

Recent developments of metal oxide based heterostructures for photocatalytic applications towards environmental remediation

Theerthagiri J
Chandrasekaran S
Salla S
Elakkiya V
Senthil RA
Nithyadharseni, Palaniyandy
Maiyalagan T
Micheal K
Ayeshamariam A
Valan Arasu M
Al-Dhabi NA
Kim H

ABSTRACT:

The advancement of heterostructured visible-light active metal oxide based semiconductor photocatalysts have received an enormous consideration in the field of environmental remediation due to their excellent growth with unique surface morphology, tunable properties, suitable for absorbing more visible region in the solar radiation. The several categories of organic pollutants are released into the earth by an expanding insurgency in agricultural and industrial areas. The solar-light driven photocatalytic degradation is an efficient process for the elimination of toxic pollutants from wastewaters. In this manner, it is important to develop newer metal oxide-based photocatalytic materials to solve the majority of basic issues associated with environment. In this review, we have mainly focussed on the on recent developments in metal oxide based heterostructures for photocatalytic applications towards environmental remediation. The special attention has been made on different metal oxide materials under various categories such as ZnO, WO₃, Fe₂O₃ and Bi₂O₃ based photocatalysts. Finally, the stability and challenges to fabricate novel heterostructures suitable for environmental remediation applications are also highlighted.

