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[\[PDF \(822K\)\]](#) [\[References\]](#)**Analysis of Photocatalytic Reactions Using a TiO₂ Immobilized Microreactor**[Kazuyo ODA](#)¹⁾, [Yuri ISHIZAKA](#)¹⁾, [Toshimitsu SATO](#)¹⁾, [Takeshi EITOKU](#)¹⁾ and [Kenji KATAYAMA](#)¹⁾*1) Department of Applied Chemistry, Faculty of Science and Technology, Chuo University***(Received July 6, 2010)****(Accepted July 23, 2010)**

We have developed an analysis system for photocatalytic reactions, which utilizes a TiO₂ immobilized micro-capillary and a detection technique for dye concentration at arbitrary positions. In this study, we investigated the reaction processes for the photocatalytic decomposition of rhodamine 6G. This system allows the distinction of direct and secondary photocatalytic reactions under the same experimental conditions. The direct reaction occurs between adsorbed species and photoexcited electrons or holes, while the secondary reaction is induced by radicals, such as ·OH, O₂⁺, generated in water or ethanol. The entire reaction was studied by monitoring the dye concentration in the UV irradiated area, while only the secondary reaction was monitored outside the UV irradiated area.

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