



Photocatalysis: Recent Developments and Technological Advancements

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Message from the Guest Editor

Water purification is one of the main issues for sustainable development for the future. After the discovery of the photocatalytic behavior of graphitic carbon nitride $g\text{-C}_3\text{N}_4$, research on catalysts has increased in order to improve their performance by combining with other composites. The fascinating properties of $g\text{-C}_3\text{N}_4$ include visible light response, good oxidation power, environmental friendliness, good chemical and thermal stability, metal-free nature, easy fabrication from precursors, and easy modifications of its polymer structure. Typically, the active catalyst is deposited on a skeleton with high porosity consisting of stable oxides or carbonaceous materials. The photocatalytic performance depends on the bandgap, but also other parameters, such as the recombination rate, carrier concentration, electron mobility, and modification of orbitals of attached particles such as dyes or nanosized noble metal particles. Photocatalysts can not only improve the efficiency of various chemical reactions, but have also successfully demonstrated water purification through the degradation of organic pollutants, even including bacteria or viruses.





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