Improving performance for efficient photoelectrochemical water splitting

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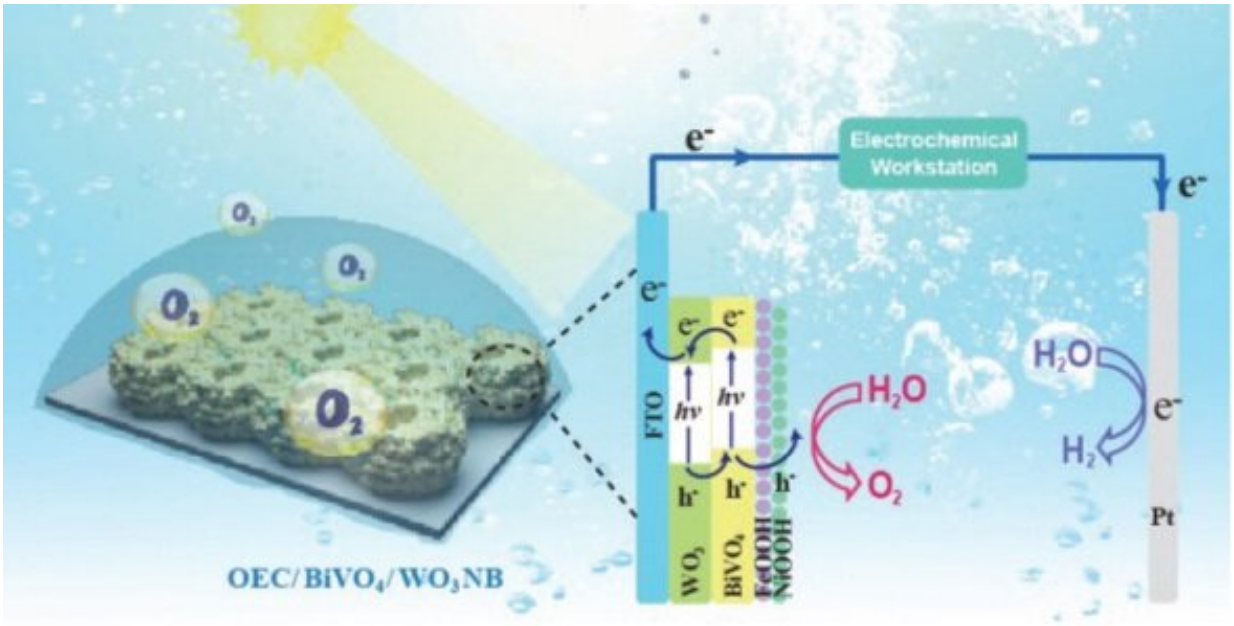

As one of the most promising photoanode candidates for photoelectronchemical water splitting, the photocurrent density and IPCE of BiVO4 have been improved to 5 times higher by constructing OEC/BiVO4 and highly matched BiVO4/WO3 nanobowl "multiple junctions." Credit: *Chinese Journal of Catalysis* (2022). 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 (4×10^{-2} $cm^2 \cdot V^{-1} \cdot s^{-1}$) and short hole diffusion length (