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Authors: Xuqiang Hao, Jun Zhou, Zhiwei Cui, Yicong Wang, Ying Wang, Zhigang Zou



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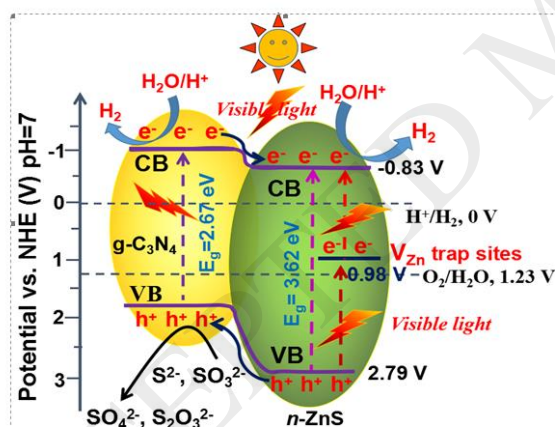
Xuqiang Hao, Jun Zhou, Zhiwei Cui, Yicong Wang, Ying Wang* and Zhigang Zou*

School of Chemistry and Chemical Engineering, Eco-materials and Renewable Energy Research Center (ERERC), National Laboratory of Solid State Microstructures, Kunshan Innovation Institute of Nanjing University, Nanjing University, Nanjing, 210023, P. R. China.

*Corresponding author.

E-mail: wangy@nju.edu.cn; zgzou@nju.edu.cn

Graphical abstract



ZnS/g-C₃N₄ heterostructured material with abundant zinc vacancy defects on the surface of ZnS has been studied to emphasize the synergistic promotion on charge separation. This heterostructured photocatalyst exhibits more than 30 times higher H₂ evolution rate than that of pristine g-C₃N₄ under visible-light irradiation and high stability. The enhanced photocatalytic performance can be attributed to the intimate interfacial contact between g-C₃N₄ and ZnS nanoparticles, increasing the light-absorbing capacity and charge separation efficiency of ZnS/g-C₃N₄ heterojunction. And more importantly, the visible-light photocatalytic H₂ production activity can be ascribed to the two-photo excitation in the middle band gap of ZnS.

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