

Abstract template:

Title

Iron doped TiO₂ probed by methanol adsorption and sum frequency generation

Reference

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Authors

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Abstract

Sum frequency generation (SFG) vibrational spectroscopy along with the molecular probe, methanol, has been used to investigate the surface chemistry of TiO₂. Methanol on TiO₂ has two adsorption modes: a molecular physisorption mode and a dissociative chemisorption mode. Doping TiO₂ with iron leads to quenching of the dissociative adsorption. Electron paramagnetic resonance (EPR) spectra of iron-doped TiO₂ particles (particle size > 100 nm) compared to the same particles leached with water show that at least some of the iron is located on the surface. Particles are also characterized with UV-visible spectroscopy.