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Solvothermal synthesis of metallic 1T-WS₂: a supporting co-catalyst on carbon nitride nanosheets toward photocatalytic hydrogen evolution

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Abstract: To date, despite significant achievements in noble-metal co-catalysts, it is still challenging to develop high-performance noble-metal-alternative co-catalysts for economic hydrogen production. In this work, we demonstrate that the metallic 1T-WS₂ obtained through a facile solvothermal method can function as co-catalyst for boosting the photocatalytic hydrogen production with the merits below: (i) noble-metal-free; (ii) excellent electrical conductivity; (iii) extra active sites on basal plane rather than edge sites for H₂ generation. As demonstrated in photocatalytic hydrogen evolution, the designed composite using two-dimensional carbon nitride

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