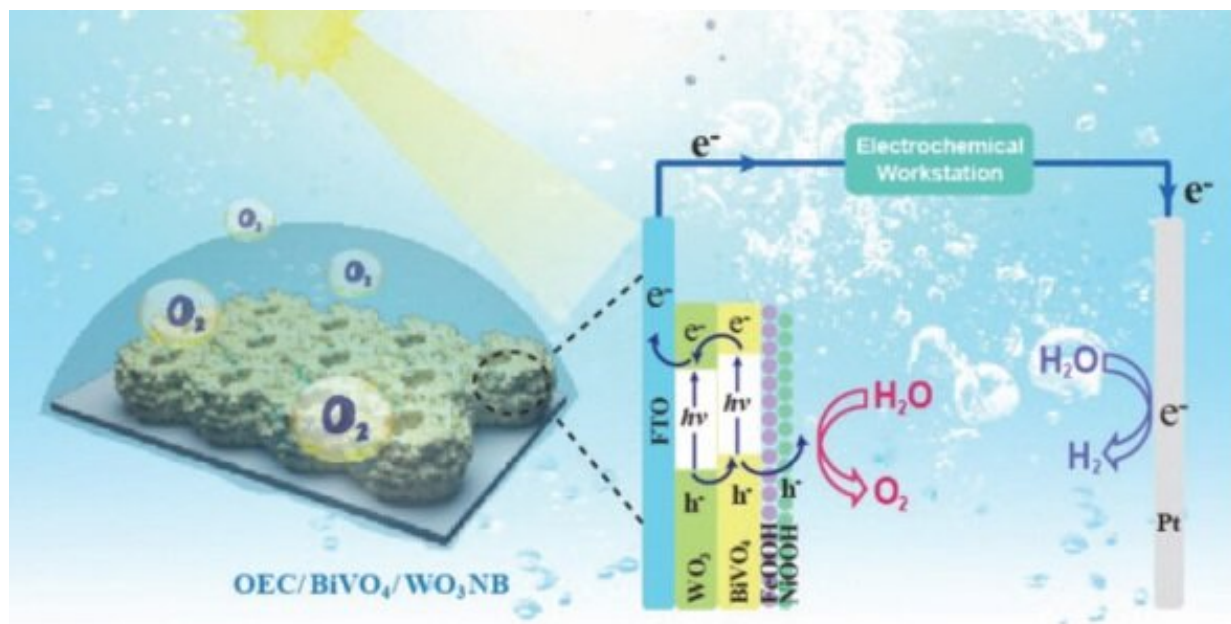


Improving performance for efficient photoelectrochemical water splitting

September 27 2022



As one of the most promising photoanode candidates for photoelectronchemical water splitting, the photocurrent density and IPCE of BiVO₄ have been improved to 5 times higher by constructing OEC/BiVO₄ and highly matched BiVO₄/WO₃ nanobowl “multiple junctions.” Credit: *Chinese Journal of Catalysis* (2022). DOI: 10.1016/S1872-2067(21)63927-X

Photoelectrochemical (PEC) water splitting is a promising green technique for renewable hydrogen production. To construct a practical PEC system, it is of great significance to develop efficient photoanodes.

BiVO_4 has been identified as the most promising photoanode material because of its narrow band gap and favorable band positions for hydrogen and oxygen evolution. Nevertheless, BiVO_4 has limitations of low carrier mobility ($4 \times 10^{-2} \text{ cm}^2 \cdot \text{V}^{-1} \cdot \text{s}^{-1}$) and short hole diffusion length (

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