# Photocatalytic Activities of Noble Metal Doped Tantalum-Based Visible-Light-Driven Photocatalysts Prepared by Spray Pyrolysis

강현우, 박승빈*
한국과학기술원
(SeungBinPark@kaist.ac.kr*)

Water splitting is one of the promising schemes to solve the energy problems facing global world. It could be regarded as an artificial photosynthesis, comparable to green plants. This energy conversion system can be operated by photocatalytic reaction to produce hydrogen. Therefore, the more efficient photocatalysts have been indispensable for the photoenergy conversion system. In this study, tantalum-based visible-light-driven photocatalysts has been designed and prepared to produce hydrogen by water splitting. For the efficient decomposition of water, the tantalates have been employed as a core metal. Noble metals were doped to enhance visible light absorption. Various tantalates powders were prepared by spray pyrolysis process at lower temperature and shorter reaction time than conventional solid state reaction process. Characteristics of photocatalysts powders were analyzed by SEM, XRD and DRS. Photocatalytic activities under visible light irradiation ($\lambda$ > 415 nm, 300 W Xe lamp) were measured in batch type reactor system with gas chromatography.