# Optimal arrangements of g-C$_3$N$_4$, WO$_3$, BiVO$_4$ components for high PEC performance

상판규, 김정현[†]
서울시립대학교
(jhkimad@uos.ac.kr[†])

g-C$_3$N$_4$ is a good material for photoelectrochemical(PEC) water splitting due to its light harvesting, electron-hole separation properties, stability and large surface area. However, since it has a wide band gap of 2.7eV, it is necessary to reduce the bandgap to absorb a broader window of light. It can be solved by constructing heterojunctions with other photocatalysts like WO$_3$, BiVO$_4$. WO$_3$ has a good charge transfer efficiency but poor light absorption. BiVO$_4$ lacks stability, instead it has fine light harvesting characteristics. The two photocatalysts show enhanced performance when used together. In this study, all layers were synthesized by spin coating. PEC performances like photocurrent density, stability, electron-hole separation efficiency have been enhanced using g-C$_3$N$_4$ on the WO$_3$/BiVO$_4$ heterojunction.