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Yujie Liu, Haixia Liu, Huamin Zhou, Tianduo Li, Lunan Zhang

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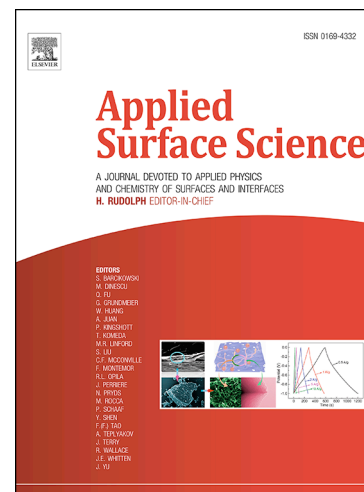
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A Z-scheme Mechanism of N-ZnO/g-C₃N₄ for Enhanced H₂ Evolution and Photocatalytic Degradation

Yujie Liu, Haixia Liu,* Huamin Zhou, Tianduo Li, Lunan Zhang

Shandong Provincial Key Laboratory of Molecular Engineering, School of Chemistry and Pharmaceutical Engineering, Qilu University of Technology (Shandong Academy of Sciences), Jinan 250353, P. R. China

E-mail: liuhaixia929@163.com

Abstract

The N-ZnO/g-C₃N₄ composites prepared by high temperature calcination exhibited excellent performance in both the photocatalytic H₂ evolution and photocatalytic degradation of Methylene blue (MB). It can be seen that the absorption range of ZnO extends from ultraviolet light to UV-visible light after N dopant. The combination with g-C₃N₄ further enhances the absorption range of N-ZnO, thereby increasing the utilization of light. A Z-scheme photocatalytic system mechanism of N-ZnO/g-C₃N₄ has been proposed for the enhanced H₂ evolution and photocatalytic degradation rate. The proper bands position of N-ZnO facilitates the formation of Z-scheme mechanism. The electrons on CB of N-ZnO would migrate to VB of g-C₃N₄, which can effectively prevent the recombination of electrons and holes. The generation of electrons in CB of g-C₃N₄ and accumulation of holes in VB of N-ZnO can improve the photocatalytic efficiency.

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