

Aerosol-assisted chemical vapor deposition of metal oxide thin films for photoelectrochemical water splitting

ABSTRACT

Hydrogen energy has emerged as an alternative energy source. There are many processes for hydrogen production, which include both reforming and non-reforming hydrogen production. This paper reviews the benefits of photoelectrochemical (PEC) water splitting as a promising method for the production of hydrogen. Consequently, fabrication of efficient photoelectrode is crucial to achieve high performance cells. Aerosol-assisted chemical vapor deposition (AACVD) is discussed as a promising fabrication method for the materialization of thin films in terms of their homogeneity and uniformity. From this perspective, we discuss the AACVD process and the influence of the deposition parameters on PEC water splitting.

Keyword: AACVD; Metal oxide; Thin film; Photoelectrochemical cells; Water splitting; Hydrogen production