

Variation of flatband potential of oxide nanocrystalline particles with core-shell structured semiconductor-MgO composites

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Abstract

SnO₂ thin films and particles show feeble solar cell performance and poor photocatalytic activity respectively. It has been reported that coating of a thin MgO layer on SnO₂ particles results in enhancement of both solar cell performance and catalytic activities. The promoting effect of MgO layer was owing to barrier effect where MgO acts as a barrier layer for charge recombination. We noticed negative shift of flatband (FB) potential of SnO₂ with the increase of pH values and coating of a thin MgO layer on SnO₂ particles. It is shown how the negative shift in FB potential may contribute to enhance the solar cell efficiencies and photocatalytic activity in addition to the barrier effect of MgO layer.
