

Abstract template:

Title

Molecular Species on Nano-Particle Anatase TiO₂ Film Detected by Sum Frequency Generation: Trace Hydrocarbons and Hydroxyl Groups

Reference

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Authors

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Abstract

Visible-infrared sum frequency generation (SFG) has been applied to probe molecular species on the surface of nanoparticulate anatase TiO₂ films. A trace hydrocarbon film on the surface, not detected by Fourier transform infrared spectroscopy (FTIR), is easily sensed with SFG. The first direct observation of hydroxyl groups (-OH) on the TiO₂ film surface by SFG is reported. A broad vibrational band with multiple peaks in the region of 3500-3800 cm⁻¹ ascribed to OH groups reflects the surface heterogeneity of the material.