

Effect of particle shapes in self-assembled TiO_2 films on photocatalytic activity

최태석, 김정현†
서울시립대학교
(jhkimad@uos.ac.kr†)

Titanium dioxide(TiO_2) is an important functional material for photocatalytic applications due to its outstanding photocatalytic characteristics. The TiO_2 particle shape plays the significant role in photocatalytic activity. For example, one dimensional structures such as nanowires and nanorods can enhance the separation and offer a pathway for oriented charge carrier transport. Three dimensional structures such as flower-like and coral-like show the extremely large surface area comparing to other structures. In this study, we synthesize TiO_2 colloidal nanoparticles which have various shapes by applying various experimental conditions. We manufacture TiO_2 nanoparticle films on glass substrates by applying self assembly techniques. Moreover, photocatalytic investigations for the TiO_2 -coated glass are carried out by measuring photodecomposition of methylene blue. Films are analyzed by XRD, FESEM, AFM and UV-Vis spectroscopy.