第308回触媒化学研究センターコロキウム

共催　電気化学会北海道支部

Detection of Reactive Oxygen Species (OH, HO_2, H_2O_2) in the Vicinity of Photocatalytic Surfaces Using Laser Based Spectroscopy

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（創成科学研究棟4階セミナー室A）

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TiO_2 photocatalysis has been established as an efficient method that can generate various reactive oxygen species (ROS) under ambient condition. TiO_2 photoactivates H_2O and O_2 to generate ROS like OH, HO_2, O_2^-, H_2O_2, and $^1O_2$, all of which are successfully demonstrated to be produced. The oxidative power of the photogenerated ROS provides the basis on which TiO_2 photocatalysis can be applied to the oxidation of various contaminants present in water and air. It is believed that the ROS are formed on the surface of the catalyst, and that the photocatalytic degradation occurs when these adsorbed ROS species react with adsorbed organic compounds. However, several authors have found indirect evidence of the diffusion of ROS into the gas phase.　My research group is specialized in the detection of radical species in the gas phase using spectroscopic methods with the goal of studying gas phase chemistry related to atmospheric or combustion processes. We have applied our tools to the detection of radicals in the vicinity of photocatalytic surfaces. I will present the results obtained by two different techniques:
- Laser Induces Fluorescence (LIF) for the direct detection of OH radicals and the indirect detection of H_2O_2 molecules and
- continuous wave Cavity Ring Down Spectroscopy　(cw-CRDS) for the direct, absolute detection of H_2O_2 molecules and HO_2 radicals.

問合せ先：　触媒化学研究センター・大谷文章（ohtani@cat.hokudai.ac.jp/011-706-9132）

308th Catalysis Research Center (CRC) Colloquium

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