

Study of Plasmon Near -Field Effects in Hetero Au -TiO₂ Photocatalysts for Visible-Light Hydrogen Generation

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TiO₂ Photocatalyst is widely used in water reduction because it has proper conduction & valance band positions, and excellent photodecomposition resistance. However, TiO₂ can only absorb UV range of light, so many researchers have proposed variety methods to absorb long-range of sunlight. One of the powerful ways is combination of Au -TiO₂ due to visible-light absorption and large electron reservoir. Here, we suggest hetero Au -TiO₂ structures which have (i) visible to near -infrared absorption ranges and (ii) strong localization of plasmon near -fields. In this work, we test hydrogen generation depends on size and shape of gold nanoparticles.