Sub-Doppler high-resolution fluorescence excitation spectra of the $S_1 \rightarrow S_0$ transition of dibenzo-$p$-dioxin (DD) have been observed in a collimated molecular beam. 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.

\cite{Baba2004}