

Photo-Electrochemistry

Photo-Electrolysis of Water to Produce H₂

Water can be directly electrolyzed using the positive and negative charges generated in a pn junction after absorption of an above band gap photon. The cell potential must be greater than or equal to 1.23 V. Figure 1 displays the conceptual design of a cell. The small pieces of pn junctions must be oriented in the correct direction and be imbedded in a polymer which conducts protons. The Pt and RuO₂ layers are catalysts required for the reactions to occur.

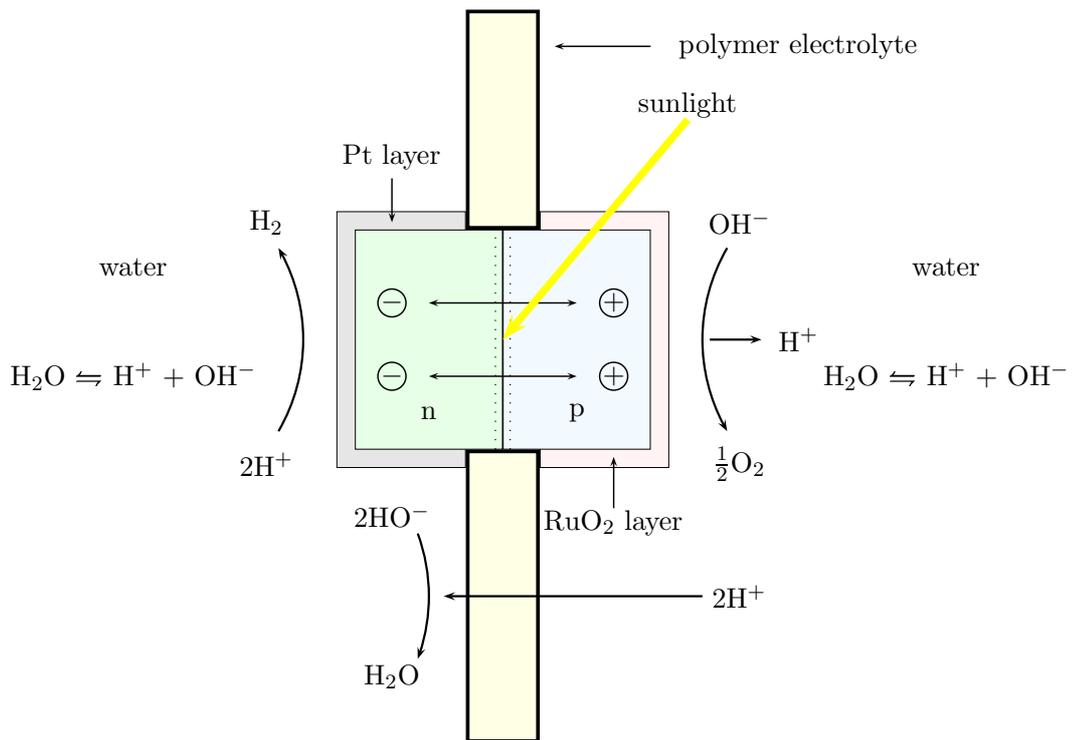


Figure 1: Photoelectrolytic cell.