Synthesising Ag heterojunction as photocathode for photoelectrochemical water splitting

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Abstract

It is generally accepted that one of the main challenges facing our planet today is the human interfered climate change and its inseparable link to our global society's present and future needs. Solar energy is doubtless one of the most attractive ways to deal with these issues. Water splitting by artificial photosynthesis is a favorable means of converting solar energy into transportable and end user chemical energy. One of the major issues that remain unresolved in artificial photosynthesis is to find a suitable visible light absorber among earth abundant semiconductors. Phototoelectrochemical (PEC) water splitting is highly promising in the conversion of abundant solar energy into chemical energy. The structure of the FeOOH/Ag/Cu_2O consists of a p-n junction is beneficial protecting Cu_2O from self-photo corrosion. The improvement in PEC efficiency by introducing the Ag and FeOOH material can be regarded as a suitable hetero partner.

Keywords – Cu_2O, Electrochemical water splitting, and Ag heterojunction