

Photocatalytic water splitting using C₃N₄/ZnO heterostructure and charge separation enhancing using doping treatment.

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Photocatalytic water splitting is one of the most promising studies in the field of eco-friendly hydrogen production. Photo-generated electrons and holes decompose water to hydrogen and oxygen. The photo-generated electrons and holes in single semiconductors are easily recombined, so semiconductor heterostructure are widely used to prevent recombination. C₃N₄ is promising non-metal semiconductor material to absorb visible light. We made C₃N₄/ZnO heterostructure nanoparticle to split water to hydrogen and oxygen. Moreover, doping of C₃N₄ shows enhanced hydrogen production compared with undoped one. We checked the hydrogen production performance along the dopant concentration, and proper doping concentration was optimized. In the future, we will study the causes of performance improvement and identify the charge transfer mechanism.