SUB-DOPPLER HIGH RESOLUTION EXCITATION SPECTROSCOPY OF DIBENZO-P-DIOXIN

MASAAKI BABA, *Graduate School of Science, Kyoto University, Kyoto 606-8501, Japan*; ATSUSHI DOI, YOSHIO TATAMITANI, SHUNJI KASAHARA, and HAJIME KATO, *Molecular Photoscience Research Center, Kobe University, Kobe 657-8501, Japan*.

Sub-Doppler high-resolution fluorescence excitation spectra of the $S_1 \leftarrow S_0$ transition of dibenzo-*p*-dioxin (DD) have been observed in a collimated molecular beam.[a] The rotational constants in both the S_0 and S_1 states were determined by analysis of the observed rotational contours. The DD molecule has shown to be planar in the S_0 state and folded slightly out-of-plane (butterfly form) in the S_1 state. The observed line widths were about 0.01 cm^{-1}, which were much larger than the instrumental resolution (0.001 cm^{-1}). The lifetime of the S_1 state was evaluated to be about 500 ps.

[a] M. Baba, A. Doi, Y. Tatamitani, S. Kasahara, and H. Katô, *J. Phys. Chem. A,* **108**, 1388 (2004)