EFFECT OF SI DOPING ON THE PHOTOCATALYTIC ACTIVITY AND PHOTOELECTROCHEMICAL PROPERTY OF TIO2 NANOPARTICLES

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TÓM TẮT:

Si-doped TiO2 nanoparticles with anatase crystalline phase were prepared by a hydrothermal method using acetic acid as the solvent. Photoelectrochemical studies showed that the photocurrent value for the 15% Si-doped TiO2 electrode (54.4 μA) was much higher than that of the pure TiO2 electrode (16.7 μA). In addition, the 15% Si-doped TiO2 nanoparticles displayed the highest photocatalytic activity under ultraviolet light irradiation. So doping suitable amount of Si in TiO2 nanoparticles was profitable for transferring photogenerated electrons and inhibiting the recombination of photogenerated electrons and holes. As a result, the photocatalytic activity of TiO2 nanoparticles was improved.