ENHANCING TIO2 ACTIVITY FOR CO2 PHOTOREDUCTION

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Abstract:

Recently, our world has witnessed a rapid increase in carbon dioxide (CO2) emission, one of the factors causing the greenhouse effect. Many strategies have been developed to reduce the emission. Particularly, photocatalytic conversion of CO2 into other useful chemical and products by using solar energy is a promissing candidate due to its advantage in terms of energy balance. Of the various photocatalysts, TiO2 is a prominent semiconductor for CO2 photoreduction due to its low cost, high availability, stability and non-toxic nature, aside from it being easily synthesized. However, the CO2 conversion technology using TiO2 still faces challenges related to the low adsorption of CO2 molecules, semiconductor surfaces, limited desorption of the intermediates and reaction products, the fast recombination rate of the photogenerated carriers. Therefore, the study aimed to propose several stategies to enhance the CO2 photocatalytic conversion