

photoelectrolytic cell

Also contains definition of: photocatalytic cell

A cell in which radiant energy causes a net chemical conversion in the cell, e.g. so as to produce hydrogen as a useful fuel. These cells can be classified as photosynthetic or photocatalytic. In the former case, radiant energy provides a Gibbs energy to drive a reaction such as $\text{H}_2\text{O} \rightarrow \text{H}_2 + \frac{1}{2}\text{O}_2$, and electrical or thermal energy may be later recovered by allowing the reverse, spontaneous reaction to proceed. In a photocatalytic cell the photon absorption promotes a reaction with $\Delta G < 0$ so there is no net storage of chemical energy, but the radiant energy speeds up a slow reaction.

Source:

PAC, 1991, 63, 569 (*Terminology in semiconductor electrochemistry and photoelectrochemical energy conversion (Recommendations 1991)*) on page 593

See also:

PAC, 1991, 63, 569 (*Terminology in semiconductor electrochemistry and photoelectrochemical energy conversion (Recommendations 1991)*) on page 596